



## Partnerships for Coral Reef Finance and Insurance in Asia and the Pacific

### Part I: Project Information

**GEF ID**

10431

**Project Type**

MSP

**Type of Trust Fund**

MTF

**CBIT/NGI**

CBIT No

NGI No

**Project Title**

Partnerships for Coral Reef Finance and Insurance in Asia and the Pacific

**Countries**

Regional, Fiji, Indonesia, Philippines, Solomon Islands

**Agency(ies)**

ADB

**Other Executing Partner(s)**

Ministry of Maritime Affairs and Fisheries / Ministry of Environment and Forests (Indonesia); Ministry of Environment, Climate Change and Disaster Management (Solomon Islands); Palawan Council for Sustainable Development (Philippines)

**Executing Partner Type**

Government

**GEF Focal Area**

Climate Change

**Taxonomy**

Climate Change Adaptation, Climate Change, Focal Areas, Least Developed Countries, Climate finance, Disaster risk management, Climate resilience, Small Island Developing States, Community-based adaptation, Private sector, Climate information, Biodiversity, Protected Areas and Landscapes, Coastal and Marine Protected Areas, Financial and Accounting, Conservation Finance, Payment for Ecosystem Services, Natural Capital Assessment and Accounting, Conservation Trust Funds, Biomes, Coral Reefs, Influencing models, Deploy innovative financial instruments, Stakeholders, Type of Engagement, Partnership, Participation, Consultation, Information Dissemination, Local Communities, Civil Society, Non-Governmental Organization, Community Based Organization, Academia, Communications, Awareness Raising, Behavior change, Private Sector, SMEs, Large corporations, Gender Equality, Gender results areas, Capacity Development, Participation and leadership, Access and control over natural resources, Gender Mainstreaming, Beneficiaries

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 2

**Submission Date**

7/12/2021

**Expected Implementation Start**

1/31/2022

**Expected Completion Date**

12/31/2026

**Duration**

48In Months

**Agency Fee(\$)**

121,461.00

**A. FOCAL/NON-FOCAL AREA ELEMENTS**

<b>Objectives/Programs</b>	<b>Focal Area Outcomes</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
CCA-1		LDCF	441,400.00	351,712.00
CCA-1		SCCF-A	585,997.00	3,229,548.00
CCA-3		SCCF-A	251,142.00	1,670,452.00
<b>Total Project Cost(\$)</b>			<b>1,278,539.00</b>	<b>5,251,712.00</b>

## **B. Project description summary**

### **Project Objective**

To enable large-scale finance to increase the climate resilience of coastal businesses, communities and livelihoods in selected countries of Asia and the Pacific, through an innovative coral reef financing and insurance model

<b>Project Component</b>	<b>Financing Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>GEF Project Financing(\$)</b>	<b>Confirmed Co-Financing(\$)</b>
--------------------------	-----------------------	--------------------------	-------------------------	-------------------	----------------------------------	-----------------------------------

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Coral reef risk reduction and financial model for Indonesia	Technical Assistance	1. Sustainable financing mechanism established and reef insurance product structured at one site in Indonesia, providing resources to repair/restore the reef that provides protective services to the site	<p>1.1 Business case for coral reef financing and insurance prepared for one high-opportunity site in Indonesia</p> <p>1.2 Guide on post-disaster risk management and response capacity prepared for one site (focus on reef repair)</p> <p>1.3 Reef financial mechanism and institutional arrangements established</p> <p>1.4 Insurance and other risk management financial instruments designed</p>	SCCF -A	464,360.00	100,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Extension of model to Philippines	Technical Assistance	2.1 Enabling conditions for coral reef financing and insurance in Philippines supported	<p>2.1.1 Management plan for key marine and coastal tourism sites developed and implemented in four priority clusters in Coron and El Nido, including: a) ecosystem rehabilitation in priority clusters (e.g. mangrove and seagrass), b) local communities trained in alternative livelihoods to reduce pressures on ecosystems, and c) monitoring program established for water quality and climate change impacts <b>(ADB loan)</b></p> <p>2.1.2 Loss and damage assessments conducted for project area <b>(GEF funding)</b></p> <p>2.1.3 Ecosystem values determined for 2 tourism zones <b>(GEF funding)</b></p> <p>2.1.4 Guide</p>	SCCF -A	200,416.00	4,250,000.00

<b>Project Component</b>	<b>Financing Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>GEF Project Financing(\$)</b>	<b>Confirmed Co-Financing(\$)</b>
Extension of model to Solomon Islands	Technical Assistance	2.2 Enabling conditions for coral reef financing and insurance in Solomon Islands supported	<p>2.2.1 Ecosystems valuation study for ACMP conducted (with outreach to other coral reef areas in Isabel province)</p> <p>2.2.2 Financial mechanisms for nature-based solutions to climate change analysed through Arnavon Community Marine Park (ACMP) case study</p> <p>2.2.3 Onshore Coastal Resilience Management Fund for the Arnavon Community Managed Park (ACMP) developed</p> <p>2.2.4 Nature-based coral reef management and coastal resilience sub-projects implemented</p>	LDC F	351,678.00	101,712.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Knowledge, learning and monitoring	Technical Assistance	3. Improved awareness by national & local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods	<p>3.1 Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated</p> <p>3.2 Improved awareness and understanding of coral reef finance and insurance</p> <p>3.3 Project monitoring and evaluation conducted</p>	SCCF -A	78,202.00	300,000.00
Knowledge, learning and monitoring	Technical Assistance	3. Improved awareness by national & local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods	<p>3.1 Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated</p> <p>3.2 Improved awareness and understanding of coral reef finance and insurance</p> <p>3.3 Project monitoring and evaluation conducted</p>	LDC F	67,652.00	

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
				<b>Sub Total (\$)</b>	<b>1,162,308.00</b>	<b>4,751,712.00</b>
<b>Project Management Cost (PMC)</b>						
	LDCF		22,070.00		250,000.00	
	SCCF-A		94,161.00		250,000.00	
	<b>Sub Total(\$)</b>		<b>116,231.00</b>		<b>500,000.00</b>	
	<b>Total Project Cost(\$)</b>		<b>1,278,539.00</b>		<b>5,251,712.00</b>	

**C. Sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
GEF Agency	Asian Development Bank	Loans	Investment mobilized	5,000,000.00
GEF Agency	Asian Development Bank	Other	Investment mobilized	101,712.00
GEF Agency	Asian Development Bank	Other	Investment mobilized	50,000.00
Civil Society Organization	The Nature Conservancy (TNC)	Grant	Investment mobilized	100,000.00
<b>Total Co-Financing(\$)</b>				<b>5,251,712.00</b>

**Describe how any "Investment Mobilized" was identified**

Investments are identified through regular consultations between ADB and its Developing Member Countries (DMCs). These culminate in periodic Country Partnership Strategies and are supported by Country Operational Business Plans (COBPs), which are essentially pipelines of planned investment projects, both lending and non-lending.

**D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds**

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>
ADB	SCCF-A	Regional	Climate Change	NA	837,139	79,528
ADB	LDC F	Regional	Climate Change	NA	441,400	41,933
<b>Total Grant Resources(\$)</b>					<b>1,278,539.00</b>	<b>121,461.00</b>

**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

---

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

**F. Project Preparation Grant (PPG)**

PPG Required **false**

PPG Amount (\$)

PPG Agency Fee (\$)

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
<b>Total Project Costs(\$)</b>					<b>0.00</b>	<b>0.00</b>

## Meta Information - LDCF

---

LDCF true

SCCF-B (Window B) on technology transfer false

SCCF-A (Window-A) on climate Change adaptation false

---

Is this project LDCF SCCF challenge program?

true

---

This Project involves at least one small island developing State(SIDS). true

---

This Project involves at least one fragile and conflict affected state. false

---

This Project will provide direct adaptation benefits to the private sector. true

---

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). false

---

This Project has an urban focus. false

---

This Project covers the following sector(s)[the total should be 100%]:\*

Agriculture	<b>10.00%</b>
Natural resources management	<b>0.00%</b>
Climate information Services	<b>0.00%</b>
Costal zone management	<b>40.00%</b>
Water resources Management	<b>0.00%</b>
Disaster risk Management	<b>40.00%</b>
Other infrastructure	<b>10.00%</b>
Health	<b>0.00%</b>
Other (Please specify:)	<b>0.00%</b>
Total	<b>100%</b>

---

This Project targets the following Climate change Exacerbated/introduced challenges:\*

Sea level rise true

Change in mean temperature false

Increased Climatic Variability true

Natural hazards true

Land degradation false

Costal and/or Coral reef degradation true

GroundWater quality/quantity false

---

[To calculate the core indicators, please refer to Results Guidance](#)

## **Core Indicators - LDCF**

<b>CORE INDICATOR 1</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>% for Women</b>
Total number of direct beneficiaries	10,000	5,000	5,000	50.00%

<b>CORE INDICATOR 2</b>	
Area of land managed for climate resilience (ha)	15,200.00

<b>CORE INDICATOR 3</b>	
Total no. of policies/plans that will mainstream climate resilience	2

<b>CORE INDICATOR 4</b>		<b>Male</b>	<b>Female</b>	<b>% for Women</b>
Total number of people trained	75	30	45	60.00%

## **OUTPUT 1.1.1**

### **Physical and natural assets made more resilient to climate variability and change**

---

		<b>Male</b>	<b>Female</b>
Total number of direct beneficiaries from more resilient physical assets	<b>10,000</b>	<b>5,000</b>	<b>5,000</b>

Ha of agriculture land	Ha of urban landscape	Ha of rural landscape	No. of residential houses
		<b>15,200.00</b>	<b>0</b>
No. of public buildings	No. of irrigation or water structures	No. of fishery or aquaculture ponds	No. of ports or landing sites
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Km of road	Km of riverban	Km of coast	Km of storm water drainage
		<b>0.00</b>	
Other	Other(unit)	Comments	
<b>0</b>			

## OUTPUT 1.1.2

### Livelihoods and sources of income of vulnerable populations diversified and strengthened

---

	Male	Female
Total number of direct beneficiaries with diversified and strengthened livelihoods and sources of income	<b>0</b>	<b>0</b>

**Livelihoods and sources of incomes strengthened / introduced**

Agriculture <b>false</b>	Agro-Processing <b>false</b>	Pastoralism/diary <b>false</b>	Enhanced access to markets <b>false</b>
Fisheries /aquaculture <b>false</b>	Tourism /ecotourism <b>false</b>	Cottage industry <b>false</b>	Reduced supply chain <b>false</b>
Beekeeping <b>false</b>	Enhanced opportunity to employment <b>false</b>	Other <b>false</b>	Comments

**OUTPUT 1.1.3**

**New/improved climate information systems deployed to reduce vulnerability to climatic hazards/variability**

		Male	Female
Total number of direct beneficiaries from the new/improved climatic information systems	<b>0</b>	<b>0</b>	<b>0</b>

**Climate hazards addressed**

Flood <b>false</b>	Storm <b>true</b>	Heatwave <b>false</b>	Drought <b>false</b>
-----------------------	----------------------	--------------------------	-------------------------

Other <b>false</b>	Comments
-----------------------	----------

**Climate information system developed/strengthened**

Downscaled Climate model <b>false</b>	Weather/Hydromet station <b>true</b>	Early warning system <b>false</b>	Other <b>false</b>
--	---	--------------------------------------	-----------------------

Comments

**Climate related information collected**

Temperature <b>false</b>	Rainfall <b>true</b>	Crop pest or disease <b>false</b>	Human disease vectors <b>false</b>
-----------------------------	-------------------------	--------------------------------------	---------------------------------------

Other <b>false</b>	Comments
-----------------------	----------

**Mode of climate information dissemination**

Mobile phone apps <b>false</b>	Community radio <b>false</b>	Extension services <b>false</b>	Televisions <b>false</b>
-----------------------------------	---------------------------------	------------------------------------	-----------------------------

Leaflets <b>false</b>	Other <b>false</b>	Comments
--------------------------	-----------------------	----------

**OUTPUT 1.1.4**

# Vulnerable natural ecosystems strengthened in response to climate change impacts

---

## Types of natural ecosystem

Desert <b>false</b>	Coastal <b>true</b>	Mountainous <b>false</b>	Grassland <b>false</b>
Forest <b>false</b>	Inland water <b>false</b>	Other <b>false</b>	Comments

## OUTPUT 1.2.1

### Incubators and accelerators introduced

---

Total no. of entrepreneurs supported	<b>0</b>	Male <b>0</b>	Female <b>0</b>
No. of incubators and accelerators supported	<b>0</b>	Comments	
No. of adaptation technologies supported	<b>0</b>	Comments	

## OUTPUT 1.2.2

### Financial instruments or models to enhance climate resilience developed

---

#### Financial instruments or models

PPP models <b>true</b>	Cooperatives <b>false</b>	Microfinance <b>false</b>	Risk insurance <b>true</b>
Equity <b>false</b>	Loan <b>false</b>	Other <b>true</b>	Comments <b>risk transfer mechanisms</b>

## OUTPUT 2.1.1

### Cross-sectoral policies and plans incorporate adaptation considerations

---

Will mainstream climate resilience <b>0</b>	Of which no. of regional policies/plans <b>1</b>	Of which no. of national policies/plan <b>1</b>	
<b>Sectors</b> Agriculture <b>false</b>	Fishery <b>false</b>	Industry <b>false</b>	Urban <b>false</b>

Rural  
**false**

Health  
**false**

Water  
**false**

Other  
**true**

Comments

**coastal**

## **OUTPUT 2.1.2**

**Cross sectoral institutional  
partnerships established or expanded**

---

No. of institutional  
partnerships  
established or  
strengthened

**0**

Comments

## **OUTPUT 2.1.3**

**Systems and frameworks established  
for continuous monitoring, reporting  
and review of adaptation**

---

No. of systems and  
frameworks

**0**

Comments

## **OUTPUT 2.1.4**

### **Systems and frameworks established for continuous monitoring, reporting and review of adaptation**

---

No. of systems and frameworks      **0**

Comments

## **OUTPUT 2.2.1**

### **No. of institutions with increased ability to access and/or manage climate finance**

---

No. of institution(s)      **1**

Comments

## **OUTPUT 2.2.2**

## **Institutional coordination mechanism created or strengthened to access and/or manage climate finance**

---

No. of mechanism(s) 1

Comments

### **OUTPUT 2.2.3**

## **Global/regional/national initiatives demonstrated and tested early concepts with high adaptation potential**

---

No. of initiatives or  
technologies 0

Comments

### **OUTPUT 2.2.4**

## **Public investment mobilized**

---

Amount of investment (US\$) 0

Comments

## **OUTPUT 2.2.5**

### **Private investment mobilized**

---

Amount of investment (US\$) 0

Comments

## **OUTPUT 2.3.1**

### **No. of people trained regarding climate change impacts and appropriate adaptation responses**

---

Total no. of people trained	<b>75</b>	Male <b>30</b>	Female <b>45</b>
Of which total no. of people at line ministries	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. of community/association	<b>75</b>	Male <b>30</b>	Female <b>45</b>
Of which total no. of extension service officers	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. of hydromet and disaster risk management agency staff	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. of small private business owners	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. school children, university students or teachers	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Other	Comments		

## **OUTPUT 2.3.2**

### **No. of people made aware of climate change impacts and appropriate adaptation responses**

---

		Male	Female
No. of people with raised awareness	0	0	0

Please describe how their awareness was raised

### **OUTPUT 3.1.1**

**National climate policies and plans enabled including NAP processes by stronger climate information decision-support services**

---

No. of national climate policies and plans

Comments

### **OUTPUT 3.1.2**

**Systems and frameworks established for continuous monitoring, reporting and review of adaptation**

---

No. of systems and  
frameworks

Comments

### **OUTPUT 3.1.3**

## **Vulnerability assessments conducted**

---

No. of assessments  
conducted

Comments

### **OUTPUT 3.2.1**

## **No. of institutions with increased ability to access and/or manage climate finance**

---

No. of institution(s)

Comments

## **OUTPUT 3.2.2**

**Institutional coordination  
mechanism(s) created or strengthened  
to access and/or manage climate  
finance**

---

No. of mechanism(s)

Comments

## **OUTPUT 3.2.3**

**Global/regional/national initiative(s)  
demonstrated and tested early  
concepts with high adaptation potential**

---

No. of initiative(s) or  
technology(ies)

Comments

## **OUTPUT 3.3.1**

# No. of people trained regarding climate change impacts and appropriate adaptation responses

---

Total no. of people trained	0	Male 0	Female 0
Of which total no. of people at line ministries	0	Male	Female
Of which total no. of community/association	0	Male	Female
Of which total no. of extension service officers	0	Male	Female
Of which total no. of hydromet and disaster risk management agency staff	0	Male	Female
Of which total no. of small private business owners	0	Male	Female
		Male	Female

Of which total no. school children, university students or teachers **0**

Other

Comments

## OUTPUT 3.3.2

### No. of people made aware of climate change impacts and appropriate adaptation responses

---

	Male	Female
No. of people with raised awareness		

Please describe how their awareness was raised

## Meta Information - SCCF

---

LDCF false

SCCF-B (Window B) on technology transfer false

SCCF-A (Window-A) on climate Change adaptation true

---

Is this project LDCF SCCF challenge program?

true

---

This Project involves at least one small island developing State(SIDS). true

---

This Project involves at least one fragile and conflict affected state. false

---

This Project will provide direct adaptation benefits to the private sector. true

---

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). false

---

This Project has an urban focus. false

---

This Project covers the following sector(s)[the total should be 100%]:\*

Agriculture	<b>10.00%</b>
Natural resources management	<b>0.00%</b>
Climate information Services	<b>0.00%</b>
Costal zone management	<b>40.00%</b>
Water resources Management	<b>0.00%</b>
Disaster risk Management	<b>40.00%</b>
Other infrastructure	<b>10.00%</b>
Health	<b>0.00%</b>
Other (Please specify:)	<b>0.00%</b>
Total	<b>100%</b>

---

This Project targets the following Climate change Exacerbated/introduced challenges:\*

Sea level rise true

Change in mean temperature false

Increased Climatic Variability true

Natural hazards true

Land degradation false

Costal and/or Coral reef degradation true

GroundWater quality/quantity false

---

To calculate the core indicators, please refer to Results Guidance

## Core Indicators - SCCF

<b>CORE INDICATOR 1</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>% for Women</b>
Total number of direct beneficiaries	820,962	481,290	339,672	41.37%

<b>CORE INDICATOR 2</b>	
Area of land managed for climate resilience (ha)	1,007,986.00

<b>CORE INDICATOR 3</b>	
Total no. of policies/plans that will mainstream climate resilience	9

<b>CORE INDICATOR 4</b>		<b>Male</b>	<b>Female</b>	<b>% for Women</b>
Total number of people trained	1,114	560	554	49.73%

### OUTPUT 1.1.1

## Physical and natural assets made more resilient to climate variability and change

---

		Male	Female
Total number of direct beneficiaries from more resilient physical assets	<b>820,962</b>	<b>481,290</b>	<b>339,672</b>
Ha of agriculture land	Ha of urban landscape	Ha of rural landscape	No. of residential houses
		<b>1,007,986.00</b>	<b>0</b>
No. of public buildings	No. of irrigation or water structures	No. of fishery or aquaculture ponds	No. of ports or landing sites
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Km of road	Km of riverbank	Km of coast	Km of storm water drainage
Other	Other(unit)	Comments	
<b>0</b>			

## **OUTPUT 1.1.2**

### **Livelihoods and sources of income of vulnerable populations diversified and strengthened**

---

		Male	Female
Total number of direct beneficiaries with diversified and strengthened livelihoods and sources of income	0	0	0
<b>Livelihoods and sources of incomes strengthened / introduced</b>			
Agriculture	Agro-Processing	Pastoralism/diary	Enhanced access to markets
false	false	false	false
Fisheries /aquaculture	Tourism /ecotourism	Cottage industry	Reduced supply chain
true	true	false	false
Beekeeping	Enhanced opportunity to employment	Other	Comments
false	false	false	

### **OUTPUT 1.1.3**

## **New/improved climate information systems deployed to reduce vulnerability to climatic hazards/variability**

---

		Male	Female
Total number of direct beneficiaries from the new/improved climatic information systems	<b>0</b>	<b>0</b>	<b>0</b>
<b>Climate hazards addressed</b>			
Flood <b>true</b>	Storm <b>true</b>	Heatwave <b>false</b>	Drought <b>false</b>
Other <b>false</b>	Comments		
<b>Climate information system developed/strengthened</b>			
Downscaled Climate model <b>false</b>	Weather/Hydromet station <b>false</b>	Early warning system <b>false</b>	Other <b>false</b>
Comments			
<b>Climate related information collected</b>			
Temperature <b>false</b>	Rainfall <b>false</b>	Crop pest or disease <b>false</b>	Human disease vectors <b>false</b>
Other <b>false</b>	Comments		
<b>Mode of climate information dissemination</b>			
Mobile phone apps	Community radio	Extension services	Televisions

<b>false</b>	<b>false</b>	<b>false</b>	<b>false</b>
Leaflets	Other	Comments	
<b>false</b>	<b>false</b>		

## OUTPUT 1.1.4

# Vulnerable natural ecosystems strengthened in response to climate change impacts

---

Types of natural ecosystem

Desert <b>false</b>	Coastal <b>true</b>	Mountainous <b>false</b>	Grassland <b>false</b>
Forest <b>false</b>	Inland water <b>false</b>	Other <b>false</b>	Comments

## OUTPUT 1.2.1

# Incubators and accelerators introduced

---

Total no. of entrepreneurs supported	<b>0</b>	Male <b>0</b>	Female <b>0</b>
No. of incubators and accelerators supported	<b>0</b>	Comments	

No. of adaptation technologies supported **0**

Comments

## **OUTPUT 1.2.2**

### **Financial instruments or models to enhance climate resiliency developed**

---

#### **Financial instruments or models**

PPP models <b>true</b>	Cooperatives <b>false</b>	Microfinance <b>false</b>	Risk insurance <b>true</b>
Equity <b>false</b>	Loan <b>false</b>	Other <b>true</b>	Comments mechanisms

## **OUTPUT 2.1.1**

### **Cross-sectoral policies and plans incorporate adaptation considerations**

---

Will mainstream climate resilience <b>0</b>	Of which no. of regional policies/plans <b>0</b>	Of which no. of national policies/plan <b>0</b>
--	---	--

**Sectors**

Agriculture  
**false**

Fishery  
**false**

Industry  
**false**

Urban  
**false**

Rural  
**false**

Health  
**false**

Water  
**false**

Other  
**true**

Comments

**Tourism**

**OUTPUT 2.1.2**

**Cross sectoral institutional  
partnerships established or expanded**

---

No. of institutional  
partnerships  
established or  
strengthened

**3**

Comments

**OUTPUT 2.1.3**

**Systems and frameworks established  
for continuous monitoring, reporting  
and review of adaptation**

---

No. of systems and frameworks 3

Comments

## **OUTPUT 2.1.4**

### **Systems and frameworks established for continuous monitoring, reporting and review of adaptation**

---

No. of systems and frameworks 3

Comments

## **OUTPUT 2.2.1**

### **No. of institutions with increased ability to access and/or manage climate finance**

---

No. of institution(s) 3

Comments

## **OUTPUT 2.2.2**

**Institutional coordination mechanism  
created or strengthened to access  
and/or manage climate finance**

---

No. of mechanism(s) 3

Comments

## **OUTPUT 2.2.3**

**Global/regional/national initiatives  
demonstrated and tested early  
concepts with high adaptation potential**

---

No. of initiatives or  
technologies 0

Comments

## **OUTPUT 2.2.4**

**Public investment mobilized**

---

Amount of investment (US\$) 0

Comments

## **OUTPUT 2.2.5**

### **Private investment mobilized**

---

Amount of investment (US\$) 0

Comments

## **OUTPUT 2.3.1**

### **No. of people trained regarding climate change impacts and appropriate adaptation responses**

---

Total no. of people trained	<b>1,114</b>	Male <b>560</b>	Female <b>554</b>
Of which total no. of people at line ministries	<b>400</b>	Male <b>200</b>	Female <b>200</b>
Of which total no. of community/association	<b>714</b>	Male <b>360</b>	Female <b>354</b>
Of which total no. of extension service officers	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. of hydromet and disaster risk management agency staff	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. of small private business owners	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Of which total no. school children, university students or teachers	<b>0</b>	Male <b>0</b>	Female <b>0</b>
Other	Comments		

## **OUTPUT 2.3.2**

### **No. of people made aware of climate change impacts and appropriate adaptation responses**

---

		Male	Female
No. of people with raised awareness	0	0	0

Please describe how their awareness was raised

### **OUTPUT 3.1.1**

**National climate policies and plans enabled including NAP processes by stronger climate information decision-support services**

---

No. of national climate policies and plans

Comments

### **OUTPUT 3.1.2**

**Systems and frameworks established for continuous monitoring, reporting and review of adaptation**

---

No. of systems and  
frameworks

Comments

### **OUTPUT 3.1.3**

## **Vulnerability assessments conducted**

---

No. of assessments  
conducted

Comments

### **OUTPUT 3.2.1**

## **No. of institutions with increased ability to access and/or manage climate finance**

---

No. of institution(s)

Comments

## **OUTPUT 3.2.2**

**Institutional coordination mechanism(s) created or strengthened to access and/or manage climate finance**

---

No. of mechanism(s)

Comments

## **OUTPUT 3.2.3**

**Global/regional/national initiative(s) demonstrated and tested early concepts with high adaptation potential**

---

No. of initiative(s) or technology(ies)

Comments

## OUTPUT 3.3.1

# No. of people trained regarding climate change impacts and appropriate adaptation responses

---

Total no. of people trained	0	Male	Female
		0	0
Of which total no. of people at line ministries	0	Male	Female
Of which total no. of community/association	0	Male	Female
Of which total no. of extension service officers	0	Male	Female
Of which total no. of hydromet and disaster risk management agency staff	0	Male	Female
Of which total no. of small private business owners	0	Male	Female
		Male	Female

Of which total no. school children, university students or teachers **0**

Other

Comments

## **OUTPUT 3.3.2**

### **No. of people made aware of climate change impacts and appropriate adaptation responses**

---

	Male	Female
No. of people with raised awareness		
Please describe how their awareness was raised		

## Part II. Project Justification

### 1a. Project Description

**NOTE TO REVIEWERS:** The original project had intended to include Fiji, funded by non-GEF sources. For a variety of reasons, including the Covid-19 pandemic, fund mobilization has been slow. ADB did support a baseline assessment and country report for Fiji, and research, stakeholder consultations and resource mobilization continue. This CER presented below sprinkles in some insights from Fiji, and also annexes the country baseline report. It is hoped that once the pandemic urgency has passed, Fiji can take steps to join this partnership. In addition to the importance of coral reef ecosystems to the Fiji economy, the country plays a strategic role in scaling up across the Pacific region. **Fund raising efforts for Fiji, including coordination with WWF and its partners is ongoing.**

Human well-being depends on the wide range of important services provided by natural ecosystems. Healthy coral reef ecosystems provide food (5-10 tons fish/km<sup>2</sup>/year), generate income (global \$29.8 billion/year) and protection (buffer 97% wave energy). This bundle of ecosystems services from coral reefs has an estimated value of \$ 2.1 million/ha/year, including provision of raw materials, maintaining genetic diversity, protection from natural hazards, as well as recreation /economic opportunities and aesthetic enjoyment through sustainable tourism.

This GEF project covers the most diverse Coral Triangle in southeast Asia with Indonesia, Philippines and Solomon Islands, including Fiji ? which encompass 27% of the world's coral reefs. These ecosystems, however, have been subject to various threats, including unsustainable practices that have contributed to deterioration in the health conditions reducing their value, causing significant loss and damage to the coastal population and economy. These pressures are now being exacerbated by the impact of global climate change that has also led to sea level rise, changes in storm patterns, increased storm surges and coastal flooding/erosion and altered ocean circulation patterns, further affecting the already degraded coral reefs. The occurrences of highly anomalous sea temperature of 1-2? C from the mean annual temperature have triggered coral bleaching and coral disease outbreaks in various parts of the world. High intensity tropical cyclones may increase in frequency with larger storm surges and heavy rainfall. Sea level rise makes small island nations and shallow bays susceptible to coastal flooding, erosion, storm surges and being lost due to submersion.

**Indonesia** coral reefs are extensive, covering 16% of the world's coral reefs (39,538 km<sup>2</sup>) second to Australia, with 60% in fair to good conditions. Around 60% of the population live along the coast in 82,190 villages dependent on nearshore fisheries. Capture fisheries and aquaculture contribute significantly to the economy, with trade and employment valued at \$21 billion, while reef-associated tourism expenditures have been over \$3 billion per annum (pre-pandemic).

The coral reefs face severe damage due to hazards from anthropogenic, geological and natural causes. Destructive dynamite and cyanide fishing are widespread, threatening nearly 80% of Indonesia's reefs. In the last 20 years, the loss and damage to coral reefs from earthquakes and tsunamis, although occurring less frequently, are still high. In August 2018 the Lombok earthquake was the largest and strongest, creating tsunamis with widespread damage including Bali, breaking coral reefs and high concentrations of sediment reducing light penetration, obstructing coral recruitment and inducing coral diseases.

Although, tropical cyclones occur in the southern Indonesian equatorial region, ten (10) have been detected from 2008-2021 at 76% in Indian Ocean and 24% in Timor-Arafura Sea. The northern Indonesian equatorial region has not recorded direct significant tropical cyclones, but these trigger strong winds, higher tides and intense rainfall leading to flooding and coastal erosion. As recently as 03 April 2021, Cyclone Seroja hit the province of East Nusa Tenggara and triggered landslides, flash

floods, damaged coral reefs and disrupted fishing and seaweed cultivation livelihoods for coastal communities.

The sea surface temperature (SST) increase since 1940 has been higher than global and tropical regions that reached  $0.78 \pm 0.18$  °C (versus average  $0.2-0.23$  °C/decade). The widely varying geomorphological conditions of the archipelago resulted in rising SST different across reefs, lowest in southern Java/ west Sumatra and highest on the northern coast of Papua. Almost all coral reefs in Indonesian waters experience coral bleaching, except in East Nusa Tenggara and Papua.

While the Indonesian Government supports a range of programs to protect and manage coral reef ecosystems, coastal businesses and local governments have been slower to respond and engage in reef restoration and conservation. Moreover, in terms of barriers, these constituents are not familiar with nature-based risk transfer through financial mechanisms, have limited technical expertise, capacity and resources to repair and maintain coral reefs, hence weak immediate post-storm clean up actions. Efforts need to be more strategic and sustainable. Currently, there is no data on the cyclone impacts on coral reefs, on benefits and economic value of coastal resilience and on vulnerable local populations particularly impact on women, although studies are being conducted now as a result of Cyclone Seroja.

**Philippines** coral reefs are the second largest in Southeast Asia, third globally translating to 4.3% cover (26,000 km<sup>2</sup>) holding unique biodiversity with high endemism. Even in degraded condition and estimated lost of 30% (2019), it still contributes at least \$1.35 billion annually to the country's economy where 60% of population are in coastal areas. The marine ecosystem services contribute to the Blue Economy in the Philippines that recognized tourism as a priority sector to Philippine growth.

Philippines has a thriving blue economy that is threatened by over-tourism and over-fishing in its major tourism clusters, pollution of the coastal and marine environment, and climate change-associated stressors. There is great pressure brought by the devastating impact of climate change affecting already degraded coral reefs. Anomalously warm waters have driven mass bleaching over decades (1985-2019). Climate change has resulted to stronger storms that have caused destruction of coral reefs, coastal flooding and erosion. Sea Level Rise is projected to increase, amplified by storm surges as typhoons intensity increases putting shallow bays highly vulnerable to high surges. Extreme rainfall events have been observed causing floods, erosion and landslide increasing sediments and pollutants to the coasts.

The intertwined elements of rapid tourism and rapid urbanization are aggravated by pollution, inadequate urban services infrastructures and siltation arising from insufficient watershed management and inappropriate roads conditions. Some tourism sites are exhibiting signs of 'runaway' tourism exceeding environmental carrying capacities during peak periods. All these threats, anthropogenic or natural events lower the resiliency to stress events and make these coastal assets more fragile. These impacts, either within and beyond the control of government authorities, will eventually redound to the loss of these natural ecosystems, that will increase the vulnerability of the coastal assets to disasters, degrade the attractiveness and reduce the value of the tourism-driven blue economy in the Philippines.

**[Fiji activities have been delayed due the pandemic, although the intention is to include in future]**

**Fiji** coral reefs extend over this archipelagic state of 332 islands (10,000 km<sup>2</sup>) providing protection and food security to 884,887 people. Tourism is important to Fiji's economy covering 40% GDP valued at \$574 million/year and provides 12.3% of Fiji's total jobs. As Fiji's largest income earner, the economic benefits of intact ecosystems to the tourism sector is critical.

Fiji has significantly diverse coral reefs under threat from resource extraction to overfishing, pollution, coastal and land development impacts, agricultural runoff to natural event of influx of crown-of-thorns starfish and man-made beached ships. Likewise, its infrastructure, economy, coastal communities and coral reefs are under threat from the effects of climate change, particularly ocean warming,

acidification, coral bleaching and increasing intensity and frequency of tropical cyclones from 1970-2017. Fiji showed significant damage to a Category 5 (2016 Cyclone Winston) at a cost \$1.45 billion, destroyed 40,000 homes and extensive coral breakage even down to 20-30 metres. The rising Sea Surface Temperatures (SSTs) increases the damage to Fiji's coastal habitats with slow onset coral bleaching as early as 2000 to 2017.

There is insufficient current scientific assessment on the effects of cyclones on Fiji's reef conditions and vulnerability as well as the reef's value on provisioning, food security, biosecurity and coastal protection. The baseline assessments, however, focused on coral reef biodiversity. Although, there is increased appreciation, understanding and interest, stakeholders' perception of coral reefs, its role, value in economy and protection is still a concern. Fiji's indigenous population Itaukei (customary communities) have legal and customary rights (qoliqoli) within their registered traditional fishing grounds (iqoliqoli).

Coral reef financing and insurance in the Fiji context is considered highly innovative and timely, but, some barriers to advancing this include further definitions on the finance mechanism, governance structure, affordability in view of the effect of the Covid-19 pandemic on its economy, methods of placement of insurance (eg offshore) and role of key institutions including the Reserve Bank of Fiji (RBF).

The **Solomon Islands** has some of the highest coral reef and fish diversity recorded in the world. The country's coral reefs cover an estimated 6,743 km<sup>2</sup>., representing about 3% of the world's coral reefs. The Solomon Islands is made up of over approximately 900 islands and has a population of 600,000. Most of the population lives within 30 km of a coral reef, and most are scattered across 5000 rural coastal communities with customary ownership of their land and coastal resources. These resources are managed under customary marine tenure systems (CMTs) based on traditional law and local ecological knowledge. Coral reefs are owned by a particular tribe/ clan living a subsistence-based lifestyle that is intrinsically linked to the health of coastal ecosystems.

Solomon Islands is challenged with emerging threats from human induced activities, extractive industries and impacts of natural disasters and climate change. Coastal ecosystems are in decline due to unsustainable and poorly regulated development, coastal tourism, overfishing and no proper community waste management. Unsustainable logging and mining have intensified and cause increased sedimentation to reefs and mangroves. Solomon Islands have rapid sea-level rises over three times the global rate (8-10 mm/yr) resulting in dramatic shoreline erosion/recession, flooding, groundwater salinization and loss of several low-lying reef islands, in some cases driving community relocations. Coral reefs face disturbances from tsunamis, earthquakes, tropical cyclones and storm surges that are increasing in severity and frequency. By 2040, ocean acidification will begin to impact areas around Solomon Islands with the continued decline of aragonite and other carbonate saturation.

People have experienced more than 100 disasters since 1980. Degradation of coastal habitats reduces livelihood opportunities and escalates vulnerability of women, children and elderly to significant food, nutrition, and livelihood risks. This led to support and government focus on protected area networks and community-based natural resource management (CBNRM), but with few financing mechanisms in place for CBNRM. There is no national coral reef system data associated with socio-economic values, no rigorous monitoring system in place, no restoration and post-cyclone clean-up and repair. The Solomon Islands was part of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) *that ended in 2013 as it failed to pay for the devastating destruction and loss of lives in the 2013 Temotu tsunami and 2014 Honiara flash floods.*

Irrespective of this, the country is keen to learn from the experience in order to improve any proposed coral reef financing and insurance concept. The main barriers to date include, lack of policy coherence, no relevant legislative framework or appropriate institutional arrangement, very little government and private sector collaboration (if any) and limited understanding of nature-based risk transfer and expertise for a parametric insurance scheme.

Please refer to the individual country baseline reports for more detailed information.

### Baseline scenario and any associated baseline projects

The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) covers the three project countries, Indonesia, Philippines and Solomon Islands. ADB and GEF are among the key members of the CTI-CFF Development Partners (DPs) group, having contributed significant resources towards ecosystems development and management in this area, along with other notable DPs, including The Nature Conservancy (TNC). This project will build on two Regional Technical Assistance (RETAs) funded by GEF and implemented by ADB on strengthening coastal and marine resources management in the Coral Triangle of the Southeast Asia (Indonesia, Philippines and Malaysia) and the Pacific ? which included Fiji and Vanuatu, in addition to Papua New Guinea and Solomon Islands.

In **Indonesia**, the GEF project will align with Ministry of Marine Affairs and Fisheries (MMAF) ongoing investments to achieve and maintain 20 million hectares of MPAs. For 2019-2021, the MMAF has committed \$16.42 million to help meet the national targets of effective marine protected area (MPA) management. ADB, with GEF co-financing is supporting the restructured ?Coral Reef Rehabilitation and Management Program - Coral Triangle Initiative? Project (GEF ID 5171 COREMAP-CTI of \$5 million) which promotes sustainable management of coral reef ecosystems in Indonesia through enhanced capacity to manage coral reef ecosystems in three (3) Marine Protected Areas (MPAs) in Lesser Sunda Seascape covering 30,000 hectares. Among other things, this project will support investments in community-based ecosystem rehabilitation and monitoring, to restore functions of coastal ecosystems (as below).

**Table 1: Ecosystems Areas by MPA (in hectares)**

Ecosystem Type / Area by MPA	Nusa Penida MPA	Gili Matra MPA	Gili Balu MPA
<b>Coral</b>	1,419.00	696.00	1,924.81
<b>Mangrove</b>	230.00	1.81	24.02
<b>Seagrass</b>	108.00	205.13	140.96
<b>Total</b>	1,757.00	902.94	2,089.79

Furthermore, ADB is in discussions with the government on blended finance initiative that would deploy innovative financial tools that aligns with Indonesian SDG One Platform with the new ADB Action Plan for Healthy Oceans and Sustainable Blue Economies.

UNDP is working with the Coordinating Ministry on Marine Affairs and Investment (CMMAI) to develop a Blue Financial Instrument Framework (BFIF) that will feature investment catalysing activities to address marine resources issues in line with principles of blue financing. In a similar vein, UNDP aims to leverage the Global Fund for Coral Reefs to support work on risk transfer mechanisms in Indonesia.

In **Philippines**, the GEF project is aligned with ADB's proposed "Sustainable Tourism Development Project" which will focus on two municipalities in the province of Palawan. The project loan to the Tourism Infrastructure and Enterprise Zone Authority (TIEZA) will be \$102.6 million. It aims to support two municipalities, El Nido and Coron, with the outcome objective of sustainable, inclusive, competitive and resilient tourism in participating destinations. There will be three main project outputs: i) improved infrastructure, particularly waste water and water supply, ii) strengthened ecosystems services at 8 defined "tourism zones" within the two municipalities, including development of sustainable financing mechanism(s), and iii) improved productivity of tourism workers and micro, small and medium enterprises (MSMEs), in such areas as accommodation, food services, dive operations, and tour operations using the enterprise-led learning network skills development funding model. Part of this loan (i.e., Outcome 2) will serve as co-finance for the GEF project (see Alternative Scenario).

UNDP Philippines is also active in efforts to promote risk transfer mechanisms in the Eastern Seaboard areas of the country. Based on consultations with UNDP, the areas covered include municipalities in Surigao del Norte (i.e., Siargao) and Camarines Sur provinces. These areas are frequently hit by high intensity typhoons

USAID is also active in Palawan. The "Protect Wildlife" project (now closed) improved the conservation of more than 200,000 hectares of a landscape important for biodiversity and water supply through a payment for ecosystem services program for services valued at \$5.5 billion annually, revenue that is now reinvested in conservation and restoration directly benefiting 33 communities. The more recent "Fish Right" project (\$25 million) will improve marine biodiversity and fisheries in three ecological areas, including the Calamianes group of islands in Palawan. Among other things, it will support establishment of environmental fee systems, as well as "Coron Watch", a community-based system to promote ecosystem-based management and monitor MPAs and fishery law compliance.

There are a number of NGOs active in Palawan. The El Nido Foundation supports reef restoration and education, community managed marine and mangrove areas, sustainable livelihood development, etc. The Samdhana Institute, which consists of a consortium of NGO supporters, provides small grants to help indigenous communities in Coron secure ancestral domain rights.

In **Fiji**, the project "once funding is confirmed - will build on the completed ADB Technical Assistance (TA) on "Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific." Fiji has seen a growth in the last 20-30 years of NGOs strong work on marine conservation and sustainable management of fisheries, recently tended towards collaboration with government ministries and supporting the Fiji government's leadership. These are typically grassroots level projects funded via philanthropic donations with the Fiji government's commitments and leadership (e.g., MacArthur, David & Lucile Packard Foundations). Fiji has established the locally managed marine areas (FLMMA), a mixed network of organizations and over 400 traditional indigenous iTaukei communities working together to promote and encourage the preservation, protection and sustainable use of marine resources. In addition, many resorts have worked to preserve and protect the marine environment with local communities (e.g., 115 members).

Fiji has a number of other initiatives which will also be relevant to this project, including: i) the "Drua Incubator", which has a mandate to develop innovative financial tools and products in Fiji, ii) a new ADB technical assistance project which will promote nature-based and integrated solutions for improved coastal resilience in Fiji, iii) a WWF/GEF-7 project in Fiji on "Financial Tools for Small Scale Fishers in Melanesia", iv) a proposed WWF/GEF-7 "Coral Reef Rescue: Resilient Coral Reefs,

Resilient Communities? project which includes Fiji, and v) a proposed project by Conservation International / GEF-7 on ?Safeguarding Marine and Terrestrial Biodiversity in Fiji?.

The private sector has relevant projects on coral reef conservation independently or ad hoc with NGOs and government, willing to do more but no access to financial options to scale up their efforts. It has a plethora of projects and government policies that are relevant to marine conservation and/or coral reef insurance (e.g., Finance for Pacific Ocean Governance). Fiji?s first National Oceans Policy is the most significant framework on integrated oceans management as its international commitment. Regionally, Fiji is member of many regional bodies on offshore/ coastal fisheries for a blue economy (e.g., Melanesian Spearhead Group). Fiji?s international commitment to create a national network of 30% of Marine Protected Areas (MPAs) across all its ocean space is strongly supported by implementing partners in government, international organizations and donors (eg WWF, IUCN, WCS).

In **Solomon Islands**, the GEF project builds on ADB TA on ?Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific.? It also links to other initiatives supported by CTI-CFF Development Partners, particularly The Nature Conservancy (TNC), which assisted in establishing the Arnavon Community Marine Park (ACMP) protecting 152 km<sup>2</sup> extensive fringing/ patch reefs, mangroves, lagoons and shallow water benthic habitat.

Several other donors and partners are supporting efforts on coastal and marine management and coastal resilience in Solomon Islands, including the Pacific - European Union Marine Partnership Programme (PEUMP) and the EU-GIZ Adapting to Climate Change and Sustainable Energy (ACSE). There is a suite of projects implemented by different entities: Pacific Islands Forum Fisheries Agency, the Secretariat of the Pacific Community, the Secretariat of the Pacific Environment Program and the University of the South Pacific, the Marine and Coastal Biodiversity Management in the Pacific Islands countries (MACBIO), One Ocean Hub (UK Government), the Climate and Oceans Support Program in the Pacific (COSPPac) (Australian Government) and the Pacific Islands Regional Oceanscape Program (PROP) (World Bank / GEF).

At the **regional level**, the GEF project will be aligned with a new ADB technical assistance project on ?Building Coastal Resilience through Nature Based and Integrated Solutions?. The TA is aligned with the following impacts: resilience of coastal communities, cities, infrastructure and enhanced ecosystems. The TA will have the following outcome, coastal resilience programs, plans, and actions improved in selected ADB Developing Member Countries (DMCs). It will contribute to identification and preparation of interventions to boost coastal resilience, helping accelerate investments and prioritizing activities that achieve multiple resilience benefits.

For a more detailed listing of associated project for all countries, please refer to the individual country baseline reports.

### **Co-financing**

The co-financing scenario has changed since PIF preparation. The project is fortunate to benefit from a new ADB loan in the Philippines, and as such high priority sites for GEF-related activities in the Philippines are now better defined. In Indonesia, co-financing support from TNC has enabled a robust assessment of 7 candidate sites. An ADB technical assistance project on financing climate change in the Pacific has been helpful in focusing efforts in the Arnavons Community Marine Park ACMP). Anticipated co-financing from the Asia-Pacific Climate Finance Facility (ACliFF) and ADB?s Private Sector Development Initiative (PSDI) are still being considered, although confirmation of funding has not been neatly synchronized with the GEF CER preparation. A concept proposal has been submitted to the ACliFF Fund Manager, and if approved, will provide considerable extra support for the initiative across all 3 GEF-supported countries as well as Fiji. Similarly the PSDI team is in consultation with Executing Partners in Solomon Islands and Fiji to define the nature of support ? which will align with the ADB PSDI tourism workplan ? to support ?build back blue? efforts.

During project preparation, the team was able to assess the 'state of knowledge' in all the project countries with respect to nature-based insurance. Furthermore, the team has over PPG period, participated in many meetings, seminars and webinars to continue to socialize this new concept. This has contributed to the design modifications that emerge in the current CER.

**Indonesia.** For a number of reasons, including the Covid-19 pandemic, efforts to secure direct co-financing for activities in Indonesia have been delayed. Project preparation activities have benefitted from \$100,000 provided by TNC (USA)(already paid and reflected in Table C); and, an additional \$ 50,000 from ADB will go towards putting together a knowledge product described under Output 3.1.

Parallel efforts are underway to mobilize additional resources for Indonesia, in particular from the ADB Asia Climate Finance Facility (ACliFF). If secured, these funds will contribute to expanded scope of the project in Indonesia. Consultations are also ongoing and planned with a number of private foundations, including Bloomberg Philanthropies and the David and Lucille Packard Foundation.

**Philippines.** The GEF project activities will be aligned with parallel co-financing from an ADB loan to the Tourism Infrastructure and Enterprise Zone Authority (TIEZA) in the Philippines of \$102 million. The 'Sustainable Tourism Development Project' will provide funding for infrastructure in two key municipalities in the province of Palawan ' El Nido and Coron (see above). Part of this loan (around USD 5 million) will support outputs related to strengthening management of coastal ecosystems in these areas. Project preparation has also benefitted from ADB support for the country baseline report in these municipalities.

Parallel efforts are underway to mobilize additional resources for the Philippines, in particular from the ADB Asia Climate Finance Facility (ACliFF) and the ADB-managed Private Sector Development Initiative (PSDI) technical assistance project. If secured, these funds will contribute to expanded scope of the project in the project areas. Consultations are also ongoing and planned with a number of private foundations, including Bloomberg Philanthropies.

**Solomon Islands.** Similarly, for a number of reasons, including the Covid-19 pandemic, efforts to secure direct co-financing for activities in Solomon Islands have been delayed. Preparation of the country baseline report was supported by ADB co-financing through two technical assistance projects on climate change in the Pacific.

Parallel efforts are underway to mobilize additional resources for Solomon Islands, in particular from the ADB Private Sector Development Initiative (PSDI). If secured, these funds will contribute to expanded scope of the project in the project area.

**Fiji.** Significantly due to the Covid-19 pandemic and for a number of other reasons, efforts to secure direct financing for activities in Fiji have been delayed. Preparation of the country baseline report was supported by ADB co-financing through two technical assistance projects on climate change in the Pacific.

Any proposed work in Fiji will be aligned closely to the 'Building Coastal Resilience through Nature Based and Integrated Solutions' regional technical assistance (TA) project (see above). It will advance the understanding of coastal resilience solutions know-how?including the use of nature-based approaches and the role and value of coastal ecosystems, including their economic dimension and maintenance?through the preparation of knowledge products and the preparation and delivery of specific trainings and capacity building events (aligned with Outcome 3). The TA will encourage regional cooperation on coastal and marine ecosystems as regional public goods. Specifically for Fiji, the TA will include USD 750,000 for pilot sub-project to build coastal resilience.

Efforts are underway to mobilize additional core resources for Fiji, in particular from the ADB Private Sector Development Initiative (PSDI) and the ACliFF. If secured, these funds will contribute to an

expanded scope for the project in Fiji. Consultations are also ongoing and planned with a number of private foundations, including Bloomberg Philanthropies and the ORRAA.

### Summary of changes between PIF and CER

Section	PIF	CER	Comments
Countries	Indonesia, Philippines, Solomon Islands and Fiji (non-GEF)	Indonesia, Philippines and Solomon Islands	Removed from the Portal entry. But retained in the PIF given that funds are being mobilized separately, and considerable assessment work has been undertaken in parallel with the 3 GEF-supported countries
Project title	?Public Private Partnerships for Coral Reef Insurance in Asia and the Pacific?	?Partnerships for Coral Reef Finance and Insurance in Asia and the Pacific?	Minor modification to reflect the importance of putting in place a financing mechanism
Project Executing Entities	Ministry of Environment and Forests (MOEF) and Ministry of Marine Affairs and Fisheries (MMAF) (Indonesia);  Ministry of Climate Change and Disaster Management (MCCDM) (Solomon Islands)  Department of Environment and Natural Resources (DENR) (Philippines)	MOEF and MMAF (co-executing) ? Indonesia  Ministry of Environment, Climate Change and Disaster Management (MECCDM) Solomon Islands  Palawan Council for Sustainable Development (PCSD) ? based on decision by the Biodiversity Management Bureau in DENR	Indonesia ? ministries will co-execute depending on final site selection  Solomon Islands ? minor typographic omission corrected  Philippines ? based on consultations with, and decision by Biodiversity Management Bureau in DENR. Consultations ongoing with PCSD as the three sites are within their jurisdiction. Prior to CER, sites were not identified. Letter is annexed in Roadmap.
Outcome 1	Sustainable financing mechanism established and reef insurance product structured at one Indonesian site	Sustainable financing mechanism established and reef insurance product structured at one site in Indonesia, providing resources to repair/restore the reef that provides protective services to the site	This essentially remains the same, except with more detail and precision in the CER, given the detailed analysis of 7 candidate sites

Output 1.2	Enhanced policy, legal and regulatory environment for reef insurance	Guide on post-disaster risk management and response capacity prepared for one site (focus on reef repair)	This is due to re-numbering
Output 1.3	Financial mechanism established	Reef financial mechanism and institutional arrangements established	Essentially the same, but with more details based on the analysis conducted during project preparation
Output 1.4	Insurance product for the reef structured	Insurance and other risk management financial instruments designed	While the main objective is to establish a coral reef insurance product for one site,
Output 1.5	Increased risk management and post-storm response capacity (as enabling conditions permit	Removed	
Outcome 2	Regional and site level assessments and post-storm response capacity enhanced for 3 additional participating countries	Now Outcome 2.1  Enabling conditions for coral reef financing and insurance in Philippines supported	Formatting change
Output 2.1	Regional assessment of damage to reef correlation for typhoons and tsunamis <sup>[1]</sup>	Management plan for key marine and coastal tourism sites developed and implemented in four priority clusters in Coron and El Nido ( <b>ADB loan funding</b> )	Due to onboarding of ADB loan as co-financing
Output 2.2	At least three site level assessments and data profiles prepared (one in each country)	Loss and damage assessments conducted for project area	Greater definition during PPG of activities at the candidate sites

---

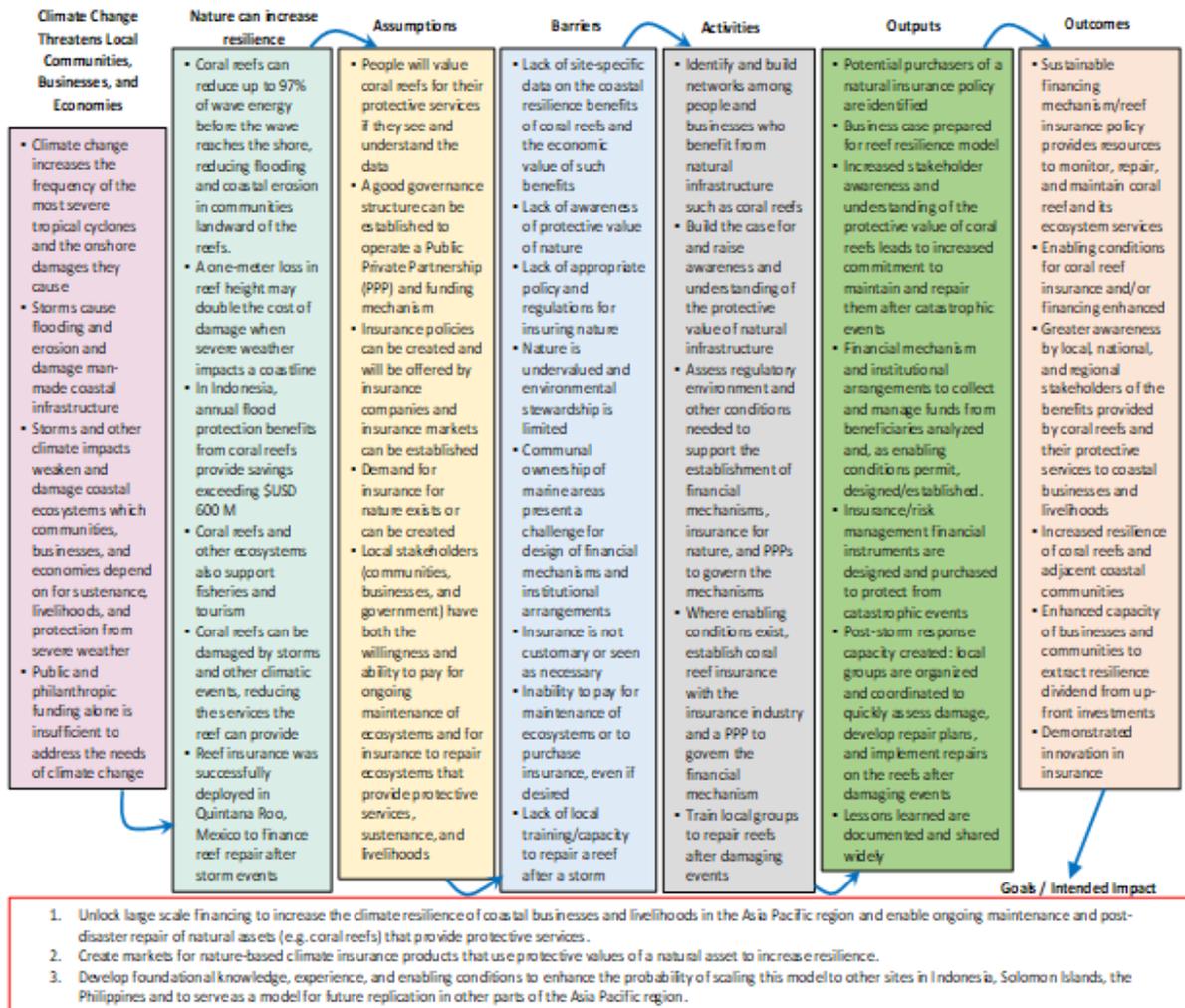
Output 2.3	Reef protection value assessed for one site in Philippines	Ecosystem values determined for 2 tourism zones	Greater definition during PPF, of activities at the candidate sites
Output 2.4	Increased risk management and post-storm response capacity at one site in each of 3 countries (as enabling conditions permit)	Guide on post-disaster risk management and response capacity to climate-induced reef ecosystem damage prepared	Greater definition during PPF, of activities at the candidate sites, tailored to available budget resources
Output 2.5	N/A	Sustainable financing mechanisms explored and designed, including legal / regulatory assessment ( <b>ADB + GEF funding</b> )	Greater definition of activities at candidate sites, and now inclusion of the ADB loan element, which was not under consideration during PIF preparation.
Outcome 2.2	N/A	Enabling conditions for coral reef financing and insurance in Solomon Islands supported	New. More country focussed outcome
	2.1 Regional assessment of damage to reef correlation for typhoons and tsunami	2.2.1 Ecosystems valuation study for ACMP conducted (with outreach to other coral reef areas in Isabel province)	Re-structuring of Outputs was undertaken. Country and site level assessments were undertaken during PPG.
	2.2 At least three site level assessments and data profiles prepared (one in each country)	2.2.2 Financial mechanisms for nature-based solutions to climate change analysed through Arnavon Community Marine Park (ACMP) case study	Re-structuring of Outputs was undertaken. Country and site level assessments were undertaken during PPG
		2.2.3 Onshore Coastal Resilience Management Fund for the Arnavon Community Managed Park (ACMP) developed	Newly proposed output as result of stakeholder consultations and Government support

	2.3 Increased risk management and post-storm response capacity at one site in each of 3 countries (as enabling conditions permit)	2.2.4 Nature-based coral reef management and coastal resilience sub-projects implemented	Newly proposed output as result of stakeholder consultations and Government support.  Captured under Output 2.2.4 as well as activities under Output 3.1 and 3.2
Outcome 3	Improved awareness by national & local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods _	Improved awareness by national & local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods _	
Output 3.1	Toolkit that provides guidance for developing a business case to assess and demonstrate the need for natural capital-based insurance	Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated	Re-phrasing
Output 3.2	Audience-segmented knowledge & communications materials developed and disseminated	Improved awareness and understanding of coral reef finance and insurance	Re-phrasing and adjustment to available budget resources
Output 3.3	Monitoring and evaluation conducted	Project monitoring and evaluation conducted	Re-phrasing, precision.

[1] It is recognized that tsunami risk is more associated with earthquake than climate change. As such the GEF funds will not be used for this purpose ? however this risk may be included in the overall insurance protection.

**Posed alternative scenario with a brief description of expected outcomes and components of the project**

*Theory of Change*



Presented above is an aspirational 'theory of change', which will help guide the project into a more systematic, catalytic and programmed approach in the future. A landscape sized version is presented in the Roadmap section.

The costs of damages caused by climate change are growing, which necessitates innovative large-scale financing to support climate resilience in coastal communities. Tropical cyclones and other weather-related risks, fueled by climate change, cause coastal flooding and erosion that damage man-made coastal infrastructure and weaken the coral reef ecosystems that communities rely on for sustenance, livelihoods, and protection from severe weather. Research and on-the-ground projects demonstrate that coral reefs can, if properly managed, be better protected from these damages. Financial mechanisms including insurance can be used to address the associated costs and unlock finance for their repair and maintenance.

Several conditions are necessary to unlock financing and create markets for nature-based climate insurance: stakeholders need to understand the business case for the protective value of coral reefs and be willing and able to both purchase coral reef insurance and maintain the reefs; the regulatory

environment must support the establishment of financial mechanisms and transparent governance structures; people must be trained to repair coral reefs damaged by severe weather; and the insurance industry must be willing to sell coral reef insurance policies. Conducting the assessments, outreach, and engagements necessary for each of these requirements would result in: a well-documented business case to increase understanding about the protective values of coral reefs; identification of potential reef insurance purchasers and providers; establishment of a financial mechanism and institutional arrangements to purchase insurance and manage payouts; the design and sale of an insurance product; and development of post-storm response capacity.

The project, and lessons learned through its implementation, will provide the foundational knowledge, experience, and enabling conditions to scale this model to other sites throughout the Asia Pacific region. Overtime, it is expected that insurance policies for nature will be replicated throughout the region, thereby increasing the climate resilience of both the communities who rely on coral reefs and of the coral reefs themselves.

It should be noted that the GEF funds focus on climate-induced events and disasters, and options for parametric insurance as a solution. However a solution could also be on an indemnity or on a hybrid basis depending on the risks an assets / community beyond coral reefs to be covered. The suggestion has been to maintain flexibility should additional funding sources materialize, and the scope for the parametric insurance expands.

#### ***On climate projections to 2050***

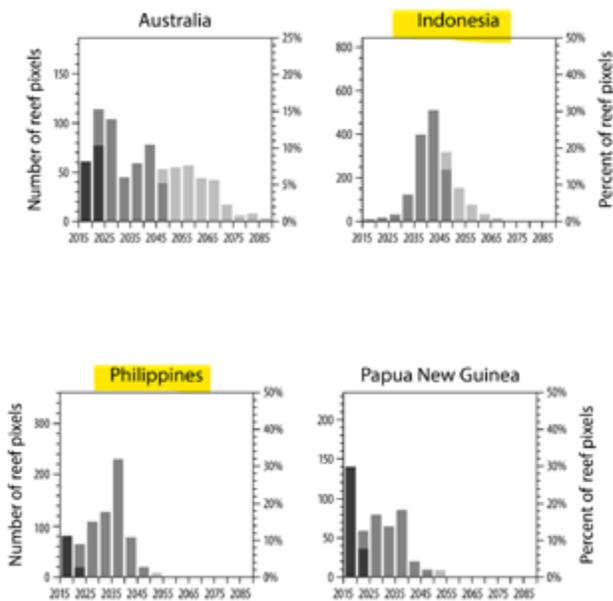
The impacts of climate change on coral reefs will depend greatly on the international community's response to reducing GHG emissions. Mass coral bleaching and mortality have occurred in all major reef regions, but reef recovery also has occurred where conditions are favourable (i.e. good water quality, adequate larvae are available to re-seed adjacent reefs). Some corals have shown adaptive capacity based on genetic ability to tolerate heat. Other corals are thriving based on oceanographic conditions that result in cooler waters.

A recent analysis (UNEP 2020) projected the timing of severe bleaching conditions using the new generation of climate models (CIMP6) for two different mitigation scenarios: worst-case: SSP5-8.5 and middle-of-the-road scenario that assumes some emissions reduction; SSP2-4.5. Under the fossil fuel aggressive scenario, SSP5-8.5, annual severe bleaching (ASB) is projected to occur within this century for 100% of the world's reefs and the average projected year of ASB is 2034. By contrast, under the SSP2-4.5 is projected to occur 11 years later, in 2045. Projected coral bleaching conditions ? exposure to annual severe bleaching conditions ? vary greatly among, and within countries under SSP5-8.5. Coral reefs with relatively early and late exposure to annual bleaching conditions occur in all of the ocean basins; however, some exposure to annual bleaching conditions occur in all of the ocean basins; however, some countries have more temporary refugia than others,

Indonesia is one of 6 countries with the greatest reef areas that has a higher level of temporary refugia (ie. ASB after 2044). Indonesia has a projected range in ASB timing of 65 years, meaning that under the high climate change scenario, it is expected to take 65 years before all of its reefs are experiencing annual bleaching. The Philippines is expected to experience ASB relatively early (by 2030). Despite these projections, global climate models are too coarse to pick up local scale of oceanographic patterns that can reduce thermal stress (e.g. internal waves, eddies and upwellings). Further, they do not consider the capacity of coral reefs to adapt or acclimatize to warmer conditions. Data demonstrate that corals show local and regional variation and species-specific responses to thermal stress; and their response is variable over space and time (Sully et al, 2019).[1] While global models show minimal coral reef survival over the next century, field works show considerable geographic variability in both temperature stress and coral survival. This means that coral reefs in some areas will survive climate impacts. These reef refuges have been identified as critical conservation priorities to protect. Where they have been degraded or destroyed, they are important priorities for reef restorations.



**Figure 2.** Projections of the timing of the onset of annual severe bleaching (ASB) conditions under SSP5-8.5. These exemplify the local-scale (10's of km) variation seen in projected ASB timing in many locations.



**Figure 3.** Histograms showing the distribution in projected timing of annual severe bleaching conditions under SSP5-8.5 for the 10 countries and territories with the greatest reef area (see Table A2.2 for average years, standard deviation and range). Shading of bars: dark grey indicates relative 'climate losers', projected ASB before 2025, medium grey indicates global average of  $2034 \pm 10$  years (2025-2043), and light grey indicates the relative refugia 'climate winners' (projected ASB after 2044).

**Table 1.** Countries or territories with the earliest and latest **average** projected timing of ASB conditions within each region (based on the Regional Seas, also including countries and territories that do not participate in conventions or action plans and that fall outside the area covered by the Regional Seas; see Table A2.1 for classification), as well as the **greatest reef area** projected to experience ASB before 2030 and after 2044 (temporary refugia).

Region (Average ASB date)	Earliest projected timing of ASB		Latest projected timing of ASB	
	Average ASB date	Greatest reef area projected to experience ASB before 2030 (km <sup>2</sup> )	Average ASB date	Greatest reef area projected to experience ASB after 2044 (km <sup>2</sup> )
Wider Caribbean (2030)	Nicaragua (2015)	Cuba (1051, 39%)	The Bahamas (2039)	The Bahamas (573, 26%)
Red Sea and Gulf of Aden (2026)	Israel (2018)	Saudi Arabia (2986, 87%)	Somalia (2045)	Yemen (301, 46%)
ROPME Sea Area (2053)	Oman (2044)	Iran (8, 7%)	Kuwait (2062)	United Arab Emirates (102, 79%)
Western Indian Ocean (2040)	Réunion Island (France) (2026)	Madagascar (300, 12%)	Somalia (2050)	Madagascar (726, 30%)
South Asian Seas (2044)	Bangladesh (2041)	India (84, 4%)	Sri Lanka (2051)	India (760, 37%)
East Asian Seas (2041)	Japan (2024)	Philippines (4405, 36%)	Brunei (2055)	Indonesia (7028, 35%)
Pacific Islands (2027)	Niue (2015)	Papua New Guinea (4468, 61%)	French Polynesia (2040)	Australia (7003, 22%)
South-East Pacific (2038)	Panama (2033)	Panama (159, 25%)	Colombia (2043)	Ecuador (40, 32%)
North-East Pacific (2045)	Clipperton Island (2019)	Mexico (309, 33%)	Mexico (2047)	Mexico (504, 54%)

## COMPONENT 1: Coral reef risk reduction and financial model for Indonesia

**Outcome 1:** Sustainable financing mechanism established and reef insurance product structured at one site in Indonesia, providing resources to repair/restore the reef that provides protective services to the site

[Refer to detailed Indonesia Baseline Report Annex]

During project preparation, seven sites in Indonesia were assessed to identify a short list of sites with the most appropriate ecological, oceanographic, socioeconomic and institutional conditions to create post-disaster response capacity. The sites are as follows:

1. Raja Ampat Regency (West Papua Province)
2. Wakatobi Regency (South East Sulawesi)
3. Rote Ndao Regency (East Nusa Tenggara)
4. Berau Regency (East Kalimantan)
5. Klungkung Regency (Bali)
6. Makassar City (South Sulawesi)
7. Pandeglang Regency (Banten)



Figure 1. Candidate sites in Indonesia

These seven sites were selected for assessment based on factors discussed below:

Coral reef distribution, condition and status (MPA)

The coral reef distribution, condition, and status (MPA) within in each site was assessed through remote sensing analysis. The results show that Berau and Raja Ampat possess the largest coral reef area (260 km<sup>2</sup> and 145 km<sup>2</sup>, respectively) (Table 2). The coral reef distribution is shown in Figure 1 (see Annex 3 of baseline report). The analysis found that approximately 80% of coral reefs are in excellent condition, indicated by the percentage of live hard coral above 75%. The analysis shows that Wakatobi is the only site where the entire area of coral reef is fully protected within an MPA.

Table 2. Coral Reef Distribution and Condition (% HCL) in Pre-Selected Sites

Site	Coral Reef Area (km <sup>2</sup> )	Coral Reef area with Hard Coral	Marine Protected Area	Coral Reef Area within
------	------------------------------------	---------------------------------	-----------------------	------------------------

		Live > 75% (km <sup>2</sup> )	Regional (km <sup>2</sup> )	National (km <sup>2</sup> )	MPA (km <sup>2</sup> )
Berau	263.33	164.03	192.07		192.07
Klungkung	3.34	1.15	3.26		3.26
Makassar	71.45	70.4		3.25	3.25
Pandeglang	22.48	21.1	1.27	15.77	17.04
Raja Ampat	145.32	38.15	106.41	15.40	121.81
Rote Ndao	90.91	17.86		69.44	69.44
Wakatobi	99.79	1.9		99.79	99.79
Total	696.63	314.59	303.00	203.66	506.60

### Disaster risk profiles

Disaster events in the past twenty years (2000-2020) for the selected coastal hazards were assessed for each location, including the risk profile and preliminary monetary valuation of the risk scenario (Figure 2) (also see **Annex 3; Table 3, Figure 11** in baseline report). For natural hazards, the most frequent and destructive hazards within the coastal area are floods and strong winds. Floods and strong winds are both caused by hydrometeorological factors, which are highly dependent on changes in the climate. Even though these frequent disaster events (floods and strong winds) mostly impact coastal communities, little is known about their direct impacts on coral reefs.

On the other hand, rare and extreme events such as storms or tropical cyclones also impact coral reefs due to storm surge. In the southern part of Indonesia, tropical cyclone occurrences are likely to affect three of the study areas: Pandeglang, Klungkung and Rote Ndao. With regard to the tropical cyclone track and geographical location of the three sites, which lie in border with Indian Ocean, there is a high probability that, in the future, tropical cyclones will impact heavily both on communities and coral reefs. The recent Tropical Cyclone Seroja in April 2021 in East Nusa Tenggara and affecting Rote Ndao Regency shows initial evidence of impact on the coral reefs.

Other hazard events with lesser frequency are more likely to have greater impacts both on coastal communities and coral reef ecosystems. These events are earthquakes, tsunamis, and volcanic eruption disaster events, such as shown in Pandeglang and Klungkung. Tsunamis also pose a threat to communities and coral reefs in Rote, Berau and Raja Ampat. There are only two locations at direct risk from volcanic eruption: Pandeglang and Klungkung. The last eruption in 2018 in Pandeglang is still known for its impact on the surrounding coral reef. In conclusion, little is known about the impacts of volcanic eruption on reefs in the study locations; the probability of occurrence of volcanic eruptions in this area is only medium.

With regards to slow-onset hazards, this study has found that all regions have cases of bleaching events, with different degrees of severity. The most extensive bleaching reports were observed in Makassar and Klungkung, with the degree of severity reaching 60%[1].

Anthropogenic disaster events are not as frequent as these natural hazard events, but the damage they cause has a clear impact on coral reefs. Raja Ampat, Makassar and Wakatobi have experienced a substantially higher number of marine accidents due to their community characteristic and geography. A high density of marine traffic could lead to more risk to the community and also to the coral reef (from the dangers of pollution, grounding, wreck and tourism). In addition, destructive fishing is the most concerning issue for the coral reef ecosystem as all study areas have historical records of destructive fishing with no sign of stopping, although law enforcement is already applied.

Coasta zone risk parameters	<u>Pandeglang</u>	<u>Klungkung</u>	<u>Makassar</u>	<u>Wakatobi</u>	<u>Berau</u>	<u>Raja Ampat</u>	<u>Rote Ndao</u>
Summary of Natural Hazard Risk parameter	High	High	Medium	Low	Low	Low	Medium
Summary of Anthropogenic Hazard Risk Parameter	Medium	Medium	High	Medium	Low	High	Low
<b>Risk SUMMARY</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>

**Figure 2.** Summary of coastal risk (community and coral reefs) parameters by site

Coral reef valuation (ecosystem services provided by the reef)

The ecosystem services provided by the reef in each site are assessed and valued spatially and economically. The spatial assessment focused on identifying how the coral reef contributed to: 1) fisheries, by acting as habitat, shelter and nursery ground; 2) coral reef-related tourism (e.g. diving); and (3) coastal protection for people and economic activities. Following designated criteria, the assessment applied a scoring mechanism to translate the value of the coral reef for each sector.

The fisheries spatial assessment includes the percentage of live hard coral (HCL) and status of protection (inside or outside MPA). The highest score indicates that the coral reef area in excellent condition (HCL > 75%) is vast and located within MPA. The results show that Berau has the highest score, while Klungkung has the lowest one (**Table 3**).

**Table 3.** Fisheries spatial assessment.

Site	Coral Reef Area (km2)	Total Score
Berau	263.33	509.43
Wakatobi	99.64	104.36
Raja Ampat	145.32	217.37
Rote Ndao	90.91	152.13

Klungkung	3.34	6.66
Makassar	71.45	90.36
Pandeglang	22.48	53.71

The coral reef-based tourism assessment mainly considers the distance of the coral reef to specific tourism spots, including accommodations and tourist attractions (beach, snorkeling sites). If the coral reef is located close to tourism spots and overlapping with both types, the score will be high. The distance is within 0-500 m, 500-1000 m, and 1000-1500 m. In addition, a similar approach is used to score the coral reef relative to diving sites. A coral reef located within 0-100 m of diving sites has a higher score than a reef located within 100-200 m and 200-300 m of a diving site.

**Table 4.** Coral reef-based tourism spatial assessment

Site	Total Score	
	Tourist spots	Diving Sites
Berau	2.01	0.78
Wakatobi	1.36	0.58
Raja Ampat	7.85	0.32
Rote Ndao	4.30	0.13
Klungkung	8.25	0.34
Makassar	0.03	0.07
Pandeglang	3.77	*

\*no data available

Coral reefs provide crucial risk reduction benefits that include exposure reduction, nutrition and the provision of livelihoods. This indicator is calculated as the total population that lives below 10m elevation and within 10 km of a reef. These are the low-lying exposed populations near reefs and that are likely to receive risk reduction benefits from these habitats. The assessment also estimates population living in the coastal areas (within 2 km).

**Table 5.** Population living near reefs

Site	Population living within	
	Distance 10 km & Elevation < 10m *	Distance 2 km
Berau	16,615	7,062
Klungkung	56,499	32,111
Makassar	1,363,893	185,720
Pandeglang	83,247	76,722
Raja Ampat	14,583	12,876
Rote Ndao	29,814	49,879
Wakatobi	60,986	71,664

Economic valuation can be used to show the link between conservation and economic development. The monetary value of benefits provided by a coral reef is very useful as a reference for determining compensation if at any time the coral reef is damaged due to a natural disaster or anthropogenic factors. The economic valuation of a coral reef is based on the estimate of Total Economic Value (TEV). TEV

is the sum of direct and indirect use values. The direct use values include coral reef-based fisheries, aquaculture, reef mining, and tourism, and the indirect use values include coastal protection, carbon sequestration, option value, existence value, and bequest value.

**Table 6.** Total estimated economic value of direct and indirect-use values in seven sites:

Site	Total Economic Value in USD / year
Berau	33,553,860
Wakatobi	15,893,009
Raja Ampat	27,457,044
Rote Ndao	14,829,090
Klungkung	2,928,846
Makassar	28,797,947
Pandeglang	36,858,459

**Output 1.1: Business case for coral reef financing and insurance prepared for one high-opportunity site in Indonesia**

As elaborated above, seven candidate sites were analyzed for feasibility. These were chosen because they have coral reefs in good conditions, impacted by several risks and enabling environment is conducive to implement the project. *During inception, the project stakeholder group, led by the Indonesia Government will identify the appropriate site(s) for more focused work under this component.*

The most critical hazards for reefs in Indonesia are earthquakes, storm surges, and sedimentation caused by intense rains. The project will collect additional data at the selected site on the frequency of events and the severity of the damage caused to coral reefs and estimate the extent of such impacts. The severity and extent of the damages caused by certain risks can differ across sites, as the exposure and the sensitivity of coral reef to a particular hazard can be different.

The project team will measure the potential losses to the economy and livelihoods as a consequence of damage to the reef caused by prioritized hazards. This will be done through consultation with experts, conduct of surveys and research on historical trends and patterns.

Following this, experts will be engaged to define possible responses to repair damages to the reef, estimate the cost of repairing the damages under different scenarios for damage and extent of the response (for how long and which area).

Based on the above information, the project will compare the costs of repairs and financial instruments versus the benefits or avoided losses. To have a business case that justifies a response and repairs to the reefs, the losses to the local communities and economy must be higher than the cost of repairs. In this case, the beneficiaries of the reef who will suffer economic losses if the reefs are damaged would be interested in investing in the repairs to protect their own livelihoods, wealth and culture.

To complete this output, the project will build a financial risk management strategy for the site. Experts will define different layers of risk and propose financial instruments to cover the costs of each layer. Each layer of risk is characterized by a range of expenses needed to repair the damages caused by an event and the probability of such an event happening. Then, experts and stakeholders will decide if they

want to retain the financial risk (cover the expenses with their own funding) or transfer the risk to the market via an insurance policy, based on a cost-benefit analysis of the available financial instruments.

Should sufficient additional co-financing materialize for the project in Indonesia, the team will calculate the value of economic benefits from reefs in providing coastal protection in the region where the site is located.

**Output 1.2: Guide on post-disaster risk management and response capacity enhanced at one site**

To repair the damage to the reef, the first and most important consideration is to have the capacity to implement a response. The response capacity encompasses: a) governance (a leading agency and coordinating committees); b) a response protocol that outlines the activities, roles and responsibilities of the response; c) people well trained to conduct the repairs on the reefs; d) equipment; and e) permits to intervene on the reef.

The project will develop the response protocol for a single hazard identified for the site, as a first step in building the response capacity at the site.

Should sufficient additional co-financing materialize for Indonesia, the project will: set up the governance to lead the response, develop guides to implement the response and training materials, train and organize the response capacity-brigades, secure the equipment needed. The local authorities will be responsible to obtain the permits to implement an immediate response and to monitor and rehabilitate affected coral reefs. With additional co-financing, the project would aim to train 20 community members and staff from local organizations both men and women as responders. These responders will have the opportunity to earn a wage when implementing the response.

**Output 1.3: Reef financial mechanism and institutional arrangements established**

The project aims to build a financial vehicle such as a trust fund, private entity or governmental organization to collect funds from the beneficiaries of the reefs, who would be negatively impacted by damages to reefs as well as interested in conserving and repairing the reefs. This financial vehicle will invest in reef conservation and building the resilience of the reefs, fund the repairs to the reef after an event and transfer the financial risk to the market (buying an insurance), if it is cost-effective.

The project will work with local governments to build partnerships with the private sector and to develop and enact provincial-level regulations to collect compulsory fees and voluntary contributions. Generally, from beneficiaries of the coastal ecosystem, particularly of coral reef-dependent activities such as tourism, fishing, transportation and power companies.

The project will collaborate with central and regional governments in charge of the financial mechanism to develop guidelines on receiving, managing and disbursing the funds to repair affected coral reefs.

A Public Service Agency (Badan Layanan Umum, named BLU or BLUD) will be the best option to manage the funds. A BLU or BLUD is an enterprise arm within the central and regional governments, respectively, to provide services to the public by providing goods and/or services that are sold without prioritizing for profit and carrying out the activities based on the principles of efficiency and productivity. A national-level BLU can be established as a unit within ministries, while a regional-level BLUD is established by regional governments (provincial and district/city level). BLUs and BLUDs have flexibility in managing the funds beyond the government's conventional annual budget mechanism, including flexibility to accept funds from the private sector.

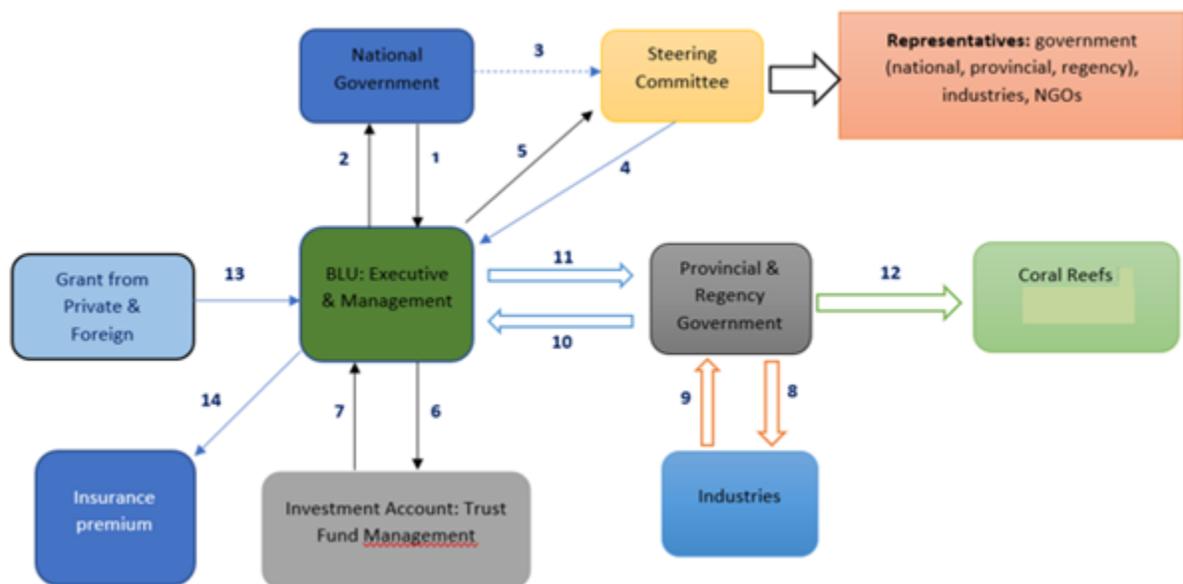
The advantages of having a BLU or BLUD as a financial mechanism to support coral reef repair and ongoing maintenance are namely: 1) acts as a government institution; 2) provides goods and/or services that are sold to communities; 3) consists of government and non-government officials; 4) collects fees from communities in return for goods/services provided; 5) receives funds from a third party, in the form of investment/grant; and 6) not subject to tax.

Using a financial mechanism based on existing laws and regulations for managing coral reefs can serve for the development of coastal areas and islands in general. In particular, it can encourage BLUD/BLUs to expand its role to encompass coral reef management and conservation in Indonesia. A BLU or BLUD has flexibility in implementing business practices, including paying premiums and accepting compensatory fees (which are not allowed in conventional budget mechanisms such as provincial (APBD) or national (APBN) entities), and funding multi-year programs on ecosystem rehabilitation and management.

The project will also encourage and support an existing national-level BLU, such as the Environmental Fund Management Agency (BPDLH) or the Indonesia Climate Change Trust Fund (ICCTF), to add a window for coral reef rehabilitation. At provincial (BLUD) and national (BLU) levels, support will be given in developing guidelines and SOPs for receiving, managing and disbursing the funds and rehabilitating affected coral reefs (refer to **Annex 6** of baseline report).

This model has been proven in Indonesia. BPDLH is a BLU under the Ministry of Finance that collects and manages funds for forestry, energy and mineral resources, industry, transportation, agriculture, marine and fisheries. The funding comes from national and international and public and private funds (BPDLH is already managing \$56 million from Norway because it succeeded in reducing carbon emissions in 2016-2017 by 11.2 million tons of CO<sub>2</sub>eq.)

The proposed structure as shown in **Figure 3** demonstrates the potential role of a BLUD and BLU in providing a financial instrument and financing insurance premium for coral reef rehabilitation in Indonesia.



**Figure 3.** Proposed initial design of a trust fund within the BLU/BLUD scheme for managing and financing (insurance) coral reefs conservation and restoration

There are several scenarios for buying an insurance policy using the Conservation Trust Fund mechanism within a BLU or BLUD, depending on the targets, scope of area, and technical regulations. An insurance mechanism can also be implemented within any existing BLU or government agency, including BPDH.

#### **Output 1.4: Insurance and other risk management financial instruments designed**

The proposed insurance mechanism will be parametric, meaning it is structured to pay an agreed amount (payout) depending on the intensity of the event (trigger) and if it happens within a pre-define area (polygon). The advantages of this scheme are that it pays quickly (10 to 20 days after the event) and that it does not require an assessment of the damages, unlike indemnity insurance. Recovery activities can be carried out immediately after a disaster as compensation is received by the insurance purchaser. It is critical that buyers understand that there is a base risk that is not covered by the insurance for damage caused by events below the agreed trigger or intensity.

To structure an insurance policy, the project will: i) Assess the correlation between the intensity of the hazard and the damages caused to the reefs, known as a damage curve, ii) Use the damage curve to estimate how much effort is required with a given level of hazard intensity - how much the insurance payout should be, and iii) Define the area within which the event can happen and damage the reef, known as the polygon.

The project team will engage with the insurance industry to develop an insurance product for the coral reef and share data on the selected hazard, risks to the reef and estimated cost for coral rehabilitation. Support will be given to the insurance partner/s to seek approval from Otoritas Jasa Keuangan (OJK), Indonesia's authority on Financial Services, to sell a new insurance policy for coral reef protection.

Insurance is not the only instrument that can pay for a response to risks to the reef. The BLU could set up emergency funds to cover events which do not trigger a payout under the insurance policy. The project will assist the BLU to identify and develop other such financial instruments.

### **COMPONENT 2: Extension of model to Philippines, Solomon Islands (*and Fiji subject to financing and Government clearance*)**

#### **Outcome 2.1: Enabling Conditions for Coral Reef Finance and Insurance in Philippines Supported**

[Refer to Baseline Report for Philippines in Annex]

Tubbataha Reefs National Park (TRNP), El Nido and Coron in Palawan are prime tourist destinations in the Philippines. Their marine and coastal resources provide food, livelihood, shoreline protection and a thriving marine tourism industry. These sites envision to be among the world's leading tourist destinations, ecologically balanced and climate resilient. Local governments emphasize the role of coastal and marine ecosystems as the foundation of a blue ocean tourism economy.

Coron is part of the larger Calamianes group of islands in Northern Palawan, being the largest town in the Calamianes. It is a first-class municipality located on Busuanga Island comprised of 23 barangays, seven of which are in the urban center. Almost all tourism activities occur in coastal waters (e.g., recreational diving, snorkeling and island hopping) with an estimated \$165.6 million of revenue contribution to the local government.

El Nido is a coastal municipality located in the northern part of the Province of Palawan, where 16 out of the 18 barangays are found in the coast. The tourism industry, in particular, has contributed \$178.7 million of annual revenue to the town.

The economy of both Coron and El Nido are built on fisheries and ocean tourism which are particularly vulnerable to a changing climate. Climate change has led to sea level rise, changes in storm patterns, increase storm surges and coastal flooding/erosion, further affecting the already degraded coral reefs in Coron and El Nido.

Anomalously warm waters have driven mass bleaching in both Coron and El Nido in a span of more than 3 decades (1985-2019). The annual sea surface temperatures (SST) have been increasing and the trends (annual and warm season) have approached critical coral bleaching thresholds (see **Figure 4**). Coral bleaching have been reported in both El Nido and Coron, which coincided with strong El Nino Southern Oscillation (ENSO) events (1997-98, 2010, 2016-17). The occurrence of coral bleaching has affected the local tourism in both sites. Past studies and current monitoring systems have documented coral bleaching in El Nido's coasts and the monetary repercussions of such events. The 1997-1998 bleaching event for instance have resulted to a 16% decrease in coral cover and an estimated \$30,000 loss of revenues in the diving community.

Climate change has resulted to stronger storms that have caused destruction of coral reefs through waves and storm surges in El Nido and Coron, as well as, coastal flooding and erosion during the passing of a high intensity storm. Although, the frequency of typhoons passing over and near in both Coron and El Nido did not change significantly from 1980-2020, a slight decrease was observed in low-level storms in the last decade (2011-2020). But, major storms that passed directly over Coron are higher than El Nido (see **Figure 5**). A Super Typhoon occurred, passing directly over Coron in 2013, which was absent in the earlier decades. Typhoon Yolanda (International Typhoon Haiyan, Category 5 Storm) was the most destructive typhoon that resulted to the decimation of coral reefs and uprooting of mangroves and destruction of houses and properties. Coron is very vulnerable to typhoons and will likely experience more intense typhoons in the future.

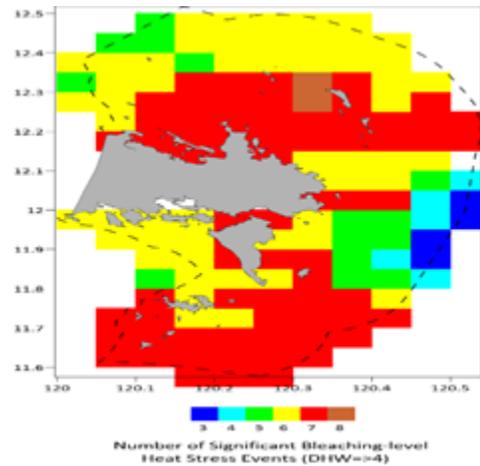
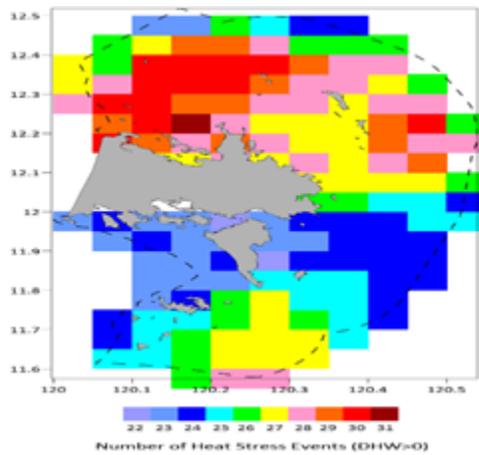
Sea Level Rise is projected to increase in both sites (El Nido 4.5 mm/year and Coron at 4.0 mm/year). It is even projected that the sea level will rise at a faster rate and will be 20 cm higher than recent years in the middle of the century by 2040 in both sites. But, in Coron the sea level rise is expected to cause lesser severe impacts due to the municipality's physical and ecological conditions. The presence of mangrove forests and seagrass beds have made the municipality less vulnerable in comparison to storms and extreme temperature.

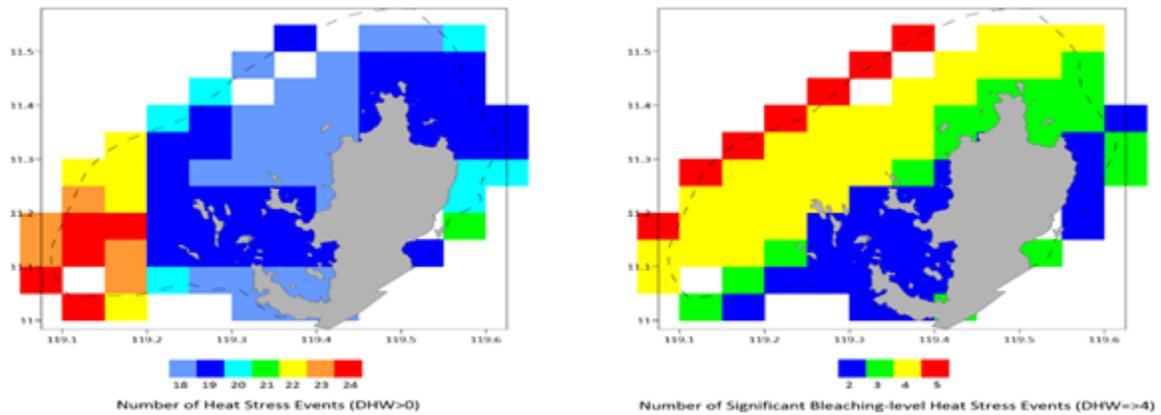
However, the rise in mean sea level amplifies storm surges such that under climate change, higher storm surges are expected as the intensity of typhoons increases. The shallow bays in Palawan are highly vulnerable to occurrences of high surges that contribute to coastal flooding and erosion as well. El Nido could experience storm surge up to 1.5 m if a typhoon passes over the municipality and can reach 1.7 m if an increase of 0.2 m in sea level is included. Corong-Corong is also exposed to storm

surge and this exposure will increase into the future as the sea level rises and typhoon intensity increases.

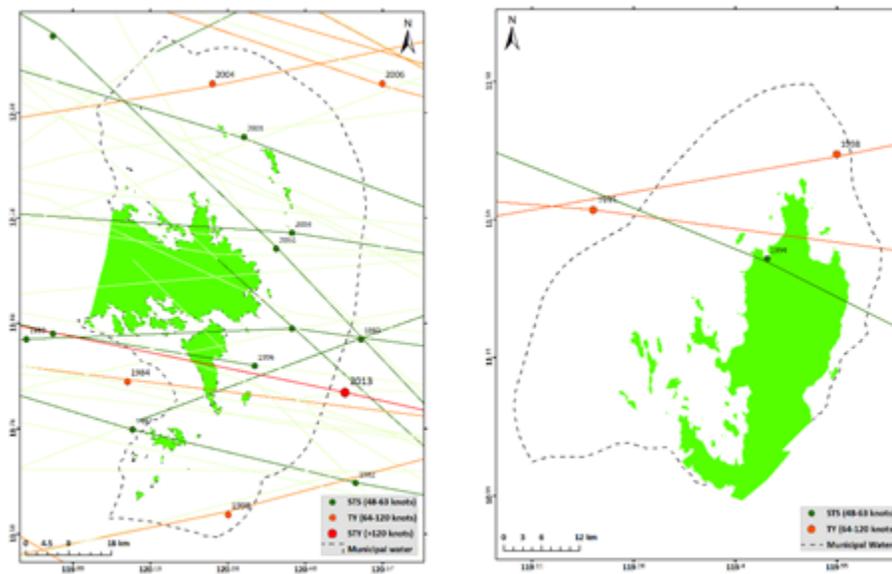
Coron can reach maximum storm surges in the order of 1.2-1.5 m and could likely reach 2-3 m and even projected to reach >4 m in the northern coasts using simulated Typhoon Yolanda type conditions. Vulnerable barangays include Bulalacao, Lajala, Malawig, Tara and Turda. The area in Coron is susceptible to flooding due to its island and coastal composition. Barangays that are affected by river and coastal flooding are the portions of Poblacion 6, Decalacao, Borac, Guadalupe, and Bintuan.

In El Nido, the shoreline is exposed to coastal erosion due to storm surges as well as the rising sea level. The flat, low lying sediments is highly vulnerable to storm surge in the very near future, to sea level in the medium term and to tsunami at any time. Erosion has affected reef sites within vicinity of Poblacion to Bobulungan. The rapid urbanization in the absence of an approved Comprehensive Land Use Plan (CLUP) in El Nido has led to increased flooding in the coastal areas, including Corong-Corong.





**Figure 4.** Frequency of heat stress events ( $DHW > 0$  indicating occurrence of stress) and significant bleaching-level heat stress events ( $DHW \geq 4$  indicating occurrence of significant coral bleaching) from 1985-2019. Each grid covers approximately 5x5 km in area. Coron (top) and El Nido (bottom).



**Figure 5a.** Major storms that passed directly over Coron (left) and El Nido (right) from 1980 to 2020. The numbers on the typhoon tracks represent the year when the event happened.

Heavy rainfall has been observed by locals in both sites. Model results projected that the wet season rainfall in Coron and El Nido could increase by 11-13% in 2040. The intensity of extreme rainfall events is projected to increase by 12% by middle of the century and 20% by end of the century. Extreme rainfall events can cause floods, erosion, and landslide, thereby increasing the delivery of sediments and pollutants to the coasts.

Ocean acidification, as a result of the ocean's uptake of CO<sub>2</sub> from the atmosphere, affects the growth and structural integrity of corals. Currently, aragonite saturation (an ocean acidification indicator) in both sites is at marginal level to support coral reef growth. By 2050, aragonite saturation level is projected to be in extremely marginal state unlikely to support coral growth and survival!

Reef cover in both sites are generally still fair to good based (based on reef index). Of particular note in El Nido are the reefs found in Lagen Island where evolutionary distinct and globally endangered (EDGE) species are found. Reefs with the best possible coral cover (e.g., fair to excellent) have existing management systems and contribute significantly to the municipality's tourism industry (high tourism traffic). Coron, in particular have two reef sites that are still in excellent condition - Siete Pecados and Twin Peaks Coral Garden. However, Siete Pecados has been reported as having exceeded its carrying capacity and is therefore a concern that need to be addressed in the near future.

This thriving blue economy, however, is threatened by over-tourism and over-fishing in its major tourism clusters, pollution of the coastal and marine environment, and climate change-associated stressors such as coral bleaching and ocean acidification.

All these threats, anthropogenic or natural events lower the resiliency to stress events and make these coastal assets more fragile. These impacts, either within and beyond the control of local authorities, will eventually redound to the loss of these natural ecosystems, that will increase the vulnerability of the coastal assets to disasters, degrade the attractiveness and reduce the value of the tourism-driven blue economy of both El Nido and Coron

During project preparation, three candidate sites were assessed. Two of these coincide with sites where ADB co-financing for the baseline investment are located. The third, TRNP is located in the same province of Palawan.

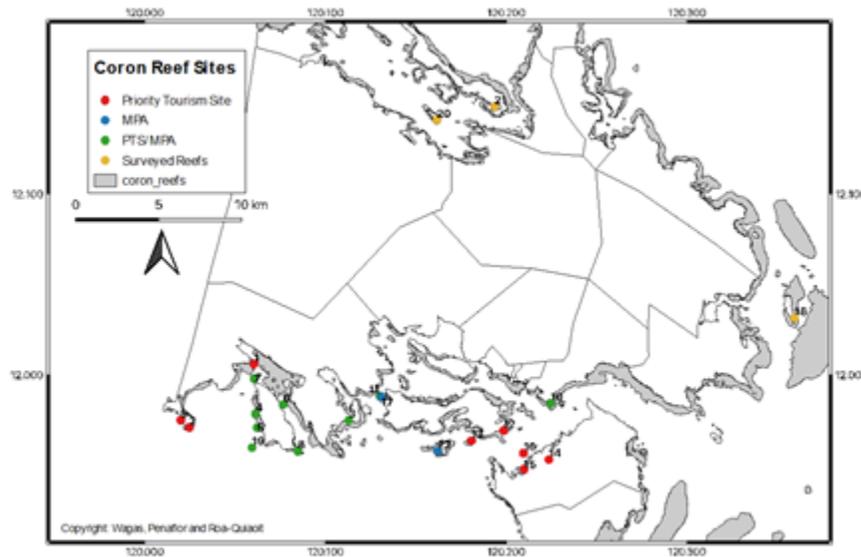
### **Municipality of Coron**

Coron is known for its rich coastal and marine ecosystems and is estimated to house 349 species of corals within its 8,269.45 hectares of corals reefs. Based on the Environmentally Critical Areas Network (ECAN) zoning system, Tourism Development Areas (TDA) were created: (1) the Coron Island Cluster and (2) the Bintuan Concepcion Cluster. The Tourism Priority Sites identified within the Coron Island Cluster are *Siete Pecados*, *Uson Island*, *CYC Beach*, *Kayangan Lake*, *Twin Peaks Coral Garden* and *Twin Lagoon Entrance*. For the Bintuan-Poblacion Cluster are *Bintuan*, *Lusong Island*, *Apo Island*, *Bintuan Sangat Marine Park*, *Sangat Island Reserve* and *Lusong Coral Garden*.

There are currently 10 legally established marine protected areas in Coron under the jurisdiction of the local government unit. These protected areas range in size ? the smallest of which is Siete Pecados Marine Park with a total area of 52 hectares and the largest of which is Coron Island covering an area of 16,941 hectares spanning the entire coast of the island. Out of the 10 MPAs, only 2 are reported to be actively operating, Siete Pecados and Bintuan.

Most of the reefs surveyed are found within the two TDAs, tagged as a Priority Tourism Site (PTS), a Marine Protected Area (MPA) or both (see **Figure 6**). Three sites stand out among the Tourism Priority Sites for having fair to excellent coral cover and are within the ECAN core or sustainable use zones: (1) *Siete Pecados*, (2) *Twin Peaks Coral Garden* and (3) *CYC Beach*. Although there was no actual value reported for reef cover in CYC Beach, a detailed description of a thriving coral ecosystem was reported

in the Coron Sector Development Roadmap (2020) where large fish species and marine turtles are commonly spotted in the reefs indicating good reef health.



**Figure 6.** Coral reef areas in Coron indicating categories of management and tourism priority.

### Municipality of El Nido

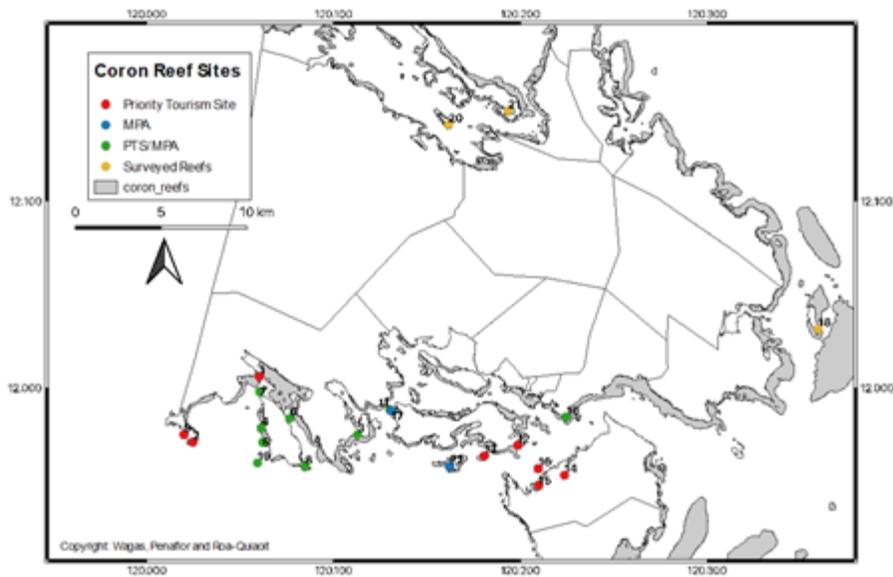
The coast of El Nido is reported to house 447 species of corals, more than 800 species of marine fish, 8 species of seagrasses and 5 species of endangered marine turtles and other large marine vertebrates.

Reef cover throughout El Nido ranged from poor to good, particularly a decline of coral cover in Bacuit Bay largely attributed to coral bleaching, illegal fishing activities and even tourism activities. A few reef sites still have good coral cover, Mitri Island within a community managed marine area, Lagen Island of the Tourism Cluster and Dagal-dagal.

The National Integrated Protect Areas System (NIPAS) Act of 1991 declared the western side of El Nido, including the whole of Bacuit Bay as the El Nido-Taytay Managed Resource Protected Area (ETMRPA). The protected area covers 90,321 hectares of terrestrial and coastal areas, effectively protecting 80% of the municipality.

There are two Tourism Development clusters in El Nido, Poblacion and Bacuit Bay where most of the tourism activities take place (see **Figure 7**). In Bacuit Bay Cluster, the six Priority Tourism Sites are: *Secret Lagoon, Big Lagoon, Matinloc Island, Miniloc Island, Lagen Island in Pangulasian Island*. In the Poblacion Cluster, these are: *Ubogon-Cove Cadlao, Natnat Beach, Poblacion, Corong-corong Beach, Villa Libertad and Mangrove Ecopark*.

There are 22 community managed protected areas in El Nido, 15 of which cover coral reef ecosystems. These community managed marine areas vary in area/sizes, from as small as 10 hectares (Natnat Beach) to as big as 280 hectares in Talawtawan New Ibajay. These protected areas are run by the local government unit or by people's organizations, with some as tourist destinations to help generate income for running the operations.



**Figure 7.** Coral reef areas in El Nido indicating categories of management and tourism priority.

Priority reefs were selected based on the reef index, ECAN zonation, degree of reef persistence, conservation status and tourism activity. Top sites were namely, *Miniloc Island*, *Lagen Island*, *Ubogon Cove-Cadlao* and *Mitri Island*. The first three reefs are fair to good, ECAN buffer/ core zone and in the El Nido tour package (for Miniloc and Ubogon Cove-Cadlao) ensuring high tourism traffic. Mitri Island is not under the Priority Tourism Site but has good coral cover and belongs to one of the 2 barangays with an application for a Certificate of Ancestral Land Title (CALT).

### **Tubbataha Reefs National Park (TRNP)**

Tubbataha reefs is an area of ecological and aesthetic importance with its pristine reefs and high diversity of marine life that lies in isolation in the middle of the Sulu Sea of the Philippines. The Tubbataha Reefs Natural Park (TRNP) composed of two uninhabited North and South Atolls and the Jessie Beazley Reef is 92 nautical miles southeast of Puerto Princesa City, Palawan, Philippines. It is the largest marine protected area (MPA) in the Philippines at 97,030 hectares with a 10-nautical mile buffer zone covering an area of 365,500 hectares contiguous to the Park (see Map).

Tubbataha sits in the center of the Coral Triangle as its flagship site within the Coral Triangle MPA System [1]. Given that the Tubbataha reefs are relatively devoid of anthropogenic pressures, this bodes well for the conservation in the Sulu Sea and even the region. TRNP effectively protects 360 species of corals, 7 species of seagrass, 66 species of algae, 600 species of fish, 2 species of marine turtles, 13 species of marine mammals, 19 species of rays and sharks and 2 bird species (both endemic and critically endangered)[2].

Tubbataha reefs are important to the life cycle of many marine organisms in the Philippines and in the Sulu Sulawesi region. TRNP is an important habitat for breeding, feeding, juvenile development to

older age transition of critically endangered Hawksbill Turtles (*Eretmochelys imbricata*)[3]<sup>3</sup>. Further, the turtle populations in Tubbataha are related mostly to the East Africa, Australasia and Japan populations[4]<sup>4</sup>. The high density of apex predators at 23 species of elasmobranchs, with 11/12 threatened or near threatened species of sharks show Tubbataha's increasing ecological stability[5]<sup>5</sup>, [6]<sup>6</sup>. It is a significant migration route of the highly migratory behavior of the recurring individuals of tiger sharks and whale sharks[7]<sup>7</sup>. It is an important feeding, socializing and mating ground for cetaceans, where calves and juveniles are found in the midst of several pods of cetaceans (e.g., Fraser's and spinner dolphins; Pilot and Longman's beaked whale)[8]<sup>8</sup>. TRNP has high ecological significance to seabirds conservation in the Philippines and in the East Asian-Australasian Flyway[9]<sup>9</sup>. There are eight regularly occurring seabird species, six are breeding species with successful re-establishment in the TRNP including critically endangered Christmas Island Frigatebirds (*Fregata andrewsi*)[10]<sup>10</sup>.

These outstanding universal values of Tubbataha inscribed it in the UNESCO World Heritage list in 1993, the Ramsar List of Wetlands of International Importance in 1999, the roster of ASEAN Heritage Parks and the East Asian-Australasian Flyway Partnership in 2015, the recognition as a "Particularly Sensitive Sea Area" by the International Maritime Organization and as one of three best managed large no-take marine protected areas in the world by the Marine Conservation Institute in 2017.

In the Philippines, only 5% of the coral reefs are in excellent condition and Tubbataha is one of the last great reefs in the country[11]<sup>11</sup>. The reef fish biomass in Tubbataha is the standard for reef fish communities in the Philippines (>120 mt/km<sup>2</sup>)[12]<sup>12</sup>. Tubbataha reefs is a major source of coral and fish larvae, seeding the greater Sulu Sea and adjacent regions, such as eastern Palawan, western Visayas and western Mindanao, thus providing food and livelihoods for hundreds of thousands of Filipinos[13]<sup>13</sup>. The conservative economic values for the Tubbataha Reefs is at PHP 1.1 - 2.1 Billions (USD 22M) (2016) [14]<sup>14</sup>. This breakdowns to PHP 6.8M (USD 136,000) in fish production, PHP 3.1M (USD 62,000) for recreation as a high-valued tourism site in the world, a higher research value at PHP 15.4M (USD 308,000) for its significant scientific value as a living laboratory and a bequest and biodiversity conservation Non-Use Value at a very high PHP 1.1 - 2.1 B (USD 22 - 42 M).

### **Tubbataha Protected Area Management Board (TPAMB) and Tubbataha Management Office (TMO)**

Tubbataha Reefs protected status was first established in 1988 as the Tubbataha Reef Natural Marine Park (TRNMP) making it likewise the oldest MPA in the Philippines. In 2010, the main legislative

---

framework that governs the Tubbataha Reefs was enacted known as the Tubbataha Reefs Natural Park (TRNP) Act of 2009:

*Republic Act No. 10067, An Act Establishing the Tubbataha Reefs Natural Park in the Province of Palawan as a Protected Area Under the NIPAS Act (R.A. 7586) and the Strategic Environmental Plan (SEP) for Palawan Act (R.A. 7611), Providing for its Management and for Other Purposes.?*

The Park is under the management of the 21-member multi-sectoral Tubbataha Protected Area Management Board (TPAMB), the sole policy-making and permit granting body for the Park. The TPAMB is co-chaired by the Palawan Council for Sustainable Development and the Regional Director MIMAROPA/ Region 4B of the DENR, with members from government, non-government, private, and the academic sector. It is supported by an Executive Committee addressing operational and administrative matters and a Tubbataha Adjudication Board handling regulation compliance matters.

The Tubbataha Management Office (TMO) serves as its secretariat and administers the day-to-day affairs of the Park. In 2019, the TMO join the ranks of the agencies of government under the Office of the President. TMO has been working in long-term cooperation with Government Agencies from the national (Philippine Navy, Philippine Coast Guard, DENR) to the provincial levels (Provincial Palawan, PCSD); with Academic and Technical partners [e.g., University of the Philippines-Marine Science Institute (UPMSI), Western Philippine University (WPU)]; with Funding Partners (WWF-Philippines, Conservation International-Philippines, Pilipinas Shell Foundation, Inc.; and the UNESCO World Heritage Center. All these partners have been supporting Tubbataha in-kind support for operations, research, monitoring, enforcement and educational awareness.

The management operations of the TRNP is anchored on its 10-year TRNP Management Plan 2011. Its vision, mission and goals are articulated into four management programs: Conservation Management, Conservation Awareness, Ecosystem Research and Monitoring and Sustainable Resource Management.

### **TRNP Climate Hazards / Mapping Assessment**

*TRNP Storm Patterns.* The TRNP has not recorded direct significant tropical storms (>47 knots), however, these trigger strong winds and strong waves that damaged the coral reefs and amplify storm surges that led to coastal erosion in the islets disrupting seabird populations. Over 40 years, the typhoon tracks over Tubbataha reefs showed a high frequency of low-category storms (<=33 knots) (Figure 1). Within 40 years from 1980-2020, there are only 10 storms that directly passed within TRNP, with only two Tropical Storms and one Tropical Depressions.

But, even a low intensity storm at <47 knots in the TRNP has resulted to massive coral cover decline and marked increased in abiotic components (e.g., sand/ rubble) in many sites<sup>[15]</sup><sup>15</sup>. A significant decrease in hard coral cover of 31% in shallow and 19% in deeper reefs proceeded post-tropical 2008 storm. Similarly in 2017, damaged from low-storm category (<33 knots) resulted in 28% coral cover decline. In 2017-2018, the series of storms (3) that passed over the TRNP triggered strong waves exacerbated by the northeast monsoon winds that caused breakage on fragile branching corals contributing to increase in rubbles in the reefs<sup>[16]</sup><sup>16</sup>.

Severe damages to storms are intensively felt in the South Atoll, the eastern entry point of Sulu Sea to storms, unfortunately, dominated by most vulnerable monospecific beds of branching coral *Acropora (Isopora bruggemanni)*. Interestingly, most probably due the protection accorded to the TRNP that hastens natural recovery, these reefs showed initial recovery in just after a year and showed increasing trend of recovery since 2001 until at present (TRNP Ecosystem Research and Monitoring Report, 2010, 2013, 2015).

*TRNP Blending Storm, Storm Surge, SLR, Coastal erosion.* The blending of hazards of increasing typhoon intensity causing stronger storm surges amplified by rising sea levels have caused coastal erosion in the Bird Islet which hosts >90% of the seabird population in Tubbataha<sup>[17]</sup><sup>17</sup>. Since 1911, Bird Islet has lost over 70% of its land due to vegetation loss from drought and red-footed boobies droppings. This downward tree loss puts the islet core exposed to waves and winds causing continuing erosion while some sand bars are emerging nearby in Bird Islet. This is a major concern since sandbars do not provide suitable breeding space putting seabird population at risk of homelessness. In 2020, the population of the Black Noddy is less than half of its 2015 population at 1,325 pairs affected severely by its habitat loss.

*TRNP SST Ocean Warming and Coral Bleaching.* The trends in SST from 1985-2019 in TRNP depicts that surface waters has warmed through time (Figure 2). Both annual and warm season SST have increased at the rate of 0.18-0.19 °C/decade and 0.18-0.20 °C/ decade, respectively. The increase varies across the TRNP with relatively lower rates on the western side than on eastern part, less increase in the south than north atolls. Eastern north atoll reefs however are highly vulnerable especially the most northeastern tip with highest SST change of 0.20-0.21 °C/ decade.

Historical records of the bleaching levels within 40 years indicates the occurrence of heat stress and significant coral bleaching (based on degree heating weeks) (Figure 3). Records showed maximum of 32 heat stress events (DHW>0) in the TRNP, highest occurrence of stress in the Jessie Beasley Reefs while higher in north than south atolls. TRNP has experienced six (6) significant coral bleaching events within the 40 years, observed and recorded to have resulted in decreases in hard coral cover during and after the bleaching event<sup>[18]</sup><sup>18</sup>.

In TRNP, the El Nino 1997-1998 event that caused global major bleaching event resulted in the major loss of hard coral cover two years after the bleaching event, at a 39% decline in 1998 to 18% in 1999. The 2010 El Niño event showed varying responses in the Tubbataha atolls in hard coral cover changes to this bleaching disturbances. The recent stresses between 2014-2017 resulted in intermittent occurrences in different parts in TRNP with bleaching of a few massive corals, branching and table corals ranging from 7-20 m<sup>2</sup>. In 2018, a bleaching warning was declared for TRNP, while in 2019 bleaching in the offshore Jessie Beasley Reef occurred. Recently in 2020, an increase in the incidence of coral bleaching was observed ranging from 3-20% in the shallow and 3-16% in the deep, bleached corals from branching, massive, tabular including solitary and fire corals.

In 2017, the UNESCO World Heritage Centre has released its first global scientific assessment on the impacts of climate change on all World Heritage Coral Reefs<sup>[19]</sup><sup>19</sup>. For TRNP, their projections on the occurrence of coral bleaching suggest that it will most likely experience severe stress (DHW >80C-weeks) twice per decade from year 2030 (Heron et al. 2017).

---

[1] (<https://www.weforum.org/what-is-the-coral-triangle/>).

[2] TRNP Ecosystem Research and Monitoring Report 2013

[3] Pilcher, 2010, 2015

[4] Thomas et al., 2015

---

- [5] Walker & Palomar-Abesamis, 2006
- [6] Alava, 2010
- [7] Large Marine Vertebrates (LAMAVE) Tagging Program
- [8] Aquino & Alarcon, 2010
- [9] <https://www.eaaflyway.net/>
- [10] Jensen, 2010, 2015
- [11] Licuanan et al., 2017, 2019
- [12] Nanola et al., 2006
- [13] Campos & Belida, 2008
- [14] Rosales, 2006
- [15] TRNP Ecosystem Research and Monitoring Reports from 2010-2020
- [16] Wilkinson & Scouter 2008
- [17] TRNP Ecosystem Research and Monitoring 2020
- [18] TRNP Ecosystem Research and Monitoring Reports, 2008-2020
- [19] Heron et al. 2017

# TUBBATAHA REEFS NATURAL PARK WORLD HERITAGE SITE

CAGAYANCILLO, PALAWAN, PHILIPPINES



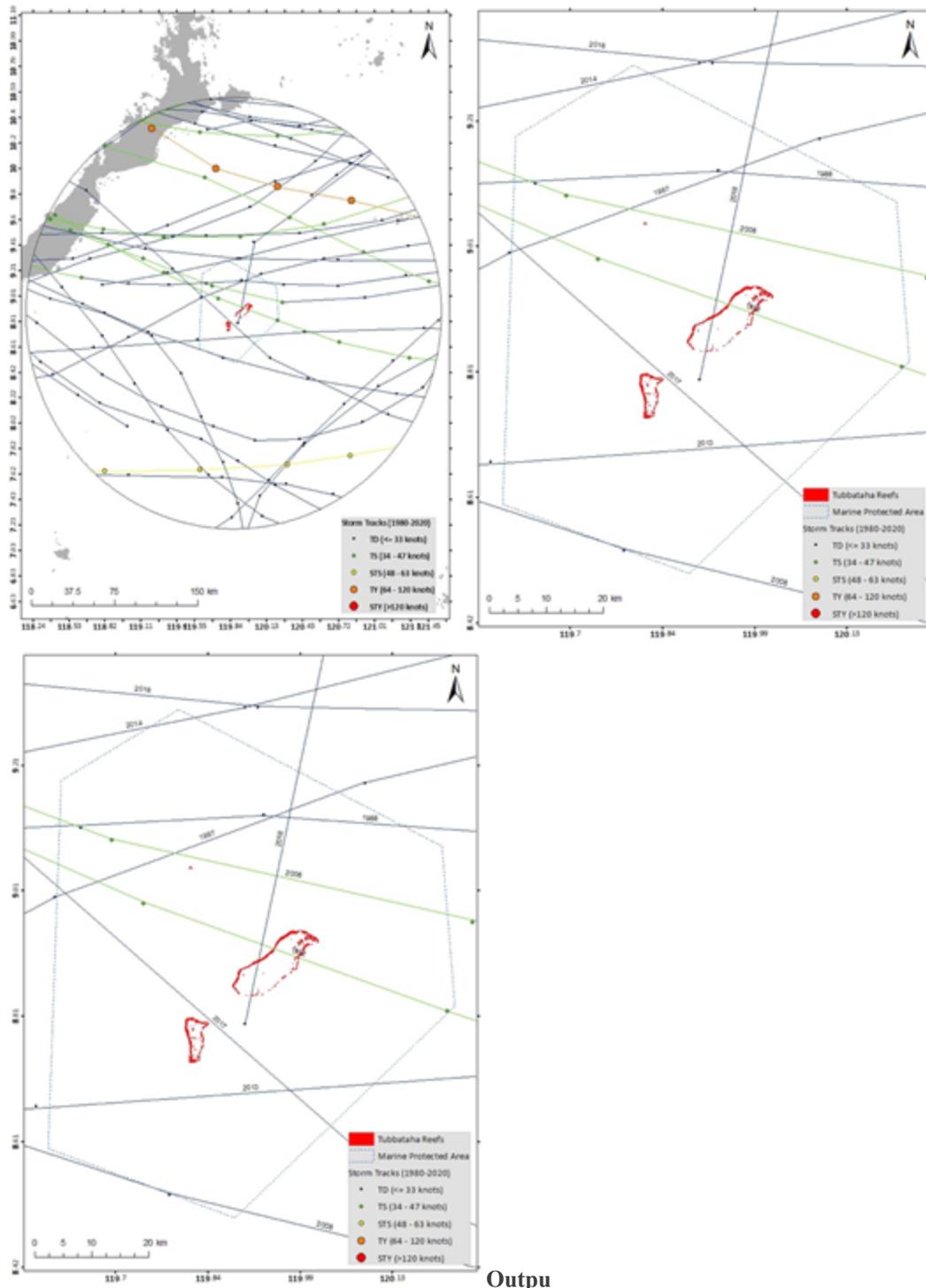


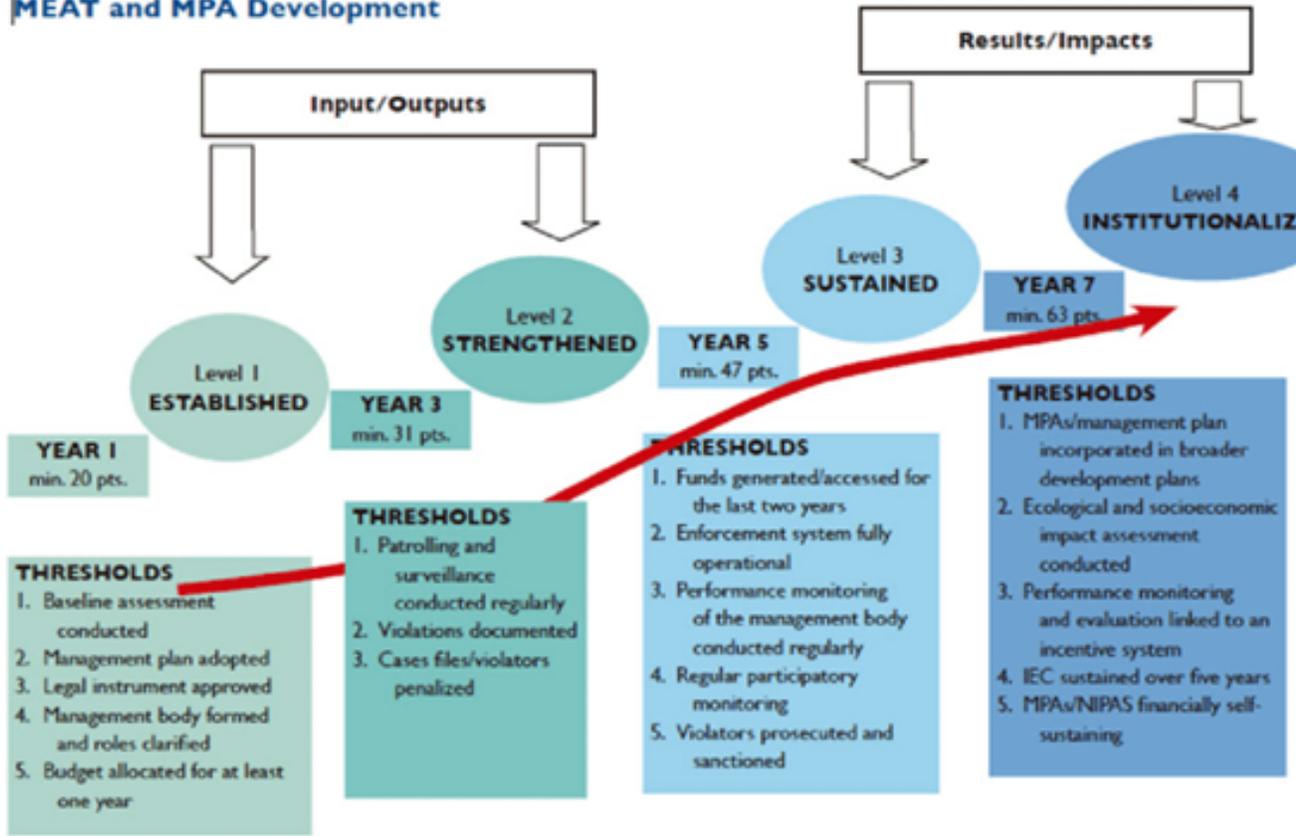
Figure 5b: Typhoons passing over Tubтатаha Reefs from 1980-2020; a) within 100 nautical mile buffer distance and b) directly over Tubтатаha Reefs Natural Park. The blue broken line represents the boundary of the Marine Protected Area of the TRNP. The numbers on the typhoon tracks represent the year when the event happened. Typhoon categories adopted from PAGASA typhoon classification. Data source: International Best Track Archive for Climate Stewardship (IBTrACS).

### **2.1.1: Management plan for key marine and coastal tourism sites developed and implemented in four priority clusters in Coron and El Nido (ADB loan)**

In collaboration with the Department of Tourism, the municipal governments and local stakeholders, ADB baseline project will support the development and implementation of management plans for the key marine and coastal tourism sites in four priority clusters in Coron and El Nido. The main activities include (i) ecosystem rehabilitation in four sites including mangrove and seagrass restoration, (ii) provision of alternative livelihood trainings in areas such as food processing and weaving for 200 people in fishing-dependent communities, particularly indigenous peoples and women, so that they can benefit from tourism-related income-generating opportunities (as well as reduce pressures on ecosystems); (iii) installation of mooring buoys, toilet and garbage disposal facilities at five priority tourism sites; including implementation of a program to monitor site conditions such as water quality and climate change impacts.

The loan project will, among other things, encourage the provincial and local governments in Palawan to adopt the Marine Protected Area Management Effectiveness Assessment Tool (MPA-MEAT), which is a toolkit that has been adopted at a regional level by the CTI-CFF Member Countries. There are 10 legally declared MPAs in Coron, and a number of community-managed marine areas (CMMA) in El Nido - principal among which is the El Nido-Taytay Managed Resource Protected Area, which covers over 36,000 hectares of land and 54,000 hectares of marine waters. MPA MEAT is a management tool to help measure MPA effectiveness using simplified tools allowing an objective evaluation of MPAs. It can be applied to locally-managed MPAs and marine areas declared under the National Integrated Protected Area System Act (RA 7586). It can be implemented through an assisted self-evaluation or key informant interviews. Documents provide proof of completion of targets. For NIPAS marine areas, it will consider only the areas within the seascape that are directly managed or linked to the Protected Area Management Board (PAMB).

## MEAT and MPA Development



### Output 2.1.2: Loss and damage assessments conducted (GEF funding)

The project team will measure the potential losses to the economy and livelihoods as a consequence of damage to the reef caused by prioritized hazards. This will be done through consultation with experts, conduct of surveys and research on historical trends and patterns.

Following this, experts will be engaged to define possible responses to repair damages to the reef, estimate the cost of repairing the damages under different scenarios for damage and extent of the response (for how long and which area).

Based on the above information, the project will compare the costs of repairs and financial instruments versus the benefits or avoided losses. To have a business case that justifies a response and repairs to the reefs, the losses to the local communities and economy must be higher than the cost of repairs. In this case, the beneficiaries of the reef, who will suffer economic losses if the reefs are damaged, would be interested in investing in the repairs to protect their own livelihoods, wealth and culture.

To complete this output, the project will build a financial risk management strategy for the site. Experts will define different layers of risk and propose financial instruments to cover the costs of each layer. Each layer of risk is characterized by a range of expenses needed to repair the damages caused by an event and the probability of such an event happening. Then, experts and stakeholders will decide if they want to retain the financial risk (cover the expenses with their own funding) or transfer the risk to the market via an insurance policy, based on a cost-benefit analysis of the available financial instruments.

### Output 2.1.3: Ecosystems values determined for 2 tourism zones (GEF funding)

The ecosystem services provided by the reef in each site will be assessed and valued spatially and economically. The spatial assessment focuses on identifying how the coral reef contributes to: 1) fisheries provisioning and supporting services by acting as habitat, shelter, and nursery ground; 2) coral reef-related tourism (e.g., diving); and (3) coastal protection for people and economic activities. Following designated criteria, the assessment applies a scoring mechanism to translate the value of the coral reef for each sector.

The fisheries spatial assessment would include the percentage of live hard coral (HCL) and status of protection (inside or outside MPA). The highest score indicates that the coral reef area in excellent condition (HCL > 75%) is vast and located within MPA.

Another assessment is on coral reef-based tourism that considers mainly the distance of the coral reef to specific tourism spots (distances from 0-500 m, 500-1000 m, and 1000-1500 m). If the coral reef is located close to tourism spots including accommodations and tourist attractions (beach, snorkeling sites) and overlapping with both types, the score will be high. In addition, a similar approach is used to score the coral reef relative to diving sites (e.g., higher located within 0-100 m than a reef located within 100-200 m and 200-300 m of a diving site).

Economic valuation can also be used to show the link between conservation and economic development. The monetary value of benefits provided by a coral reef is very useful as a reference for determining compensation, if at any time, the coral reef is damaged due to a natural disaster or anthropogenic factors. The economic valuation of a coral reef is based on the estimate of Total Economic Value (TEV), the sum of direct and indirect use values. The direct use values include coral reef-based fisheries, aquaculture, reef mining and tourism; and, the indirect use values include coastal protection, carbon sequestration, option value, existence value and bequest value. The details of TEV can be seen in **Annex 3** of the baseline report.

**Output 2.1.4: Guide on post-disaster risk management and response capacity to climate-induced reef ecosystem damage prepared (GEF funding)**

To repair the damage to the reef, the first and most important consideration is to have the capacity to implement a response. The response capacity encompasses: a) governance (a leading agency and coordinating committees); b) a response protocol that outlines the activities, roles and responsibilities of the response; c) people well trained to conduct the repairs on the reefs; d) equipment; and e) permits to intervene on the reef.

The project will develop the response protocol for the hazards identified<sup>[2]</sup> for the site, as a first step in building the response capacity at the site. These will be contextualized to local conditions and engage local stakeholders.

Should sufficient additional co-financing materialize for the Philippines, the project will: set up the governance to lead the response, develop guides to implement the response and training materials, train and organize the response capacity-brigades, secure the equipment needed. The local authorities will be responsible to obtain the permits to implement an immediate response and to monitor and rehabilitate affected coral reefs. With additional co-financing, the project would aim to train 20 community members and staff from local organizations both men and women as responders. These responders should have the opportunity to earn a wage when implementing the response.

**Output 2.1.5: Sustainable financing mechanisms explored and designed including legal / regulatory assessment (ADB + GEF funding)**

In El Nido, the management of natural resources falls under the Municipal Environment and Natural Resource Office (MENRO). The MENRO handles coastal resources but at present is limited to

enforcement/patrolling functions, undertaken in partnership with the local barangays and CMMAs. The Municipal Tourism Office (MTO) handles ecotourism development and the Eco Tourism Development Fee (ETDF) at Php 200 (\$4.12) per visitor.

The ETDF is managed and collected by the LGU to fund and implement environmental protection program, tourism projects for improvement of support services and solid waste management programs, among others. The ETDF fund redounds to about PhP 40-82 million (USD 833,333 ? USD 1.71 million) per annum from 2015-2019 and should be explored as a potential source of funds to defray the insurance premium.

Coron has no dedicated environment department nor officer, all management of natural resources falls under the Municipal Agriculture Office (MAO). It also has no coordinated system of collection, thus, there are different rates for each site. The LGU does not collect nor get a share in the entrance fees, except for two MPA sites but gets meagre 20% share from the funds of Siete Pecados and Bintuan. Coron just instituted its Environment Tourism Fee (ETF) at Php 200 (\$4.12) per visitor and started collecting this January 2021.

#### Revenue generation model in TRNP

By virtue of the TRNP Act of 2009, there is a TRNP Trust Fund comprise of conservation fees paid by tourists. For the last ten years, the TRNP Trust Fund is substantially sourced out from Tourism Revenues that accounted for 83-100% of the Protected Area revenues since 2010. External grants were received from the private sector and from government (DENR). However in 2019, as per Philippine Commission on Audit's directive, grants where not directly received and disbursed by the TMO, which led to a number of repository accounts with their partners (cum TPAMB members) to receive and disburse this funding source for the TRNP.

Tourism revenue is the major source of financing, significantly contributed by the park conservation fee increased to PHP 5,000 (USD 100) from PHP 3,000 (USD 60) in 2017. The tourism revenue has been steadily increasing since 2010, picked-up in 2016 at PhH 8.3M (USD 166,000), surge in 2017 to 2018 with a tourism income of PHP 14.0 -14.2 M (USD 280,000 ? 284,000) (58% increase from 2016). It peaked in 2019, a year prior to the pandemic to PhP 18.7M (USD 374,000).

But, with the onset of the Covid-19 pandemic in 2020, a very significant and drastic decline in number of visitors resulted to a meager revenue of (USD 14,800) 740,500 (only 139 visitors at 96% lower compared to 2019). In the pandemic year of 2020, in the absence of tourism revenues, funds accumulated in the TRNP Trust Fund for 20 years has been used to defray the cost of management

#### Activities under Output 2.1.5

Actions under this output will build on previous outputs, and include: i) strategy to diversify sources of long term financing /revenue for the province and municipal governments and TMO to sustain management of ecosystems, ii) advance innovative blue financing options (linked to broader ADB and GEF work), iii) willingness to pay studies (communities and private sector), iv) review of legal and regulatory frameworks for risk transfer mechanisms such as nature-based insurance, and v) local consultations, legal/regulatory review and drafting of proposal and governance protocols for a proposed trust fund scheme, should this be prioritized.

## **Outcome 2.2: Enabling conditions for coral reef financing and insurance in Solomon Islands supported**

**[Refer to Baseline Report for Solomon Islands in Annex]**

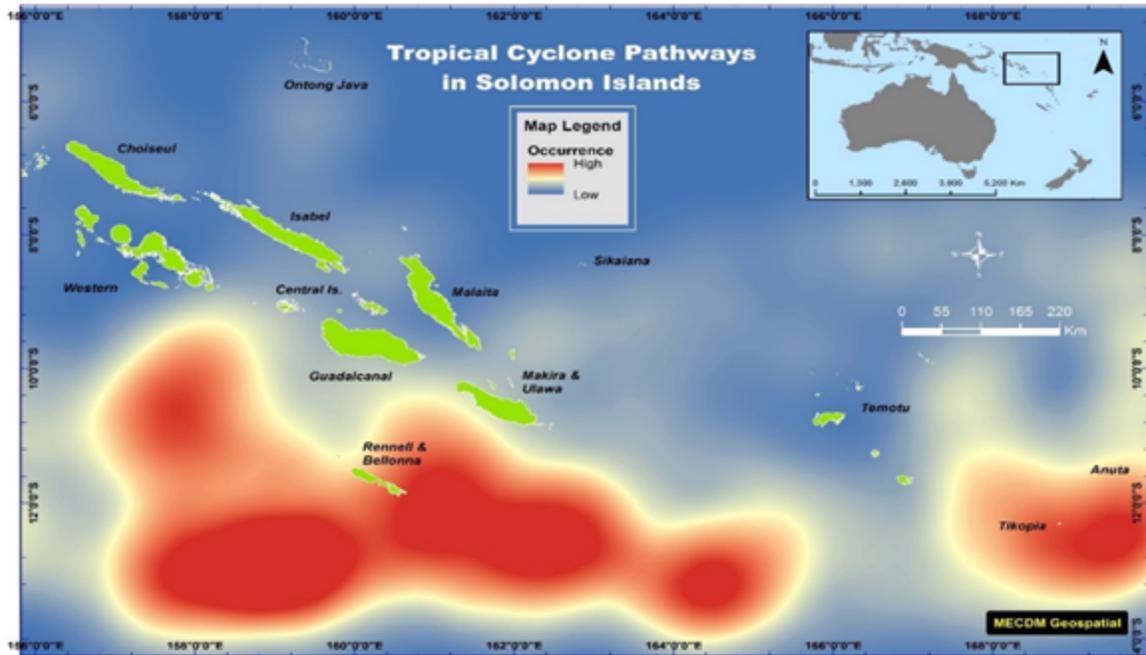
The Solomon Islands has a population of 600,000 people and is classified as a Least Developed Country (LDC) by the United Nations. Most Solomon Islanders live in 5,000 rural coastal communities that are scattered across the archipelago, where they retain customary ownership of their land and coastal resources. The vast majority of Solomon Islanders (87%) continue to live a subsistence-based lifestyle, where their food security, livelihoods and cultural identities are intrinsically linked to the health of coastal ecosystems.

The Solomon Islands has some of the highest coral and fish diversity recorded in the world, justifying Solomon Islands' inclusion in the Coral Triangle, a global centre of marine biodiversity. The coral reefs of Solomon Islands cover an estimated 6,743 square kilometers, representing about 3% of the world's coral reefs. About 540,000 people live within 30 km of a coral reef. Today, Solomon Islands coastal ecosystems are in decline because of unsustainable and poorly regulated development, overfishing, sea level rise, coral bleaching and ocean acidification. The Solomon Islands have seen sea-level rises of over three times the global rate, with recent sea-level rise of 8?10mmyr<sup>-1</sup>, partly due to intensification of tradewind cycles. This rapid rate of rise has resulted in dramatic shoreline recession and loss of several low-lying reef islands, in some cases driving community relocations. Regional scale projections indicate Solomon Islands may experience up to 60 cm of sea-level rise by 2090 under high emission scenarios. Since the 1990s, values of aragonite and other carbonate saturation states have continued to decline and only the surface waters of the South Equatorial Current now have aragonite saturation states that remain at or slightly above values of 4, with modelling projections indicating that by 2040 ocean acidification will begin to impact areas around Solomon Islands.

Degradation of coastal habitats reduces livelihood opportunities and escalates the 'poverty of opportunity' experienced by rural Solomon Island communities; it also exposes vulnerable groups such as women, children and the elderly to significant food, nutrition, and livelihood risks.

Recognition of the declining status of coastal ecosystems has led to a groundswell of support for establishing protected area networks in the Solomon Islands. Coastal communities increasingly recognise that, in addition to the provision of cultural and ecosystem services, intact coral reefs and mangrove forests buffer coastlines and communities from extreme weather events, which are increasing in frequency and severity under a changing global climate. Yet, while there is a burgeoning interest in community-based natural resource management (CBNRM) in the Solomon Islands, there are few existing avenues to finance CBNRM activities in the coastal communities that are most in need of such initiatives.

Located in the Pacific Ring of Fire, Solomon Islands is located in an area known for frequent tropical cyclones and also an active seismic area. Since the 1980, the country has experienced more than 100 disasters. These events are tropical cyclones and storms, tsunamis and human-induced disasters, landslides and droughts. that have affected more than half a million people. Tropical cyclones causing flooding and wind damage pose immediate threats to the people, economy and environment of the country. The areas that are susceptible to disasters, and frequently experience cyclones in the course of a year are the Santa Cruz islands (Anuha and Tikopia) and Rennell and Bellona (see **Figure 8**).



**Figure 8.** Cyclone Pathways in Solomon Islands

Coral reef systems are also detrimentally impacted by cyclones, tsunamis and earthquakes. Cyclones season in the Solomon Islands run from the beginning of November to the end of April, but due to changes in the climate cyclones are much more frequent and those occurring outside the season can be very destructive. In Solomon Islands, Tropical cyclones (TCs) occur frequently and the nation's history documents confirm that TCs that have caused devastations, as follows: people have lost their properties and the economy has been severely damaged due to extreme winds, torrential rain, and storm surges.

Examples of other severe events are the April 2007 earthquake and tsunami event in Ghizo, Western Province that also resulted in reef flats being uplifted, exposing coral to the air. In this region coastal communities are heavily dependent on fisheries resources for their livelihood, this event has had severe impacts on coastal fisheries related activities including the environment, infrastructure and equipment. During this same event, there was also coral reef uplift experienced by Zinoa community, Choiseul Province. The 2013 Temotu tsunami also resulted in homes and gardens being destroyed and also the loss of lives. A year later, Honiara experienced the 2014 Flash floods that caused devastating destruction to the homes and claimed about 32 lives.

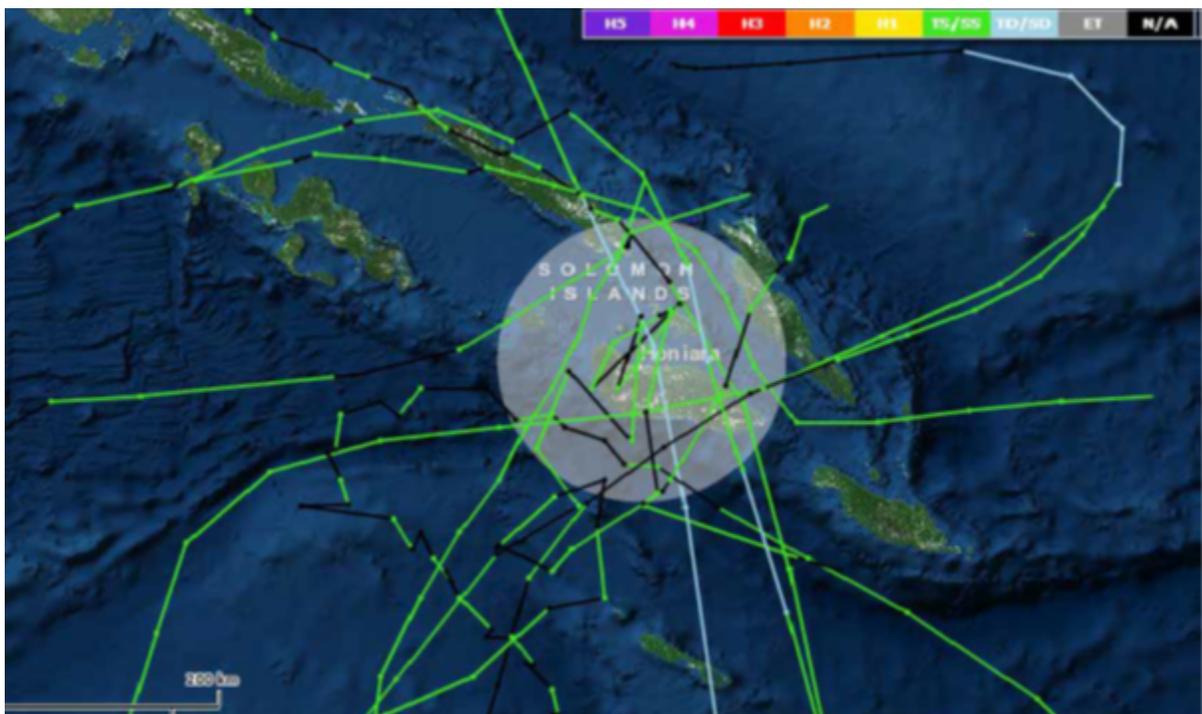
Climate change is a growing concern at the global, regional, national and the local/community level and impacts are evident through sea-level rise, rising temperature, saltwater intrusion of freshwater resources, coastal resources, coral bleaching and ocean acidification. The annual mean Sea Surface Temperature (SST) in Solomon Islands' waters ranges from 24°C in the south to nearly 29°C in the north (Solomon Islands Atlas & MACBIO). Solomon Islands is strongly influenced by the South Equatorial Current, which brings warm water from the eastern tropical Pacific Ocean.

Solomon Islands comprises of high volcanic islands and several low-lying coral atolls, therefore the increase in sea level rise is likely to have negative impact on these low-lying coastal areas. This may cause flooding and wave inundation that may result in shoreline erosion and groundwater salinization. The reef areas of the country are threatened by rising of sea levels and ocean acidification, hence may lead to coral bleaching known as the silent reef killer. However, since the earliest coral bleaching recorded during a 1965 Royal Society expedition, to date there is little information on coral bleaching in Solomon Islands.

In Solomon Islands, coastal ecosystems play an important role in stabilization of shorelines, and the increase of human density along coasts and the resulting increasing pressure on coastal ecosystems leads to a paradox: an increase in the need for stabilized shorelines, but a decline in natural stabilizing processes. In the marine ecosystem evaluation conducted by the MACBIO project in 2015, it was identified that Solomon Islands has various levels of protection against erosion due to the location and quantity of several marine and coastal ecosystems.

TCs frequently occur in Solomon Islands and their associated cold fronts are the primary causes of storm surges. Therefore, coral reefs, seagrass and mangroves provide protection against waves by forming barriers along the coast. In the evaluation, using historical data tracking streamlines of mean surface waves (see **Figure 9**).

The vast majority of the Solomon Islands falls under customary tenure and is owned by the local communities. As such, the focus of the Solomon Islands Government has been on supporting community-based natural resources management (CBNRM). This includes community-based vulnerability mapping, adaptation planning and management approaches and, where possible, facilitating direct access to financing for community-based resilience-building projects. During project preparation, the Government has identified a preferred site for focused work in the context of this GEF project.



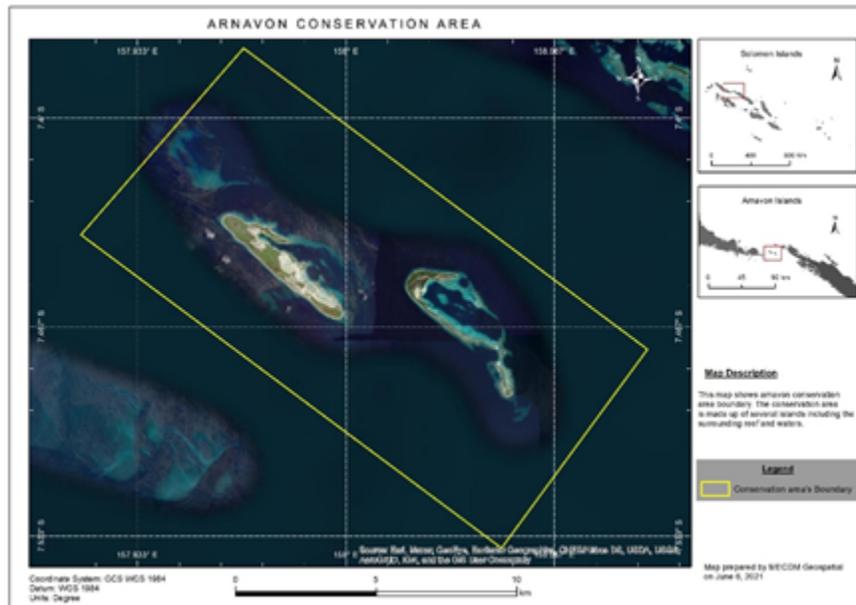
**Figure 9.** Cyclone tracks over Solomon Islands since 1940. Source: NOAA Coastal Services Centre

#### **Arnavon Community Marine Park (ACMP): Proposed project site**

The Arnavon Islands are in Isabel Province. They support the largest known nesting grounds for critically endangered hawksbill turtles in the oceanic South Pacific. By the early 1990s, the hawksbill turtle population that nests in the Arnavon Islands and the surrounding reefs and mangroves had been decimated from decades of commercial exploitation. To protect the remaining nesting turtles and surrounding nearshore ecosystems of the Arnavon Islands, a community conservation area was created

in 1995. The Arnavon Community Marine Park (ACMP) was registered as the Solomon Islands' first national park in 2017. The ACMP protects 152 km<sup>2</sup> of land and sea. The coastal ecosystems include extensive fringing and patch reefs, mangroves, lagoons and shallow water (> 80m) benthic habitat.

The primary goals of ACMP are: i) to ensure that it acts as a reservoir of coral and reef fish larvae that reseeds nearby areas damaged by fishing or climate change, thereby increasing the resilience of natural systems to climate change, and ii) to provide equitable sustainable livelihood benefits to the surrounding communities of Kia, Katapika and Wagina that have traditional ownership of the islands, thereby increasing the resilience of these communities to climate change. The vast entirety of the conservation area is depicted in **Figure 10**.



**Figure 10.** Map of Arnavon Conservation Area

### Governance of the ACMP

Since 1995, ACMP has had a management committee comprised of representatives from the communities of Kia, Wagina, Katupika, the Isabel and Choiseul provincial government, the Ministry of Environment, Climate Change Disaster Management and Meteorology (MECDM), the Ministry of Fisheries and Marine Resources (MFMR) and TNC. In recent years, the local women's group KAWAKI have also joined the ACMP management committee. KAWAKI is a women-led initiative that comprises of women representatives from the three Solomon Islands communities (Kia, Wagina and Katupika) that have customary rights to the Arnavons. The ACMP committee have an accountant and they meet several times a year to set the strategies and direction of ACMP. Conservation rangers from the communities of Kia, Wagina and Katupika have been stationed in the ACMP year-round since 1995, carrying out turtle and coral reef monitoring programs, deterring poachers and conducting awareness programs in the surrounding communities (see **Figure 11**). The ACMP rangers are paid by the ACMP committee.



**Figure 11.** *Left.* ACMP community ranger's flipper tag a nesting female hawksbill turtle and ensure her nest is located above the high tide mark. *Right.* A hawksbill hatchling departs the ACMP.

### **Making the ACMP equitable and inclusive**

In a new chapter for the ACMP, the 5 year Ples Blong Iumi project was recently launched to build Arnavon Islands as an important tourism and education/research destination for Solomon Islands that delivers true financial benefits to local communities and the women's group KAWAKI who will manage it (**Figure 12**). This is the first women-led ecotourism venture in the country and it demonstrates the important role of women in natural resource management efforts. The Ples Blong Iumi project is funded by the New Zealand Ministry of Foreign Affairs and Trade (MFAT). Generating local learning and employment opportunities via the development of an eco-tourism is a key outcome of Ples Blong Iumi project, as well as, establishing The Arnavon Community Education Center.



*Figure 12. A joint meeting between KAWAKI and the ACMP Management Committee in August 2020.*

### **The Arnavons Endowment Fund**

The Arnavons Endowment Fund was established in 2007 as a finance mechanism to support the ongoing community-based management of the ACMP. It is the only conservation endowment fund for the Solomon Islands, and currently has a balance of \$874,000, which is held in three separate US accounts. Most of these funds (\$750,000) are held in one account and a dividend of 3.7% (calculated on a 5-year rolling average) is paid out of this account (approx. \$27,750) annually[3]. The remaining interest earned on this larger account and all the interest earned by the smaller accounts are currently reinvested into the endowment fund.

The USD \$27,750 of income that is provided annually by the endowment fund is granted to the ACMP committee to support the management costs of operating the ACMP. For examples, these funds support the ACMP rangers' salaries, pays for turtle beach surveys and the relocation of nests above the high tide mark in response to rising seas, supports coral reef health monitoring and the ACMP committee meeting.

The direct annual operating costs of the ACMP is approximately \$120,000 per year. In order to be financially sustainable, there is a need to raise the shortfall between dividends from the endowment fund and annual operating costs of the ACMP through a combination of public and private fundraising initiatives. The ongoing reliance on the NGO community to raise the shortfall represents a financial risk for the ACMP and several options are being explored to improve the long-term financial sustainability of the ACMP. A promising option is to capitalize the existing endowment fund, as raising the Arnavons endowment by \$2 million would make the ACMP fully financially sustainable. There is also the potential to explore green fees from ecotourism, which could be invested into the Arnavons endowment fund.

Work supported in the Arnavon Community Managed Park will serve as a showcase for the entire country.

### **Output 2.2.1 Ecosystems valuation study for ACMP conducted (with outreach to other coral reef areas in Isabel province)**

ACMP and community-based entities in Isabel Province have been practicing resource management efforts for the past two decades. However, very little is known about the impact these efforts have on the local communities and how to expand these efforts for positive impacts in the region. The general understanding is that visiting tourists and training initiatives that have taken place on the island provide an in-direct and direct financial benefit to the local communities. Financial benefits refer to the fees paid by the tourists and visitors to the island and the non-financial benefits refer to the natural protection by the reefs, the provision of resources to communities and most importantly the cultural and recreational values of the Arnavon islands.

The project will support an ecosystem valuation study to assess the financial and non-financial benefits and values of ecosystems services provided by coral reefs and surrounding ecosystems of ACMP and other coral reefs areas across the Province. This information will provide all relevant stakeholders at the national level and Isabel Provincial Government on the financial and non- financial benefits and economic values of these sites. It would also assist in demonstrating the ecological connections of the coral reef areas around the Province to ACMP and more so in determining the potential to expand the scope of the conservation efforts beyond the Arnavon islands to surrounding communities of Katupika, Kia and Wagina. The hope is that by demonstrating the value of ACMP (and other conservation areas), this will help increase budget allocations by provincial and national Government, and other financing partners (identified under Output 2.2.2)

The data obtained from this study will also inform ACMP on potential areas that will boost sustainable ecotourism activities to the site which may attract additional funds that will promote healthy ecosystems and adaptation to the impacts of climate change. In addition to the conduct of the study by international and national experts, the GEF funds will support capacity development, training and knowledge-sharing for Isabel province. The valuation study will also serve as the basis for work under the additional outputs for Solomon Islands.

### **Output 2.2.2 Financial mechanisms for nature-based solutions to climate change analysed through Arnavon Community Marine Park (ACMP) case study**

While nature-based solutions can improve coastal resilience, food security and sustainable livelihoods, a thorough evaluation of financing mechanisms that could support such solutions in remote rural settings has not been conducted. Under this output, the project will support a survey and mapping of the full range of suitable financing mechanisms for nature-based solutions in ACMP and the potential for applying such mechanisms at a national level.

The ACMP provides an ideal case study since it is the only community-based protected area in the country: i) that has an existing endowment fund; ii) where efforts are underway to support the local women's group KAWAKI to run an ecotourism venture in the ACMP; and iii) where the establishment of a 'green / blue fee' for the park that would support ongoing conservation efforts is being explored. Furthermore, the ACMP has an existing management board and ACMP rangers and KAWAKI are involved in monitoring coastal ecosystems, including coral reefs, in the park, as part of broader efforts to address climate change risks.

Specific activities under this output would include: i) review and evaluation of the suitability of a range of sustainable financing instruments for ACMP (trust funds, blue bonds, green fees, debt for nature swaps, better alignment of taxes, subsidies and economic incentives, risk transfer / parametric insurance etc), ii) mapping of both public and private sources of funds for conservation, iii) design of a systematic process for establishing a ACMP green/blue fee and assess how this could be scaled to a national level (using the Palau visitor green fee as an example), iv) determine what amount of public-private partnership financing would be needed to cover the full costs of managing the ACMP over the long term (i.e., perpetuity), and v) develop a small pipeline of bankable coastal and marine resilience investments that have revenue-generating potential (e.g. linked to a broader sustainable tourism

strategy or plan), and vi) investigate options for design and structuring of risk transfer mechanisms, including but not limited to, nature-based insurance.

This work will complement and align with actions planned under the proposed GEF ID 10783: 'Pacific I2I Regional Project: Ocean Health for Ocean Wealth - The Voyage to a Blue Economy for the Blue Pacific Continent?', which will be jointly implemented by ADB and UNEP. The proposed project will assist Pacific island nations in the establishment of 'blue finance' frameworks and plans.

### **Output 2.2.3 New Onshore Coastal Resilience Management Fund for the Arnavon Community Managed Park (ACMP) developed**

This output is based on a recommendation from the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM), the government agency mandated to implement the Protected Area Act 2010 and the preference was to establish an on-shore management fund for ACMP, which would complement the existing Endowment Fund referenced above.

To address the 75% shortfall of funding and to empower the sovereign decision making of the ACMP Management Board there is an urgent need to determine the best way to establish an onshore fund to operate in accordance with Solomon Islands law. Work under this output will explore and determine the best way to establish an 'onshore' (in-country) fund for ACMP, to be incorporated in accordance with the Protected Area Act 2010. The proposed governance structure for this onshore fund could be aligned with the existing Endowment Fund. Management of the new fund could be undertaken by the ACMP Board of Management (e.g representatives from MECDM and MFMR, Provincial Government of Isabel and Choiseul, community elders/leaders representing the three communities Katupika, Kia and Wagina), with additional private sector representation.

It is acknowledged that banking and financial services are not easily available at remote areas like the Arnavon islands. As such the fund management would need to be supported by a system of checks and balances, with oversight from independent accounting/legal professionals. The project will also explore different forms of digital / mobile banking technologies which are in place in other archipelagic Pacific nations. The proposed new fund would provide opportunity for the surrounding communities of Katupika, Kia and Wagina to access financial assistance for community development projects that address coastal climate resilience.

Depending on the relevant legislation which may be in place, and whether or not the proposed fund could be nested within an existing governance structure or a new one considered, these are some logical steps in the process.

#### **Stage 1 - Learn from relevant Pacific experience**

Review experience of other Pacific countries' experience with Trust Fund establishment. One model could be the recently established Fiji Women's Fund (<https://fijiwomensfund.org/we-are-the-womens-fund-fiji/>) which was originally designed as a funding mechanism for small and grassroots women's organisations and groups in Fiji.

#### **Stage 2 - Determine the brief**

Determine what the local fund to do and how. For example, should it act as a fund for other NGOs and in what geographic area and for what sort of projects? Consider how the fund will fit within the context and why it is needed in consultation with Solomon Islands government and in particular the CTI-CFF National Coordinating Committee and conservation division of MECDM. Some key questions need to be discussed, such as extent to which fund could serve as conduit for external financing and how should it be capitalized? What timeframe would be reasonable for the fund to become an independent and standalone entity, and how much funding is required during the set up phase?

#### **Stage 3 - Consultation**

Consult with the relevant stakeholders and partners in relation to local funding needs as part of a design brief. This would require the time and effort of specialists who would also research in detail the legal context to establish such a fund and then propose a number of ideas to gain local buy in and support, including government support for the concept and refining the fund operational strategy, and the timeframe for independence.

Stage 4 - Draft a proposal for funding with a clear game plan in mind. This should set out how the fund will operate, its governance structure/management board and accountability mechanisms as well as gender equity considerations. A key part of that would be a time limited proposal for funding with the commitment from people who are part of it that they will as they start to operate work towards independence.

GEF technical assistance will be supported for: i) review / analysis of regulatory and legal requirements for creation of a fund, (including potential cross visit to Fiji) ii) development of the principles, processes and procedures in managing the fund, iii) defining and institutionalizing the governance framework for the fund, iv) design and delivery of capacity development and training in financial management (including 'blue finance principles' for ACMP and its constituents, v) implementation of a gender sensitive, sustainable finance strategy (see Output 2.2.2), and vi) investments in at least 3 small coastal resilience projects using nature-based principles and other established criteria (see Output 2.2.4 below).

#### **Output 2.2.4 Nature-based coral reef management and coastal resilience sub-projects implemented**

Once the governance structure is confirmed, the 'coastal resilience management fund' in place, and a set of principles and criteria for project selection and support, the GEF funds will support a number of small, restorative, nature-based coral reef management projects for the ACMP. These would include such initiatives as: i) removal of invasive alien species (such as crown of thorns), ii) establishing coral reef nurseries and coral reef restoration techniques, iii) improving shoreline protection, iv) capacity development and training for monitoring of coral reef health, and impacts of climate change, law enforcement etc, v) guide on post-disaster risk management and response capacity to climate-induced reef ecosystem damage prepared and communicated to stakeholders (linked to **Output 2.1.4**) [ **similar guide for Philippines and Indonesia**], vi) implementation of 'blue/green fee' system, and vii) knowledge sharing with other protected areas in Solomon Islands.

### **COMPONENT 3: Knowledge, learning and monitoring approaches to support coral reef financing and insurance enhanced (GEF + ADB funds)**

#### **Outcome 3: Improved awareness by national and local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods**

Considerable learning will be generated by the project - socio-economic, scientific and technical data as well as information on policies, laws, implementation of rules as well as lessons learned and best practices for implementing the reef financing and insurance model. Much of this will be drawn from the experience in Quintana Roo in Mexico, which will be juxtaposed and adapted to the Asia and the Pacific context, to the extent possible.

The project will synthesize and curate information to help increase adoption and internalization of good practices related to risk management, financing and risk transfer mechanisms, including insurance. Given the high level of stakeholder interest the approach will be slightly broader to permit extension to natural capital beyond coral reef ecosystems. However, despite this high level of interest, a wide

stakeholder understanding and acceptance of the concepts which underlie insuring natural capital will still require some work.

*The long term vision is to establish a formalized and working partnership model which consists of international financial institutions, private equity, private sector corporations and foundations, insurance industry, international and national NGOs and CSOs, and national and sub-national governments.*

**Output 3.1: Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated.**

The project will support development of a 'playbook' on financing and insuring natural capital, consisting of a number of different elements or sub-outputs (linked to activities under Components 1 and 2).

The first element /sub-output of the 'playbook' will be a regional knowledge product on '*Climate Change Adaptation Guidelines for Coastal Protection and Management*' (under the ADB TA on '*Building Coastal Resilience through Nature-Based and Integrated Solutions*' - see Annexed document)

The second sub-output would be a comprehensive coral reef knowledge product on '*Opportunities and Benefits of Using Risk-Transfer Tools for Coral Reef Protection and Restoration & Coastal Resilience*', co-financed by an ADB TA under the Finance Sector Group (FSG) (see Annexed documentation). Some details are provided below:

**Audience:** Multilateral development banks, international conservation NGOs, external stakeholders including potential donors, governments, and industry. Final product should be able to be used as a marketing tool to leverage additional policy support and funding for implementation projects. Primary focus on Indonesia, but also include Philippines, Fiji, Solomon Islands.

**Goal:** To produce a polished publication to engage key stakeholders, including ADB, GEF and those listed above in report audience.

**Main message:** Building capacity to manage risks to reefs (and other coastal ecosystems) in Asia-Pacific is a cost-effective risk reduction strategy.

**Content:** Review the benefits of coral reefs, risks faced by coral reefs, what are possible responses to address those risks, the capacity-mechanism to implement them and possible funding mechanisms, including insurance, for protecting and restoring coral reefs. Report should review all risks to reefs including those that are not insurable but that could be supported by other funding mechanisms. Document should be polished and well-written but should also provide relevant technical details on the funding mechanisms.

The third sub-output would be a guide which describes how to implement the response capacity which will be supported under the first two components in each of the project. The guide will describe the following elements:

1. *Governance:* identify the lead agency with responsibility for reef management and work with them to create a coordinating committee and an operations committee comprised of relevant stakeholders. The agency and the committees will lead and coordinate all planning and

preparations for activities to be conducted every year prior to the typhoon season. In case of a storm event, they will lead the response. In this connection, annual training on risk and vulnerability assessment will be conducted (covering natural, built and human assets).

2. *Protocol*: The Protocol, which has been developed for application in the Meso-American context, provides guidelines for annual preparation and planning and for post-storm response

3. *Brigades*: with additional funding, the project could train volunteer brigade members to assess the damage to the reef, remove debris and make initial repairs to the reef after each triggering storm event; it will also train them to conduct ongoing maintenance of the reef throughout the year. Brigades require that there be diving capacity and expertise at the site. The brigades could be comprised of volunteers from local stakeholder communities, such as tourism operators, fishermen, scientists, park managers and others who benefit from the reef's presence and have an interest in repairing it.

4. *Financial strategy*: the project will work with the lead agency and the Coordinating Committee to reach agreement on which would contribute funds to support the repairs; for example, in Mexico, hotels contribute fuel and tour operators provide boats for the volunteers to use in conducting the repairs.

The guide that the project will develop for the Philippines will cover the following:

1. *Annual preparation and planning*: every year, prior to the typhoon season, the committee should prepare by ensuring that the governance structure is in place, risks and vulnerabilities are assessed, equipment is ready, enough brigade members are trained and by providing training refreshers, securing funding for the season, etc.
2. *Warning*: preparations should be undertaken when a typhoon is approaching, including re-checking materials, measures to ensure peoples' safety, and readiness to respond after the storm.
3. *Rapid assessment*: within 2-5 days of a storm event, evaluate damages to the reef and prepare a response plan.
4. *Response*: clean up debris, stabilize and re-attach corals, establish nurseries.
5. *Recovery plan*: includes a final evaluation of damages and of the results of the response, and identifies restoration needs for subsequent years.

Should additional co-financing materialize, a fourth 'playbook' sub-output would consist of a suite of bespoke guidance documents prepared in multi-media, user-friendly format. The guidance would be focused on implementing different phases of the reef financing and insurance model, for example:

1. How to conduct a risk analysis to support the business case
2. What kinds of data sets and climate modelling information is needed
3. How to estimate the value of a reef and prioritize sites
4. How to estimate the cost of restoration and repairs
5. How to estimate damages to reefs
6. How to estimate losses to local economies and stakeholders
7. How to design and structure a financing mechanism
8. How to extend the model to other coastal ecosystems, notably mangrove areas

The content will target: i) front line coastal and marine management personnel, ii) local management committees (multiple stakeholders) on governance elements of disaster risk management, iii) key community members on risk and vulnerability assessment (covering natural, built and human assets).

### **Output 3.2: Increased stakeholder awareness of coral reef finance and insurance**

Communications materials will be developed using content described in Output 3.1, These activities will be low cost and web-enabled (e.g., social media, blogs, webinars etc), to ensure wide dissemination. The target audiences would include:

*National and local governments* on enabling conditions, ecosystem science and financial mechanisms for effective use of nature-based solutions, including the reef financing and insurance model. One key message will be to encourage Governments and local communities to maintain coral reefs at optimal levels in order for them to become an ?insurable asset?.

*Hotels, transport and tourism operators and other stakeholders in business sectors* on the benefits for coastal economies of coral reef conservation using the reef insurance model. This will include, but not be limited to outreach to peer-to-peer business networks (including women-led enterprises).

The *private insurance industry* to encourage widespread offering of insurance products for coral reef conservation; and, to encourage new capacity and market development perspectives within the insurance sector.

The project will disseminate the knowledge products (referenced in Output 3.1) through global networks, such as the International Coral Reef Initiative (ICRI) and the Reef Resilience Network, and leverage regional (e.g. Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security) and international platforms to disseminate it to national and local governments. This will be done using a variety of means, including, but not limited to, a number of webinars and other online offerings. The aim will be to extend reach across the wider Asia and the Pacific countries, and possibly other regions, particularly Meso-America and the Caribbean.

The project will also socialize this climate risk insurance model through the ongoing engagement by the project partners with insurance industry platforms and organizations such as the Insurance Development Forum (IDF), the Ocean Risk and Resilience Action Alliance (ORRAA), The Geneva Association, the International Insurance Society and other appropriate fora. To further build the interest and support by the industry around insurance for nature and catalyze the creation of self-sustaining markets for reef insurance in the region and globally. The project will also share lessons learned with the Green Climate Fund (GCF), in the context of the ?Long-term Vision on Complementarity, Coherence and Collaboration between the Green Climate Fund and the Global Environment Facility?.

Should additional funding become available, the project may be able to support development of more sophisticated audio-visual products.

### **Output 3.3 Monitoring and evaluation conducted**

A project monitoring system will be established to capture and host data relevant to the coral reef insurance initiative and beyond. The parameters of this monitoring will coincide with the GEF LDCF/SCCF results framework and beyond. A mid-term review and terminal evaluation of the project will be supported and has been budgeted. A Monitoring and Evaluation Plan is also attached to the CER.

### **Alignment with GEF Focal Areas / Impact Programs**

The project is consistent with the goal of the new LDCF/SCCF programming strategy as it aims to strengthen resilience and reduce vulnerability to the adverse impacts of climate change in developing countries and support their efforts to enhance adaptive capacity. It is relevant to corresponding sections of the UNFCCC Paris Agreement as it relates to climate change adaptation. The GEF project will play a catalytic role in testing and adapting technologies and innovative practices to specific conditions and capacity, creating favourable policies and strategies, providing systemic support to innovation through incubation and accelerators, piloting financial tools, risk transfer mechanisms, including risk insurance, climate risk pooling and other risk sharing solutions, and strengthening private sector engagement in adaptation? It is also relevant to the objectives articulated under the SCCF, which would support examples of innovative and technology transfer oriented external development initiatives?. such as risk insurance schemes for specific vulnerable regions?[4]

The project is in alignment with the pre-selection criteria of the GEF Challenge Program on Innovation in Adaptation. It will: i) Demonstrate innovative business model and investment approach to climate insurance for a natural asset (coral reefs) with high potential to catalyze private sector action in the insurance and coastal tourism and fishing industries, ii) Serve as proof of concept for a cost-effective and replicable PPP to increase climate resilience of coastal economies and livelihoods in priority sectors, iii) Support economic case for a financial mechanism for hotels, coastal businesses (including small and medium enterprises) and communities, iv) Leverage investments in the maintenance and restoration of coral reefs, whose protective and provisioning services provide significant economic and social value to their operations, v) Expand the vision of the insurance industry to protect natural assets, reduce losses and stimulate a growth market for insurance products, vi) Build institutional capacity for insurance uptake and catalyze the scaling of insurance markets and products with potential applicability for other natural coastal assets such as mangroves, and vii) Work through a multi-stakeholder partnership.

Biodiversity (BD) Focal Area objectives will also be addressed under this project, although no (BD) funds will be committed under this project. It is relevant to objectives under Objective 1: mainstreaming of biodiversity, by improving policies and decision-making informed by biodiversity and ecosystems values (in this case protective and provisioning of coral reef ecosystems), as well as managing biodiversity in priority seascapes. As it relates to natural capital accounting assessment, the project will be consistent with GEF guidance in that it will seek to: ?i) mitigate or eliminate harmful incentives leading to the degradation of natural capital assets or to identify positive financial and other policy incentives for the maintenance or enhancement of these assets; and ii)) enhance financing for sustainable management and restoration of natural capital, including through affecting public and private financial flows. This may include expanding the use of green finance mechanisms and solutions, as appropriate (e.g., green bonds, blue bonds, etc).? The project will also be relevant to Objective 2: Improving financial sustainability, effective management, and ecosystem coverage of the global protected area estate. Project activities will aim to support: i) effective protection and management of ecologically viable and climate-resilient representative samples of project ecosystems, ii) secure adequate financial resources to support protected area management costs; and iii) strengthen local capacity to manage protected and key biodiversity area resources effectively, over the long term.[5]

### **Incremental cost reasoning**

In the project countries, under the business as usual (BAU), coral reef ecosystems continue to degrade,

despite best efforts. In the Philippines, a coral reef survey conducted between 2015 and 2017, which covered 166 coral sampling stations, reported that none of the reefs were classified as 'excellent'. Ninety percent were classified as either 'poor' or 'fair' [6]. In Indonesia, a study undertaken by the Indonesian Institute for Sciences (LIPI) noted the precarious state of the country's coral reefs. Of 1067 sites in the country, just 6.5 percent of the coral reefs were in 'excellent' condition, while 36 percent were deemed in 'bad' condition, with some 34 percent in 'sufficient' condition with the rest classified as being in 'good' condition.[7] Similarly, in Solomons Islands and Fiji, coral reef ecosystems are continually exposed to a number of threats, both anthropogenic and natural.[8]

As part of its work with the CTI-CFF countries, ADB supported activities to help Indonesia, the Philippines and Solomon Islands undertake a costing of their National Plans of Action (NPOAs). The aim of the exercise was to help countries determine the financing gap between available resources for priority actions (and sub-actions) across 5 thematic and three cross-cutting areas - - and the actual financing available. Although there were many challenges, by and large, countries were able to indicate with some measure of confidence that the financing gaps were significant. For the Philippines, for example, around \$300 million would be required to fully implement the National Plan of Action from 2014-2020 or an average of \$43 million per year. For Climate Change Adaptation thematic area, the funding requirement for that period is \$37,410,000; whereas, at the time of study, the funds available amounted to a paltry \$31,000.[9]

The proposed GEF project aims to address the chronic 'underfunding' challenges that climate change adaptation proponents face and put in place a system where financing of climate change adaptation will be explored more systematically for long term impact. The incremental cost reasoning, hence, is that upfront investments in prevention and maintenance of coral reef ecosystems will reduce the actual direct and indirect costs of damages, losses and recovery of physical and natural assets. Establishing risk transfer mechanisms, such as an insurance product which will pay out to communities in cases of catastrophic storm events, adds to this measure.

### **Adaptation benefits**

The GEF project will contribute to: i) Increased resilience of physical (e.g. property, people) and natural assets made vulnerable to climate variability and change in project areas, ii) Enhanced capacity of businesses and communities in coral reef-adjacent coastal areas in select site(s) to extract a resilience dividend (effectively cost-savings) from up-front investments that reduce future losses and enhance recovery readiness, iii) Demonstrated innovation in insurance, including through creation of enabling policies, financial mechanisms, climate data analytics and institutional capacities for risk transfer and pooling, noting the differences in tenure systems (Pacific vs SE Asia), and iv) Practical steps to support and scale up reef insurance model areas pending results of feasibility analysis through additional funding for complementary project(s).

In terms of monitoring and reporting, the project will use the new LDCF/SCCF tracking tool, under the options for LDCF and SCCF Challenge Windows, and address climate change challenges under 'natural hazards'. The project will track the four Core Indicators, and report specifically on the following overarching outputs: i) new / improved climate information systems deployed (in project areas), ii) vulnerable natural ecosystems strengthened in response to climate change impacts, iii) number of people made aware of, and training in climate adaptation response measures, iv) financial instruments or models to enhance climate resilience developed, iv) systems and frameworks established for continuous monitoring, reporting and review of adaptation, v) climate risks and vulnerability assessments conducted, vi) institutional coordination mechanisms created or strengthened to access and/or manage climate finance, among others.

### **Innovation, sustainability and scaling up**

**Innovation:** The proposed approach is highly innovative; it is the first of its kind in the Asia-Pacific region. The insurance of nature is virtually unique. The model is also replicable and scalable. Transferring the risk of restoring damages to nature is sound financial strategy for both the

beneficiaries and the entities responsible for the natural asset. The proposed approach is analogous to taking out insurance to cover the repair of a dyke or seawall (gray infrastructure) and also to pay for the regular cost of its operation and maintenance. The innovation in the approach is the creation of an insurance product that covers the cost of repairing a natural infrastructure asset (the reef) and, through an underlying funding mechanism, establish a dedicated revenue stream for its ongoing conservation. There is currently only a single example of this world-wide. In this project, **Indonesia** will demonstrate how individual elements of the model can be restructured to suit the Indonesian context, both in the design of the financial mechanism (working within the existing BLU/BLUD framework), the insurance policy and the development of reef brigades.

The proposed approach of creating an insurance product for ecosystems service provisioning is well aligned with GEF interest in supporting innovative business models, as noted in the STAP document 'Innovation and the GEF', which cites as an example the GEF project in the Philippines aimed at expanding access to index-based weather insurance for smallholder farmers.

The reef insurance model may be relevant for other natural assets, such as mangrove ecosystems, in coastal areas where typhoons cause damage to coastal businesses and communities. The potential could be assessed with additional funds.

**Scalability:** The need to take this initiative to scale has never been more urgent. Governments around the globe are witnessing rapid population growth in coastal areas. They are increasingly sensitive to the need to enhance resilience to severe weather and climate change. Furthermore, government budgets at both national and local levels are not sufficiently robust to be able to finance the increasing burden of severe weather impacts—a fact that is even more pronounced in developing countries. The tourism/environmental fees collected in the **Philippines** by the local governments can be a sustainable source of funds to defray the insurance premium especially considering its rising trend. But it will be an onerous and political process, but allocation is sustained and cannot be overruled unless amended again.

Economic losses from disasters, both in wealthy and developing economies, are topping \$300 billion per year[10]. Similar analyses at country level where reef insurance markets may be feasible has been undertaken. In addition to the four countries participating in the proposed project, other countries include: Malaysia, Viet Nam, Myanmar, Thailand, Vanuatu (and other countries in other regions). This demonstrates the potential for scaling the approach within the Asia-Pacific region[11]. **Fiji's** legal framework provides a number of options for the establishment of an appropriate entity to apply for coral reef insurance, like a Special Purpose Vehicle up to even the creation of a statutory authority incorporated by an Act of Parliament.

**Sustainability:** There are a number of dimensions to 'sustainability', or 'durability' as mooted in recent GEF discussions which have bearing on this project. First, the project aims to address the long-term durability of coastal communities to withstand and respond to catastrophic natural events. It aims to reduce loss of life. Typhoon Haiyan in November 2013 (known as 'Yolanda' in the Philippines) resulted in at least 6,300 deaths (and estimated \$3 billion in damages). While the focus of this small project is on coral reef assets, it is anticipated that it will be cast within the broader framework of disaster risk prevention, reduction and management which is supported by all the participating countries. The project aims to shore up socio-economic capacity of businesses and communities to respond to and recover from such natural catastrophes, in order to reduce economic losses and business momentum. Importantly, the project aims to address issues related to long term financial sustainability of managing coral reef ecosystems, which has proven difficult for many countries given the strain on national and local budgets, and possible opportunity costs of financing biodiversity and ecosystems as opposed to other priorities such as education, health, energy, etc. The vision is eventually to create some forms of sustainable financing mechanisms in participating countries, which would have three main objectives: i) to finance ongoing and future maintenance and management of coral reef ecosystems in project areas, ii) to establish a way to pay out to communities, funds dedicated to recovery of natural assets from catastrophic events through the insurance policy. The sustainable financing mechanism for **Indonesia** envisions support from a diversity of funding sources: public sector (national / provincial) resources, private sector contributions and pay-outs when an insured risk

damages the reef. The funding will ensure that reef maintenance activities are carried out using tools and approaches that enhance the resilience and sustainability of the reef and adjacent beaches.

- 
- 

- 
- - 
  - 
  -

- [1] Wouthuyzen, S. et al. (2018). A comparison between the 2010 and 2016 El-Nino induced coral bleaching in the Indonesia waters
- [2] Typhoon hazard will only be considered for Coron.
- [3] The Nature Conservancy (TNC) USA is Trustee for the fund. Annual payouts are channelled through TNC Solomon Islands to support community programs
- [4] GEF/LDCF.SCCF.24/03, June 1, 2018 (emphasis added).
- [5] GEF/R.7/19, April 2, 2018 pp, 14-30.
- [6] <https://businessmirror.com.ph/2018/02/25/mission-reduce-threats-to-coral-reefs/>
- [7] <https://phys.org/news/2018-11-indonesia-coral-reefs-bad-state.html>
- [8] Asian Development Bank. State of the Coral Triangle: Solomon Islands. Mandaluyong City, Philippines: ADB, 2014; and Moritz C, Vii J, Lee Long W, Tamelander J, Thomassin A, Planes S (editors). Status and Trends of Coral Reefs of the Pacific. Global Coral Reef Monitoring Network. 2018.
- [9] ADB. ?Costing the Philippines National Plan of Action for the Coral Triangle Initiative-Coral Reef, Fisheries and Food Security?. Mandaluyong City, 2015. Note that this took place before the Green Climate Fund (GCF) was fully operational.
- [10] <https://www.preventionweb.net/risk/direct-indirect-losses>
- [11]The feasibility of the model in Guatemala, Honduras and Belize (and in the USA) is being assessed.

- 
- 

#### 1b. Project Map and Coordinates

**Please provide geo-referenced information and map where the project interventions will take place.**

1. Seven candidate sites in Indonesia

Raja Ampat Regency (West Papua Province) 0? 50? 0? S, 130? 30? 0? E

Wakatobi Regency (South East Sulawesi) 5° 32' 9" S, 123° 45' 29" E

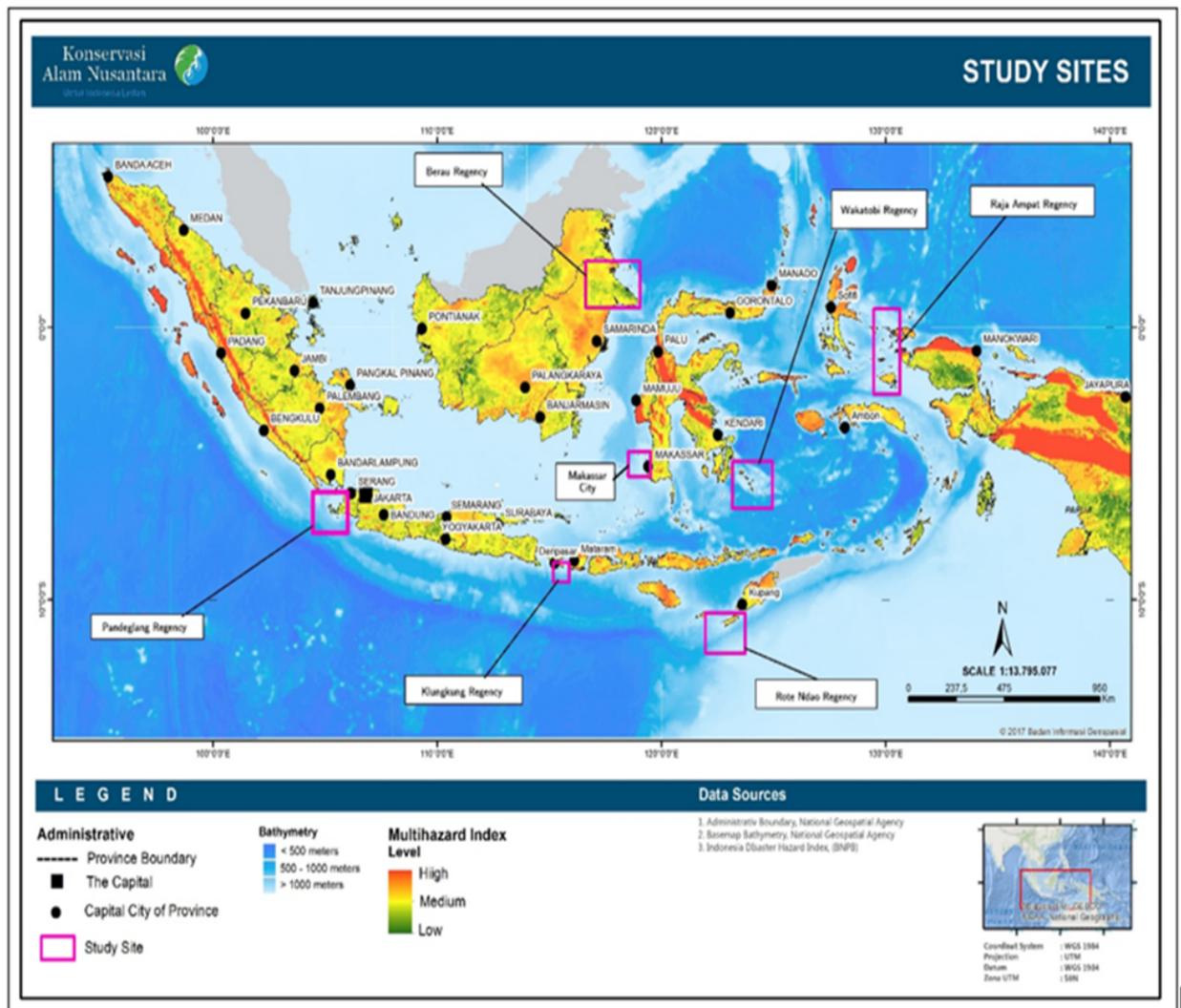
Rote Ndao Regency (East Nusa Tenggara) 10° 28' 0.12" S, 123° 22' 59.88" E

Berau Regency (East Kalimantan) 2° 0' 0" N, 117° 18' 0" E

Klungkung Regency (Bali) 8° 32' 20.12" S, 115° 24' 16.24" E

Makassar City (South Sulawesi) 5° 7' 59" S, 119° 24' 49" E

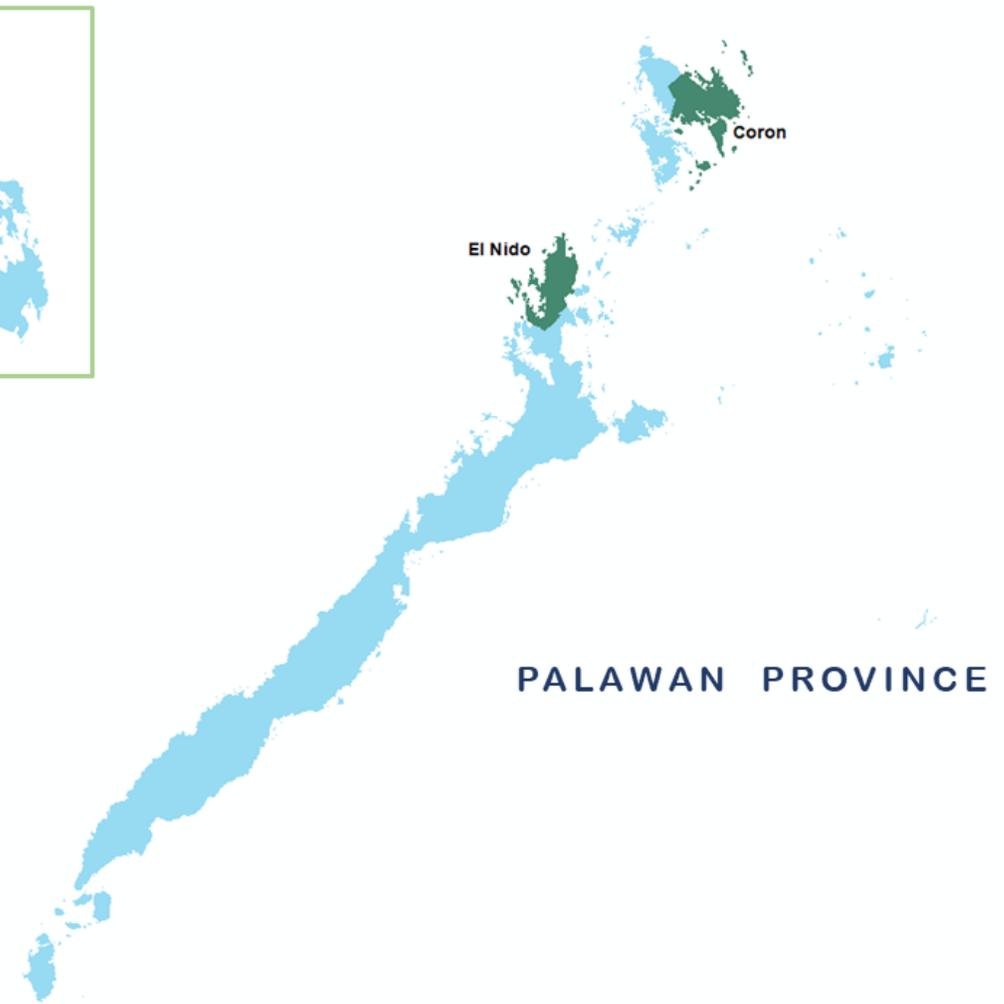
Pandeglang Regency (Banten) 6° 18' 33" S, 106° 6' 17" E



2. El Nido and Coron in Palawan province, Philippines

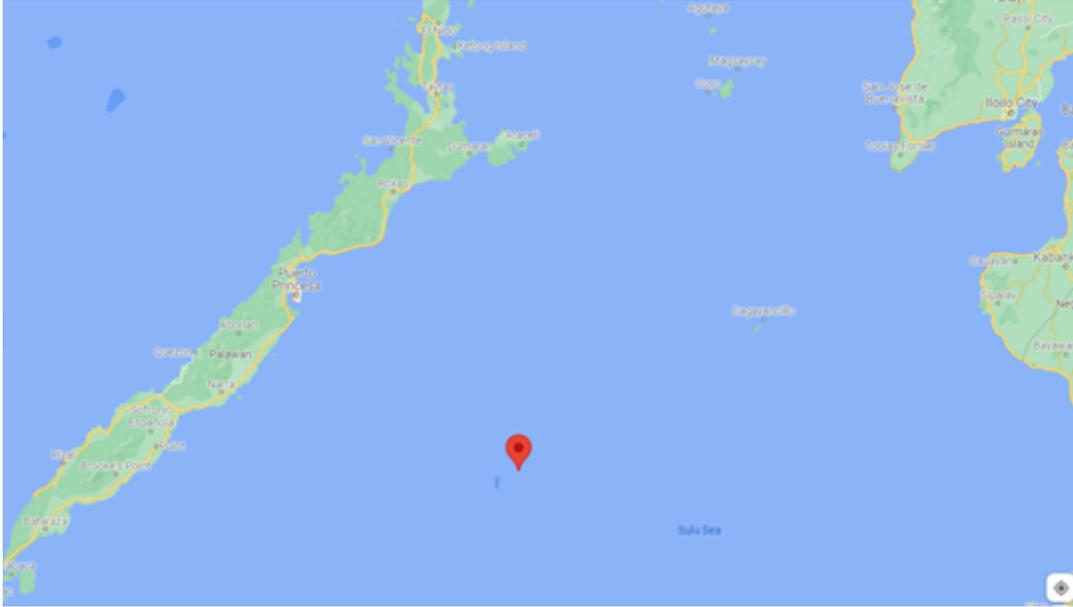
Coron 12° 0' 0" N, 120° 12' 0" E

El Nido 11° 11' 44.02" N, 119° 24' 27" E

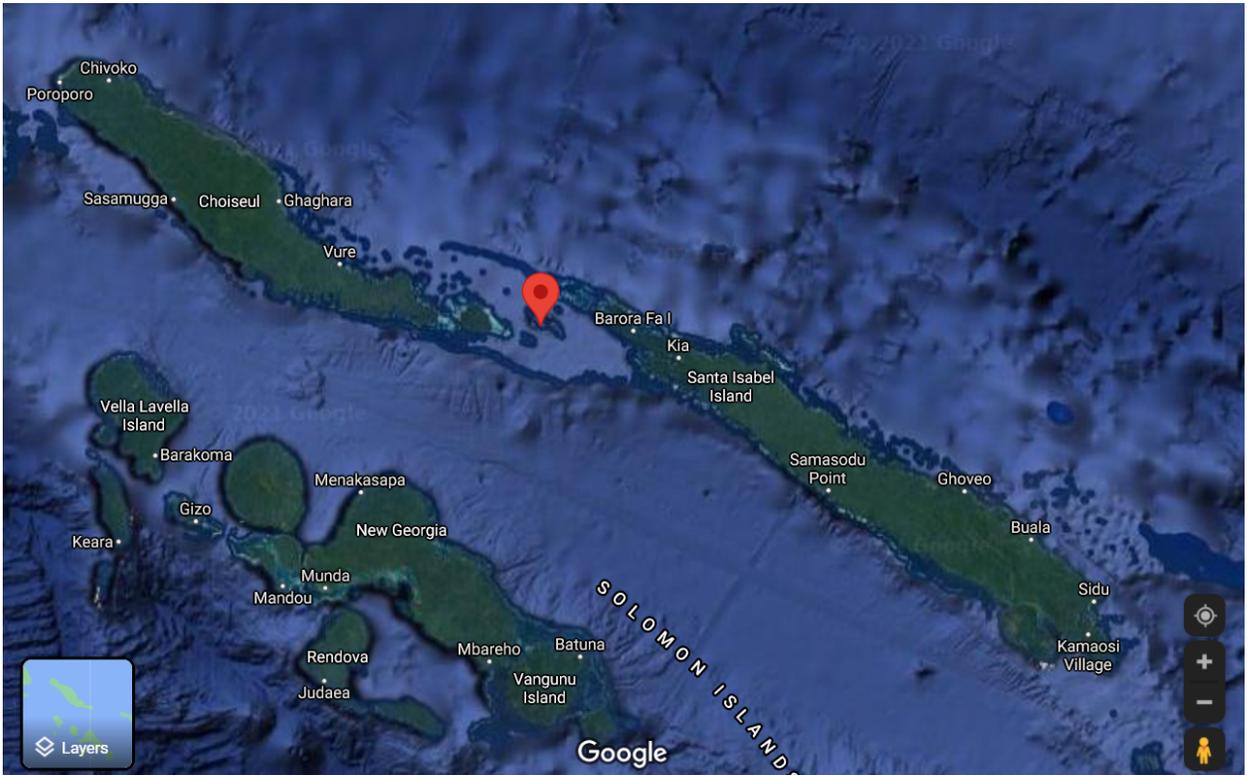


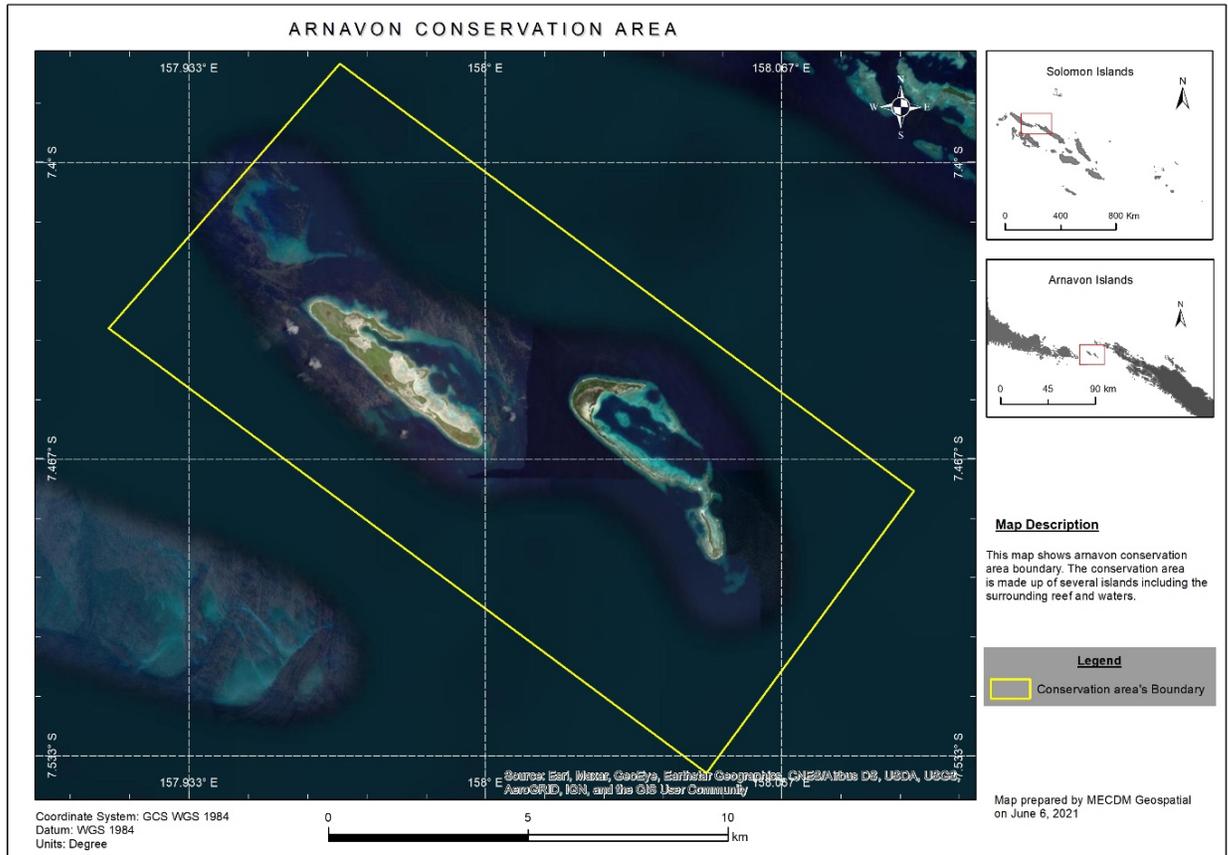
Tubbataha Reef Natural Park

8° 57' 12" N, 119° 52' 3" E



3.. Arnavon Islands, Solomon Islands 7° 27' 0" S, 158° 0' 0" E





**1c. Child Project?**

**If this is a child project under a program, describe how the components contribute to the overall program impact.**

N/A

**2. Stakeholders**

**Select the stakeholders that have participated in consultations during the project identification phase:**

**Civil Society Organizations** Yes

**Indigenous Peoples and Local Communities** Yes

**Private Sector Entities** Yes

**If none of the above, please explain why:**

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

During project preparation, multiple stakeholders were engaged. Details on these consultations are contained in each of the country baseline reports.

On 11 February 2021, the Asian Development Bank (ADB) hosted a stakeholder sharing session on "Public Private Partnerships for Coral Reef Insurance: Philippines". Participation included all levels of Government, private sector companies, private foundations, international and domestic NGOs, bilateral donors and ADB. 70+ practitioners, from the Philippines, USA, Mexico, UK, Switzerland, Australia, Fiji, Solomon Islands, and Indonesia were in attendance. There was an orientation to a proposed ADB Sustainable Tourism Development Project, a loan which aims to support the municipalities of Coron and El Nido in Palawan. A feature presentation was made by recognized specialists from The Nature Conservancy (TNC) on their successful experience with coral reef insurance which covers a coastal strip in the Meso-American reef in Quintana Roo province of Mexico.

The dialogue provided valuable insights on how this type of parametric insurance may be considered for the two municipalities in Palawan, and other high value coral reef ecosystems in the region, in terms of ecosystems services which support important tourism and fishery industries in the area.

Prior to submission of the GEF CER, country stakeholder consultations were hosted with the Philippines and Indonesia on 18 June 2021. Individual communications / consultations were conducted with Solomon Island stakeholders during the week of 05 July 2021. During the month of August 2021 (after the GEF Secretariat 1st CER review) additional stakeholder consultations were conducted with the Solomon Island Government and other stakeholders to re-define project activities. Similarly in August and early September 2021 the GEF Agency engaged with Government of Philippines, both municipal, provincial and national levels. The proposed GEF project was highlighted on 09 September during a special ADB-hosted webinar on Insurance for Resilient Infrastructure in Asia. During this session, the Tubbataha Reefs National Park superintendent expressed interest in aligning with the project. Subsequent consultations with the Tubbataha Management Office (TMO) led to additional data collection and inclusion in the project framework as an additional site for Philippines. Given these developments, on 11 September 2021, the Biodiversity Management Bureau in Department of Environment and Natural Resources (DENR) confirmed in a letter, the preference for Palawan Council for Sustainable Development as Executing Entity.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

A **Stakeholder Engagement Matrix** is presented below:

International Organizations	Possible Role
Asian Development Bank (ADB)	<p>GEF Agency ? overall financial and technical oversight and management for the project.</p> <p>ADB will also coordinate and manage co-financing for the GEF project through its various loans and technical assistance initiatives</p>
United Nations Development Programme (UNDP)	<p>UNDP is a full member of ORRAA, Through the Geneva office has contributed to PIF development. Is active in risk transfer mechanisms, including complementary reef insurance initiatives in such countries as Indonesia, Philippines and Viet Nam (among others). UNDP is also part of the Global Fund for Coral Reefs.</p> <p>Possible role as knowledge and learning partner and participant in Project Advisory Committee</p>
The Nature Conservancy (TNC)	<p>TNC is a full member of ORRAA and has led the first successful coral reef financing insurance initiative in the world (Mexico model). Leader in advancing nature-based insurance at global level. Active in Asia and the Pacific, with selected country offices and in-country NGO affiliates.</p> <p>Has committed co-financing resources. Possible role in project implementation / coordination; and participation in Project Advisory Committee.</p>
Ocean Risk and Resilience Action Alliance (ORRAA)	<p>ORRAA is a multi-stakeholder organization - bringing together the <a href="#">insurance and finance sectors, governments, non-profits, and stakeholders from the developing world to</a> pioneer finance and insurance products that incentivise investment into nature-based solutions, with a focus on protecting the regions and communities that need it most. Aim to facilitate US\$500 million of investment into nature-based solutions by 2030 and advance at least 15 novel finance products by 2025.</p> <p>Possible role as technical partner in Indonesia, Philippines and Fiji if product placement is being considered. Participation in the Project Advisory Committee would provide access to network in addition to technical guidance and co-financing for scaling up.</p>
United States Agency for International Development (USAID)	<p>Through Fish Right Program, USAID is assisting municipality of Coron, Philippines. The project will work closely with the USAID contractor /sub-contractors to coordinate efforts related to environmental fee establishment, and ?Coron Watch? initiative in the Philippines.</p> <p>Possible knowledge and learning partner</p>
World Bank (WB)	<p>Has supported insurance initiatives in Pacific SIDS. Collaborates with ADB and BAPPENAS on COREMAP-CTI in Indonesia (among others)</p> <p>Possible knowledge and learning partner.</p>

Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) ? Regional Secretariat (RS)	<p>The project has been highlighted in Partner sessions with the CTI-CFF RS, and also discussed with member of the CTI-CFF National Coordinating Committees in the three CTI member countries.</p> <p>The GEF project will align with the proposed directions of the RS with respect to the Financial Resources Working Group (FRWG), an in particular with the proposed actions related to sustainable financing and regional trust fund</p> <p>Potential knowledge and learning partner</p>
<b>Government Agencies</b>	<b>Possible Role</b>
<b>Indonesia</b>	
Ministry of Environment and Forests (MOEF)	Involved in GEF execution through Directorate General for Climate Change Adaptation. Member of Project Advisory Committee
Ministry of Marine Affairs and Fisheries (MMAF)	Involved in GEF execution through Directorate General for Marine Spatial Planning. Member of Project Advisory Committee
Ministry of Finance	Relevant for managing funds for the insurance premium payments and coral reef restoration. A potential member of the multisectoral management group handling trust fund.
Ministry of National Development Planning (BAPPENAS)	Important role in setting up the coral reef insurance trust fund. It manages the Indonesian Climate Change Trust Fund (ICCTF), and also executes the COREMAP-CTI projects of both World Bank and ADB.
Financial Services Authority (OJK)	Authority that approves or rejects insurance products and financial products. Will be included in stakeholder consultations and designing the coral reef financing and insurance product.
<b>Philippines</b>	
Department of Environment and Natural Resources (DENR)	Involved as key stakeholder, and part of a national ?community of practice? through Biodiversity Management Bureau (BMB) as overarching national agency involved in coral reef management
Palawan Council for Sustainable Development (PCSD)	<p><b>Proposed GEF execution role.</b> Key regulatory agency for the development and use of all resources in proposed sites in province of Palawan. Local technical partners, and possible participation in multi-sectoral management body for a potential trust fund.</p> <p>Possible knowledge and learning partner <b>and role in project advisory committee</b></p>
Department of Tourism - Tourism Infrastructure and Economic Zone Authority (DOT-TIEZA)	<p>Alignment of a number of activities with their ADB Loan Grant on ?Sustainable Tourism Development Project? in proposed sites in Palawan.</p> <p>Possible co-implementation in Palawan through the Department of Tourism; as well as knowledge and learning partner</p>

Municipal Local Government Units (LGUs) of Coron/ El Nido	<p>Important implementing partners as the coastal waters are under their jurisdiction and management. Key role in management of the environmental fees, with potential to co-lead the multisectoral body of the insurance trust fund.</p> <p>Possible representation on Project Advisory Committee</p>
Tubbataha Management Office (TMO)	<p>Key agency involved in management of TRNP. Will jointly implement activities in Philippines. Possible representation on Project Advisory Committee</p>
<b>Solomon Islands</b>	
Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	<p>Involved in GEF execution. Key agency for Protected Area Trust Fund insurance product for damages of the conservation/protected areas during a catastrophe.</p> <p>Participation in Project Advisory Committee</p>
Ministry of Fisheries and Marine Resources (MFMR)	<p>Project technical, knowledge and learning partners give role in implementation of National Ocean Policy and various blue finance mechanisms.</p>
<b>Fiji</b>	
Ministry of Economy	<p>Involvement in project execution. Key decision maker in the creation of PPP entity for the coral reef insurance ? Special Purpose Vehicle (SPV). It is responsible for the National Oceans Policy central to the government's planning for maritime/oceans areas.</p> <p>Possible participation in GEF Project Advisory Committee.</p>
Reserve Bank of Fiji (RBF)	<p>Familiar with parametric insurance as it has approved a parametric insurance model, regulates all insurance and the placement of offshore insurance. RBF will be approving authority on the coral reef insurance product.</p>
Ministry of Fisheries	<p>Key agency involved in the designation, design and implementation of marine reserves/ MPAs in accordance Fiji's common law system. This includes training for enforcement that is significant to the reef brigades.</p> <p>Role as technical, knowledge and learning partner.</p>
Ministry for iTaukei Affairs ?Taukei Affairs Board	<p>Key stakeholder regarding qoliqoli rights and traditional fishing grounds. It includes retaining original copies of all iqoliqoli maps if included for reef insurance.</p> <p>Possible role as technical, knowledge and learning partner.</p>
Fiji's Meteorological Department	<p>Focal agency for providing weather, climate and hydrological data, associated forecasts, warning, projections and ocean wave monitoring tool. It monitors climate change and provides advice.</p> <p>Possible role as technical, knowledge and learning partner.</p>

Fiji's Ministry of Agriculture, Waterways and Environment	<p>This Ministry includes the Department of Environment which is the focal agency for the implementation of Fiji's Environmental Management Act, 2005 (EMA) and plays a key role in promoting the sustainable use and development of Fiji's environment including but not limited to administering EIAs. Ministry will also be involved in execution on ADB TA (co-financing for this project) on promoting nature-based solutions to improve coastal resilience.</p> <p>Possible role as technical, knowledge and learning partner</p>
<b>Civil Society Organizations/ Non-Governmental Organizations</b>	<b>Possible Role</b>
<b>Indonesia</b>	
Yayasan Konservasi Alam Nusantara (YKAN)	<p>Contributed to CER development. Strong capacity and presence at candidate sites.</p> <p>Possible role in national implementation.</p>
Conservation International	Potential role as technical, knowledge and learning partner, due to experience in strengthening marine protected areas for food and tourism revenue.
Kehati Foundation	Potential technical, knowledge and learning partner due to work on mangrove and coral reef restoration in Indonesia.
<b>Philippines</b>	
Community Managed Marine Protected Areas (CMMAs)	<p>Target for training. First responders as the local wardens and managers of their coastal waters/ ancestral domains to support rapid recovery and restoration of reefs after a disaster.</p> <p>Potential partners in the multisectoral governance body for the trust fund.</p>
Foundations (Malampaya and El Nido Foundations)	<p>Potential partners in governance body as they will support the community if it pursues to implement reef financing and insurance. These organizations can even be the third-party fund managers.</p> <p>El Nido Foundation potential knowledge and learning partner.</p>
<b>Solomon Islands</b>	
The Nature Conservancy (TNC)	<p>Active in Solomon Islands, and contributed to ACMCA development.</p> <p>Possible role in project implementation.</p>
Arnavon Community Managed Conservation Area (ACMCA)	This is potential pilot project site with the ACMCA Board managed by a group of rangers. It is legally registered under the Protected Area Act 2010.
World Wildlife Fund for Nature	<p>Potential partner as it will soon implement the Coral Resilience Program. Hence, there is the possibility to integrate the coral reef insurance work with this program.</p> <p>Possible knowledge and learning partner.</p>

World Fish	Active in development and implementation of national CBRM Strategy.  Possible knowledge and learning partner.
Wildlife Conservation Society	Potential partner to link the coral reef insurance work with ongoing Melanesia program. It can integrate the project on the community engagement, science-based conservation and outreach works, especially to their successful local conservation initiatives.  Possible knowledge and learning partner.
<b>Fiji</b>	
World Wildlife Fund (WWF)	Coordination with GEF project on 'Financial Tools for Small Scale Fishers in Melanesia' and proposed GEF 'Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities' project which includes Fiji  Potential technical, knowledge and learning partner (especially through links with Willis Towers Watson)
Fiji Locally Managed Marine Area Network (FLMMA)	Potential engagement for training the reef brigade in various areas and ensuring payments are made to the correct persons out of any insurance payout.  Possible technical, knowledge and learning partner and an essential partner for all community level consultations and awareness raising at the community level. Good links with the Ministry of Fisheries and iTaukei Affairs Board
Conservation International	Possible involvement in design of governance structure/advisory board due to work in Lau Group of islands. Coordination with proposed GEF project on 'Safeguarding Marine and Terrestrial Biodiversity in Fiji'.  Potential technical, knowledge and learning partner. A key partner in relation to the Vatuvara Island Resort and Vatuvara Foundation included in the private sector section below.
Wildlife Conservation Society (WCS)	Potential involvement in design and delivery of capacity development / technical assistance. WCS is likely to provide the most up to date and comprehensive reef studies in Fiji and may provide potential for awareness raising in relation to coral reef insurance
University of the South Pacific (USP) and School of Marine Studies (SMS)	SMS within USP provides additional capacity for reef studies and has well established links with coral reef experts and government. Along with WCS, SMS may provide good options for reef assessments and awareness raising
<b>Private Sector</b>	<b>Possible Role</b>
<b>Indonesia</b>	
Maipark Re-Insurance	Consulting partner for OJK with profile data on a number of geological and hydro-meteorological hazards in Indonesia
<b>Philippines</b>	
Discovery Hospitality Corporation	Key partner of high-end resorts willing to be part of the reef brigade, pilot reef insurance model and restoration in their sites.
<b>Solomon Islands</b>	

Insurance Brokers (Pacific Brokers Tower Insurance)	Insurance Brokers that can assist, although do not cover for natural assets but only for loss of property/infrastructure.
<b>Fiji</b>	
Private business sector via the Fiji Chamber of Commerce and respective affiliates such as the Suva Chamber of Commerce	The Fiji Chamber of Commerce provides a forum for the private sector and other organizations to discuss Fiji's business environment and amongst other things consider and promote innovations that will include risk transfer mechanisms
Laucala Island Resort Limited	One of Fiji's most exclusive resorts and located within Fiji's most at risk areas for cyclones. This resort has expressed an interest in purchasing parametric insurance to cover its areas of coral reef and has existing programmes in place with local communities to assist with reef resilience
Vatuvara Private Islands and the Vatuvara Foundation	Vatuvara Private Islands is a remote island resort and another of Fiji's most exclusive tourism resorts located on Kaibu Island and its associated private islands of Vatuvara, Kanacea and Adavaci in northern Lau Vatuvara Foundation is a local charitable organisation under the Fiji Charitable Trusts Act that works with local communities to protect the marine environment of Northern Lau. They have established extensive programs of marine conservation and collaborate with marine NGOs in Fiji most notably Conservation International and WCS.
Nukubati Private Island Resort, Great Sea Reef, Vanua Levu	A boutique eco-resort that operates within the Great Sea Reef ecosystem that is one of the longest barrier reefs in the world and is known as Fiji's 'food basket'. Faced devastating cyclones previously, Established links with local communities and NGOs, most notably WWF.
Complete Insurance Services Pte Limited	Insurance brokers who would be interest in discussing parametric insurance and other risk transfer mechanisms more, but do not at present offer this service within Fiji.

**Select what role civil society will play in the project:**

**Consulted only;** Yes

**Member of Advisory Body; Contractor;** Yes

**Co-financier;**

**Member of project steering committee or equivalent decision-making body;**

**Executor or co-executor;** Yes

**Other (Please explain)**

The project will work with civil society organizations that are present in project sites. In some cases there are local, non-government organizations. However in Solomon Islands this would include local communities that have stewardship over local resources, as explained in the Alternative Scenario.

### **3. Gender Equality and Women's Empowerment**

#### **Provide the gender analysis or equivalent socio-economic assesment.**

Impacts of disaster caused by natural hazards are not gender-neutral. There is general consensus that women are highly vulnerable during natural disasters such as cyclones/storms. In Asia and the Pacific areas alone, the population living in cyclone-prone areas grew from 72 million to 120 million between 1970 and 2010. There can be high mortality in women and young children. In areas where women have lower socio-economic status, natural disasters kill more women than men?both directly and indirectly through related post-disaster events.

Women's lives are lost at a younger age than men in impacts of natural disasters especially when the access to health services is reduced. Women, apart from their household and other tasks, also carry the burden for reproductive work. So, in a severe storm for example, chances of survival in the final stages of pregnancy can be limiting when health infrastructures are damaged and/ or inaccessible. In **Indonesia**, early marriage and early pregnancies are common. There is high chronic lack of energy and anemia among mothers reported at 64% and maternal mortality rates are increasing.

Post-disaster recovery further increases the workload on women as they are usually on the frontline in terms of re-organizing households, relocating families, collecting food and basic provisions. This contributes to higher incidence of school dropout for girls and interrupts skills acquisition and other livelihoods. Female students tend to drop out of school starting from junior high school in **Indonesia**.

Women also face various economic disadvantages. In **Fiji**, the labor force participation rate stands at 37% for women and 76% for men. Unemployment rates are also higher amongst women (8%) and than men (3%). Women carry the larger burden of unpaid care work. Employed women spend an average of 64 hours per week in their main occupation and on household chores, compared with 49 hours spent by men. Women are also over-represented in informal employment with 48% working in the informal sector, where it is characterized by poorer working conditions, lower wages and less protection and stability. Rural women make up 41% of own-account workers and contributing workers on family farms.

**Indonesian** women, likewise are more than twice as likely as men to work in the informal sector. Being employed in the informal sector also entails risks, as informal sector workers typically have lower - and more unstable - incomes and lack access to basic protection and health services. A significant portion of female informal sector workers are unpaid, and those who receive income usually get paid less than men for the same work. Considering that in most parts of Indonesia the inheritances go to men, women, therefore, have less access to capital and assets than men. This dynamic has been both exposed and exacerbated through the COVID-19 crisis.

There is wide spread perception that fishing is a male-dominated activity, however a recent study by FAO. revealed that, in the **Philippines**, 90% of those employed in fisheries are men, mostly fishing from boats. However, the same study found that of the 120 million people worldwide that work in fisheries and associated supply chains, half of the workforce is women. A study in **Solomon Islands** showed that women make up a large proportion of the workforce in tuna and coastal fisheries supply chains. This is observed in the SolTuna company (the only tuna processing factory in Solomon Islands), where women make up most of the workforce. In the Solomon Islands, women make up about

half of the community fisheries activities, although their fishing activities are disproportionately targeted towards subsistence fishing and providing food for their families. Men tend to control assets such as boats and outboard engines, and a greater proportion of their fishing efforts are small-scale and commercial in nature. It is recognized that the role of women in the Solomon Islands is still largely undervalued in fishing-dependent communities.

Women are disproportionately affected by climate change and natural catastrophes, mainly because women play multiple roles in food, water and energy provision for families. Women's fisheries activities in the **Philippines** are very important for household food security, because seafood harvested by women is more likely to be for subsistence. In general, **Indonesian** women take the lead role in house cleaning, food preparation and childcare. This is corroborated by studies in **Fiji** that showed women are more likely than men to gather coastal resources for subsistence and other reasons. In Fiji, they face a disproportionately high load to feed their families from subsistence fish catches. In coastal marine areas in Fiji, the women carry 80% of the burden to provide protein to their families when compared to men. But, the Fijian women faced additional challenges in relation to land and marine resources. The high prevalence rates of violence against women and girls in rural areas in Solomon Islands Fiji can also impact their access to resources and opportunities, and from playing a role in decision-making.

A very recent 2020 gender analysis in the **Philippines** revealed that the roles of women and men in fishing communities are deeply integrated, but unequal, especially in relation to workload, leadership and decision-making. This applies to the other 3 countries as well, where men and women tend to play different roles in coastal fishing communities. In Indonesia, for example, the different perceptions by men and women of the value of natural resources appears to depend on who controls the benefits from those resources, how those benefits are allocated within the household and their relative dependency on natural resources for livelihoods.

In the **Philippines**, men are considered natural leaders in the fisheries, they have a stronger voice and access to high-value species. Similarly in **Indonesia**, capture fisheries are dominated by men. Men tend to be more knowledgeable about fishing grounds, including which areas of the reef can be harvested and which reefs should be protected. Men are physically strong so are good at fishing. Men typically are also more skilled in navigating fishing boats; these offshore activities are physically demanding and considered by communities as risky, so women have less opportunity to develop these skills.

But in actuality, both women and men can control nearshore and shallow ecosystems in the **Philippines**. In **Indonesia**, both women and men hold important knowledge regarding the use and sources of important natural resources. In some cases, women are more knowledgeable than men and in other cases, the reverse is true. **Indonesian** and **Solomon Islands** women are usually knowledgeable about intertidal areas and mangroves as sites where they can find protein sources for their family.

But, the prevailing notion is that women can only engage in nearshore fishing. In the **Philippines**, women who fish are usually engaged in gleaning and nearshore fishing: including reef fishing using scoop-nets, traps and fish baskets. However, gleaning is mostly not captured in the Philippines fisheries statistics, thus contribution of women to fisheries become invisible to researchers and policy makers. Likewise, in **Fiji**, the roles of women cover all aspects of fisheries not just gleaning, including catching, cleaning, preparation and selling. But, there are no adequate data to reflect these roles in literature on the role of women in the fisheries sector in **Fiji**. This has led to women not being adequately represented in fisheries planning and decision making.

In fact, women have more roles in the fisheries sector. Indonesian women can repair fishing gear, manage post-harvest handling, market fish catches and manage logistics. Women perform an important role in the supply chains of fishing-dependent communities in **Solomon Islands**, where they collect, process, prepare and market fish and other marine resources, contributing to the well-being of their families. Women are also active in all aspects of the fisheries value chain in the **Philippines**, apart from net mending, fish sorting and fish vending. However, value chain studies of the Philippine abalone and tuna industries found that female traders have less access to profitable markets than men. But, women

dominate wholesale trading as 'factoradors' (wholesale sellers of shrimp and first-class species) and 'beneficiadors,' who deal with lower-value species.

There are key social norms that hold women back from fully engaging in fisheries which are unchallenged and perpetuated in the fisheries sector in the **Philippines**. The cultural norm is that women must/ need to manage the households, and household work is not considered work, less tiresome than fishing, so a man's work is harder. In **Indonesia**, women tend to have greater skill in processing natural dye used for weaving as the activity but this is considered to be a 'woman's activity' and something they are trained in from a young age.

In addition, women in the **Philippines** are not brought up to be leaders, hence, they are only supporting roles. So, women in coastal fishing communities are generally underrepresented in fisheries management and leadership. In the Philippines, when women participate in such bodies, they are there usually as proxies of their husbands.

Likewise, women in **Fiji** have limited access to and usually excluded from formal decision-making processing on anything connected to land and marine resources. Within traditional iTaukei in Fiji, decision making processes there is not, at present, gender equality.

This is similar in **Solomon Islands** where the general feedback is that women face inequalities in community governance set-ups. They can participate in the decision-making process of a community, but not necessarily actively participate in the discussions.

While gender issues vary somewhat among different religious and cultural groups across **Indonesia**, women generally play a secondary role to men in both the household and the national workforce. In Indonesia, limited access to education, assets and resources leads to women and girls being excluded from participation in decision-making processes. Women in Indonesia are involved but only to some degree in natural resource management.

This is a major constraint to an improved gender equity, but, perhaps can be addressed through leadership training and peer education. **Indonesia, Philippines** and **Solomon Islands** benefit from the peer learning network for women called the Women Leaders Forum (WLF) comprised of women who play key leadership roles in sustaining the marine resources of the Coral Triangle. The WLF is hosted by the Coral Triangle Center (CTC) in Bali as part of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF). The WLF is a platform for sharing of knowledge and tools that integrate gender principles in sustainable marine conservation.

There is an interesting view from the **Philippines** gender analysis to turn some of the gender roles and misconceptions into a positive movement—for example, can women's nurturing role in the household become a role model for how men and women should behave towards the environment? Like, women are already participating in MPA committees and as fish wardens in the Philippines.

This is a perception recently recognized also in **Solomon Islands** where a local women's group KAWAKI have joined the management committee in their country's first national park, the Arnavon Community Marine Park (ACMP). KAWAKI is a women-led initiative that comprises of women representatives from the three Solomon Islands communities (Kia, Wagina and Katupika) that have customary rights to the Arnavons. KAWAKI is involved in monitoring coastal ecosystems in the park and mitigating the impacts of climate change with the ACMP rangers. The women will have significant contribution to raise awareness in nearby coastal communities on the role that nature-based solutions play in adapting to climate change.

Future investments into KAWAKI are being made through the *Arnavon: Ples Blong Iumi* project that seeks to build Arnavon Islands as an important, locally and women-led tourism and education/research destination for **Solomon Islands** that delivers true financial benefits to local communities. This will be the first women-led ecotourism venture in the country that demonstrates the important role of

women in natural resource management efforts. This, concurrently, offers opportunity for women to act as important agents of change in building resilience to climate change and natural disasters.

But, as shown, in **Fijian** society, significant gender inequalities exist where women are extremely vulnerable to the negative effects of disasters and climate change, on top of high rates of gender-based violence, low levels of participation in decision-making positions and women lagging behind in economic participation.

While there have been recent improvements and efforts by the **Indonesian** Government towards gender equity, the Gender Inequality Index shows that Indonesian women are still behind men in reproductive health rights, empowerment, and employment (UNFPA, 2015). There is still a dearth of information in Indonesia, particularly on how there is an outsized impact on women when disasters strike and reefs are damaged, lacking data, quantified or anecdotal, on vulnerable local populations.

Women face inequalities in community governance setups and their roles are undervalued in fishing-dependent communities in the **Solomon Islands**. In the **Philippines**, women in coastal communities especially fishing communities are generally under-represented in fisheries management and leadership.

There are still many general perceptions on women that must be challenged as it fed on the deep-rooted issues on many women having low self-esteem and identifying their natural position as subordinates. The project on the coral reef insurance will contribute to gender equality by closing gender gaps in access to and control over natural resources, improving women's participation and decision making and generating socio-economic benefits or services for women.

The project has gender-responsive measures that are outlined in the Gender Action Plan (GAP) that addressed these gender gaps, promote gender equality and women's empowerment. The GAP incorporates gender-sensitive metrics and indicators and establish gender-based project objective and deliverables.

The project will engage all members of communities that depend on and utilise coastal resources, therefore women are given equal opportunities. In the structuring of any sustainable financing mechanism, women will have equal participation in design and implementation of fund structuring and management. If relevant, access will be facilitated to finance where women and women-led enterprises are able to strengthen livelihoods and households against natural hazards. The project will ensure that the governance model keep gender equity and social issues at the forefront of their work and incorporate them into their operations.

Below are the elements of a Gender Action Plan (GAP):

**Component 1: Implement the reef insurance model at one site in Indonesia**

<b>OUTPUTS and OUTCOME</b>	<b>ACTIVITIES/ TARGETS/ INDICATORS</b>	<b>TIMELINE</b>
Outcome 1: Sustainable financing mechanism established and reef insurance product structured at one site in Indonesia, providing resources to repair/restore the reef that provides protective services to the site.		

<p><b>Output 1.1:</b> Business case for coral reef financing and insurance prepared for one high-opportunity site in Indonesia</p>	<p>1.1.1. GAP implementation is integrated in the coral reef financing insurance model, agenda, plans and budgets.</p> <p>1.1.2. Consultations in the project site during preparatory and design stages shall ensure participation of at least 50% women</p> <p>1.1.3. Inputs of women incorporated in the final design and documents</p>	<p>Y3-Y4</p>
<p><b>Output 1.2:</b> Guide on post-disaster risk management and response capacity prepared for one site</p>	<p>1.2.1. Manual is prepared through consultations with at least 50% women, and encourages participation of both women and men, equally in disaster risk preparation and response</p> <p>1.2.2. At least 30-50% of the reef brigades proposed (if additional funding is raised to support establishment of reef brigades), are women and paid for their work (this will need to be done by the local governments)</p>	<p>Y3-Y4</p>
<p><b>Output 1.3:</b> Reef financial mechanism and institutional arrangements established</p>	<p>1.3.1. Ensure provision of any payments based on activities achieves gender equity within communities as well as providing equal opportunities to undertake activities.</p> <p>1.3.2. Facilitate women's access to resources from the financial mechanism that can support, organize and strengthen all-women's groups livelihoods in the aftermath of natural hazards and/or for alternative livelihood program.</p> <p>1.3.3. Gather sex-disaggregated socio-economic, livelihoods, spatial mapping information</p> <p>1.3.4. Include a gender analysis for better legal, regulatory and policy considerations that impact gender equity in the site.</p>	<p>Y3</p>
<p><b>Output 1.4:</b> Insurance and other risk management financial instruments designed</p>	<p>1.4.1. A gender-balanced and inclusive management board aware of the importance of gender and social inclusion to apply to their decision-making role.</p> <p>1.4.2. Gender orientation for management board provided and includes decision making processes within traditional and modern legal frameworks in relation to reef insurance model</p> <p>1.4.3. Ensure gender sensitive and social inclusion equity in the approval of post disaster response activities.</p>	<p>Y4</p>

**Component 2: Extension of model to Philippines, Solomon Islands**

COMBINED ACTIVITIES/ TARGETS/ INDICATORS	TIMELINE
<p>2.1. Provide support to establish system for collecting sex-disaggregated statistics.</p>	<p>Y1-Y2</p>
<p>2.2. Inputs of women incorporated in the assessment. In Solomon Islands women will constitute at least 50% of the ACMP Board and related governance under the proposed new onshore fund.</p>	<p>Y1-Y2</p>

2.3. Identify challenges for women and men in fishery-dependent communities during natural disasters such as cyclones/storms	Y3
2.4. Consultations in the site assessments and data collection shall ensure participation of at least 50% women. <b>In Solomon Islands, women-led ecotourism enterprises will benefit directly through small coral reef ecosystem rehabilitation and management efforts.</b>	Y3
2.5. Post-disaster response manuals and plans for training are gender sensitive and encourage participation of women in decision-making and management roles. Women are included in decision-making roles with respect to design and implementation of fund mechanisms for coral reef management.	Y3-Y4

**Component 3: Knowledge, learning and monitoring**

<b>OUTPUTS and OUTCOME</b>	<b>ACTIVITIES/ TARGETS/ INDICATORS</b>	<b>TIMELINE</b>
Outcome 3: Improved awareness by national and local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods		
<b>Output 3.1:</b> Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated	3.1.1 Development of tools and/ or checklist for gender-responsive phases of the model and in IEC materials  3.1.2. A mechanism to prevent and respond to gender-based violence, including sexual abuse, exploitation and harassment during project implementation and operation and maintenance is established as part of the project Grievance Redress Mechanism (related to ADB loan in Philippines)	Y3
<b>Output 3.2:</b> Increased stakeholder awareness of coral reef finance and insurance	3.2.1. Inputs of women incorporated in the final materials  3.2.2. Women's access to training, service and guidance improved.	Y4
<b>Output 3.3</b> Monitoring and evaluation conducted	3.3.1. Collection of sex-disaggregated and gender-related data integrated in the over-all project monitoring system  3.3.2 Establish gender-based objectives and incorporate gender-sensitive metrics in design of evaluations	Y1 - Y3

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?**

Yes

**Closing gender gaps in access to and control over natural resources;** Yes

**Improving women's participation and decision making** Yes

**Generating socio-economic benefits or services or women** Yes

**Does the project's results framework or logical framework include gender-sensitive indicators?**

TBD

#### **4. Private sector engagement**

**Elaborate on the private sector's engagement in the project, if any.**

The private sector has stakeholders that will play an essential role in this project. For example, it is likely that the project will have a dialogue with hotel owners and tourist operators to verify data collected on expected damages and loss of business resulting from severe weather or, potentially, tsunami. This data will be essential for building the business case as the project assesses how much damage the reef is preventing.

Once the business case is established the project team will reengage these private sector operators to illustrate just how important the reef is to their business model and the local economy from the perspective of the risk reduction service it provides. It is also expected that data will be provided on the tourism and livelihood values provided by the reef.

Private sector in the **Philippine** sites indicated a corollary route to support the reef insurance financing by tucking in an amount in the commercial and business tax for environmental protection. The amount can be a fixed figure on the real property tax or business permit. It can be a silent clause or transparent, either way, this fund will directly or indirectly benefit the whole business chain dependent on tourism.

Other private sector players, such as reinsurance and insurance companies, will work with the project proponents to develop the appropriate insurance policy for a reef. Core data needed for this process includes information on the likely cost of repairing or restoring the reef and the correlation between, for example, windspeed and damage to the reef. In Indonesia, the Maipark Re-Insurance is a consulting partner for OJK, the authority approving insurance products, with profile data on a number of geological and hydro-meteorological hazards in Indonesia. The project will consider lessons learned from the PACRIF scheme in Solomon Islands, where the insurance model tested was not suitable for the community context. A women-led eco-tourism enterprise in ACMP would directly benefit from support under this project correlation between, for example, windspeed and damage to the reef. In **Indonesia**, the Maipark Re-Insurance is a consulting partner for OJK, the authority approving insurance products, with profile data on a number of geological and hydro-meteorological hazards in Indonesia. The project will consider lessons learned from the PACRIF scheme in **Solomon Islands**, where the insurance model tested was not suitable for the community context. A women-led eco-tourism enterprise in ACMP would directly benefit from support under this project.

Boat operators, dive companies and other tourist companies will also become important partners if it proves possible to establish reef brigades in any of the countries in focus. Tourism operators in **Fiji** like Nukubati, Kaibu and Laucala Island Resorts and even Vatuvara Foundation are interested in reef protection and rehabilitation and may fund/ pay the reef insurance premiums.

#### **5. Risks to Achieving Project Objectives**

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):**

**Risks**

RISKS	Mitigating Options			
	Indonesia	Philippines	Solomon Islands	Fiji
Government capacity in project areas is limited	Local government issues regulations and imposes regular levies for the utilization of coastal / coral reefs as a source of funds for premium payments. Provincial governments and sectoral ministries (KKP and KLHK) can/ will use the state-budget (APBN) to pay insurance premium.	Local and Provincial Governments have experienced in multi-sectoral management bodies to implement trust funds for environment or disaster. To get their support, proposed to make the LGUs be a part or the lead in the fund governance, even if they have not done any nature-based insurance.	National and Provincial Government level identify key capacity gaps. Support focused stakeholder engagement and discussions also to include local community groups and civil society groups to help design capacity development initiatives.	Establish multi-stakeholder committees and groups to carry forward actions, with the government as key partner. Identify key capacity gaps, support focused stakeholder engagement and include local communities and NGOs to help design capacity development initiatives.
Credible data and information is not readily available	Collaborate with some agencies that can be sourced-out to provide information and data on priority hazards, the distribution of coral reefs and impacts of the hazards on coral reefs in Indonesia from various sources to the insurance industry.	Consolidate and organize all data in one databank from different sources that can be accessible to many. There are relevant data in both sites, especially on resource ecological assessments but from different implementing partners.	Credible data and information in different agencies will be compiled on one central data hub that can also incorporate other attributes from the agencies named earlier to have an updated database that is credible and available from one location.	Undertake rigorous due diligence with respect to data collection. It will combine sources of comprehensive data (eg meteorological, etc) from existing databases of donor organizations, international NGOs, as well as primary survey methods where possible. Data will be cross referenced to the extent possible.

<p>?Buy-in? to project across some stakeholders, including private sector in tourism and seafood value chains. This includes reluctance to pay premiums</p>	<p>Involve foundations, third parties and central BLUs to raise annual contributions from beneficiary sectors from various locations for insurance premium payments. Widen the base of the coastal / coral reef beneficiary sector that contributes annually (voluntarily) to premium payments.</p>	<p>Support through an accounting and valuation studies on a stress event with/out restoration and its impact to the tourism economy. Once understood, convinced to implement and pilot nature-based risk transfer and pay premium. Private sector, the local government and other stakeholders are generally supportive of coral reef insurance since the businesses, economy are heavily dependent on the coastal assets.</p>	<p>Involve the tribe or community group in the initial design of the product through to its implementation. There is clear understanding on the objectives of the project, and the people are actively involved so a product developed suits their social context. Any reef space is owned by a particular tribe or community group; therefore, they are important.</p> <p>A reef insurance product is a very new concept, therefore incorporating this concept into an existing framework /imitative /idea is the way forward.</p>	<p>Share data and information relating to parametric insurance with targeted private sector entities. Ensure targeted resorts and included in the consultation and understand the governance structure PPP/SPV and that key experts will be involved.</p> <p>Together with the iTaukei Affairs Board, FLMMA and other NGOs, important to convey that reef insurance does not require an ownership interest and set out how the PPP/SPV will work and what sort of activities it may fund</p>
<p>Legal and regulatory frameworks are not amenable to coral reef insurance ? and enabling conditions are challenging</p>	<p>The Central BLU (Ministry of Finance or ICCTF) can be involved to pay premiums and receive insurance claims for coral reef damage and coordinate coral rehabilitation activities.</p>	<p>Environmental carrying capacity for the priority tourism cluster sites should be strictly followed. Although, inadvertently (maybe) will be a mechanism to limit visitation to the sites and potential income which could pay insurance premium, but the sustainability is assured in the long-run.</p>	<p>Work closely with the National and Provincial Governments and community stakeholders to identify the challenges and suggest policy, legislations and regulatory innovations.</p>	<p>Consultation and a report examining the various options and carefully weighing them to demonstrate that the PPP model is innovative, represents cost savings to the government and provides the best option to scale up.</p>

<p>Nature-based risk transfer and/ or coral reef insurance is a new concept and not familiar with finance mechanisms</p>	<p>The project and insurance companies can work together and agree how to collaborate in communicating with OJK .</p>	<p>The project has the potential for scaling up ensuring its coastal assets is high with the vision of a blue tourism economy in both LGUs,.But might waver if there is no payout over time, which is ironical yes considering it is tantamount to no impact and damage, but still a risk.</p>	<p>The project conducts ongoing dialogues and engagements of the private sector and other stakeholders to maintain the trust of all involved.</p>	<p>The project ensures that payouts can be made promptly if the financial mechanism/trust is operated within government or this will risk defeating one of the main advantages of parametric insurance - the prompt payout in the immediate aftermath of a cyclone</p>
<p>Covid-19 pandemic during project implementation</p>	<p>Project cognizant of all the WHO-mandated safety protocols.</p> <p>Local travel restrictions tightened, only possible for those exempted. Use local experts as much as possible.</p> <p>Project teams work in virtual and mobile manner.</p> <p>Face-to-face transactions only when necessary, and follow all mandated precautionary safety measures.</p> <p>Maximize use of digital platforms (via phone calls, zoom, skype, messenger, etc</p>			
<p>Project relevance to future Covid-19 crisis and/or pandemics:</p> <p>Technical Expertise, Capacity and Changes in Timelines</p>	<p>In lieu of travel restrictions of International Experts where domestic and international travel prohibited, National and/or Local Technical Experts will be tapped.</p> <p>Assess and review project status in the pandemic and come up with revised workplan to address the limitations.</p> <p>Make realignments and streamlining to meet project deliverables; consider filing extension, if needed.</p> <p>Build-up staff capacity for digital and online facilities and platforms to easily shift to remote work.</p>			
<p>Stakeholder Engagement Process</p>	<p>Incorporate hybrid-work modality and minimum staffing to continue to operate project.</p> <p>Employ digital and online engagements, consultations, communications and other activities.</p> <p>Provide and support local partners and stakeholders in the necessary gadgets and access to internet to enable remote communications and engagements.</p>			

<p>Enabling Environment</p>	<p>Create a Pandemic Counterplan addressing the following but not limited to - if local partners are restricted and limited; if national and local governments shift priorities and focus on response and lockdowns; if project partners human and financial resources are used up over and above the project commitments; if project funds support emergency responses, etc.</p> <p>Strengthen management plans with 'pandemic' proofing so community can readily shift and adapt during pandemic (response, realigning budget, skeletal force, etc).</p> <p>Project interventions focused to improve health status and increase resilience of the natural environment to adapt to disaster</p> <p>Stricter enforcement of regulations especially on wildlife conservation and illegal trafficking, to prevent future pandemics and vector-borne diseases (eg zoonotic transmission of the disease).</p> <p>Promote sustainable business practices that support ensuring flow of ecosystem services in their business practices.</p>
-----------------------------	---

### Environment and social safeguards

During project preparation, rapid ESS assessments were conducted as part of the baseline reports. The project will confirm to GEF Minimum Standards for Environment and Social Safeguards as well as the ADB Safeguard Policy Statement (2009).

Overall rating: LOW

### Relevance of project to Covid-19 pandemic and 'build back blue'?

The project will promote climate resilient infrastructure (relevant to goals of climate change adaptation). In fact the internal processing at ADB will be through a larger regional technical assistance program on 'Building Coastal Resilience through Nature-Based and Integrated Solutions'. Building coastal resilience in Asia-Pacific is an urgent priority. It requires adopting long-term and integrated planning approaches that favour adaptive management, a risk-based approach, inclusive processes, and consider the full spectrum of coastal resilience options.

In terms of opportunities, the project will: i) Promote sustainable management of the ocean and freshwater ecosystems and its resources, and ii) Support better management of water resources and marine spatial plans, with emphasis on ensuring local management of, and access to, resources. Through the focus on maintaining and managing coral reefs, it is expected that local governments, communities and businesses will pay greater attention to minimizing pollution in coastal areas which accelerated considerably during the pandemic. The project will also have some impact on livelihoods and income generation, given the focus on site-based interventions in communities which are heavily dependent on tourism and fisheries related industries, and which involve direct participation of local communities / stakeholders.

<b>Safeguard Standard</b>	<b>Indonesia</b>	<b>Philippines</b>	<b>Solomon Is</b>	<b>Fiji</b>
<b>Gender Equality</b>	<p><b>LOW Risk</b></p> <p>The project will advance gender equality through a gender action plan designed to mainstream consideration of gender across all project activities.</p>	<p><b>LOW Risk</b></p> <p>The project will have specific activities/ targets/ indicators to ensure and address gender equality in the project design.</p>	<p><b>LOW Risk</b></p> <p>The project will advance gender equality through a gender action plan designed to mainstream consideration of gender across all project activities.</p>	<p><b>MEDIUM Risk</b></p> <p>The project GAP will address some of these significant gender inequalities throughout Fijian society.</p>
<b>Biodiversity and natural habitats</b>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>	<p><b>LOW Risk</b></p> <p>The project will ensure conservation of biodiversity and protection of natural habitat integrated in the coastal management plans.</p>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>
<b>Resource efficiency, pollution prevention, chemical and wastes management</b>	<p><b>LOW Risk</b></p> <p>Project will be consistent with any existing plan in support of resource efficiency, pollution prevention and reduction.</p>	<p><b>LOW Risk</b></p> <p>The project will strengthen coastal management plans to address pollution prevention, waste control and resource efficiency.</p>	<p><b>LOW Risk</b></p> <p>The project will ensure conservation of biodiversity and protection of natural habitat, especially in the coastal management plans.</p>	<p><b>LOW Risk</b></p> <p>Project interventions will aim to strengthen and maintain coastal and marine ecosystems.</p>

<p><b>Involuntary resettlement</b></p>	<p><b>LOW Risk</b></p> <p>Project will not be involved in any involuntary resettlement and will provide information about risks from coastal flooding faced by communities.</p>	<p><b>LOW Risk</b></p> <p>Project has provided information on vulnerable areas at risk to SLR and coastal flooding. But addressing this vulnerability is under local government intervention, and covered under the ADB Safeguards Policy Statement.</p>	<p><b>LOW Risk</b></p> <p>Project has not considered as an option the involuntary resettlement, unless there are credible data with evidence and vulnerability assessments and modelling to determine that the site is at high risk.</p>	<p><b>LOW Risk</b></p> <p>Project assessment showed unlikely that coastal inhabitants will be recommended to resettle unless the vulnerability assessments and modelling determine that coastal communities would be at high risk.</p>
<p><b>Indigenous peoples (IP)</b></p>	<p><b>LOW Risk</b></p> <p>The project will ensure IPs in all stakeholder consultations and in the creation of the post-storm response capacity.</p>	<p><b>LOW Risk</b></p> <p>The project will work in the ancestral domains (AD) of the IPs and adopt their AD management plans (eg ADSDPP).</p>	<p><b>LOW Risk</b></p> <p>The project will work with customary tenure framework, where resources are managed and community-owned, adopted the community-based resource management strategy.</p>	<p><b>LOW Risk</b></p> <p>The project will engage closely with FLMMA and the iTaukei Affairs Board who represent the interests of iTaukei communities.</p>
<p><b>Occupational health, safety and labor conditions</b></p>	<p><b>LOW Risk</b></p> <p>The project will aim to improve health, safety and labour conditions through capacity development and training of reef brigades (if additional funding becomes available)</p>	<p><b>LOW Risk</b></p> <p>The project will support livelihood and provide income through sustainable financing mechanisms and management.</p>	<p><b>MEDIUM Risk</b></p> <p>If additional funding becomes available, the project will adhere to security protocols for divers working in reef brigades which are quite strict to reduce risk to minimum levels.</p>	<p><b>LOW Risk</b></p> <p>The project will not use child labour, nor will it decrease employment.</p>

<b>Physical cultural heritage</b>	<b>MEDIUM Risk</b>  The project will have strategies to identify and protect such values will be jointly developed through participatory processes with local communities.	<b>MEDIUM Risk</b>  The project will respect the cultural heritage in the areas and work with the local communities in aligning strategies.	<b>MEDIUM Risk</b>  The project will need to recognize and protect historical, cultural artistic traditional or religious values.	<b>MEDIUM Risk</b>  The project will identify strategies to protect such values and will be jointly developed through participatory processes with local communities.
<b>Economic sustainability</b>	<b>LOW Risk</b>  The project will not have negative impacts on livelihood rather it seeks to provide protection of natural capital assets towards maintaining job security for local people.	<b>LOW Risk</b>  Project will support maintenance and protection of the coastal assets to support the heavily dependent economy and livelihood.	<b>LOW Risk</b>  The project provides protection of natural capital assets which would have the effect of maintaining job security for local people.	<b>LOW Risk</b>  The project will not have direct negative impacts on livelihood for local coastal communities.

## 6. Institutional Arrangement and Coordination

**Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

### Project / Partnership Advisory Committee

The committee will convene annually (virtual sessions), and consist of: i) One representative each from country level GEF Executing Ministries / Agencies, ii) the proposed regional coordination organization, iii) other multilateral, Government, non-Government and/or private sector industry stakeholders on ad hoc basis, and iv) ADB (observer status).

The committee shall:

1. Review annual progress of project activities

2. Provide high-level advice on strategic directions and challenges in achieving project outcomes
3. Provide access and introductions to other donors / initiatives supporting coral reef ecosystem finance and development in Asia and the Pacific in order to improve / ensure coordination and complementarity

#### Criteria for selection of Regional Coordination Organization

1. Strong presence in Asia and the Pacific region, with active projects and programs in at least 2 of the 3 GEF project countries
2. Well networked in both private and public sectors, particularly with respect to the insurance industry
3. Extensive portfolio of research, projects, and programs and recognized leadership in advancing nature-based solutions, particularly with respect to innovative financing
4. Extensive experience in coastal ecosystem science, management and restoration
5. Successful / demonstrated track record in advancing and/or implementing coral reef insurance models
6. Strong internal governance and financial management systems which conform to international standards
7. Prior experience with implementation of externally funded projects related to nature-positive investments, including the GEF, and
8. Existing working relationship with ADB.

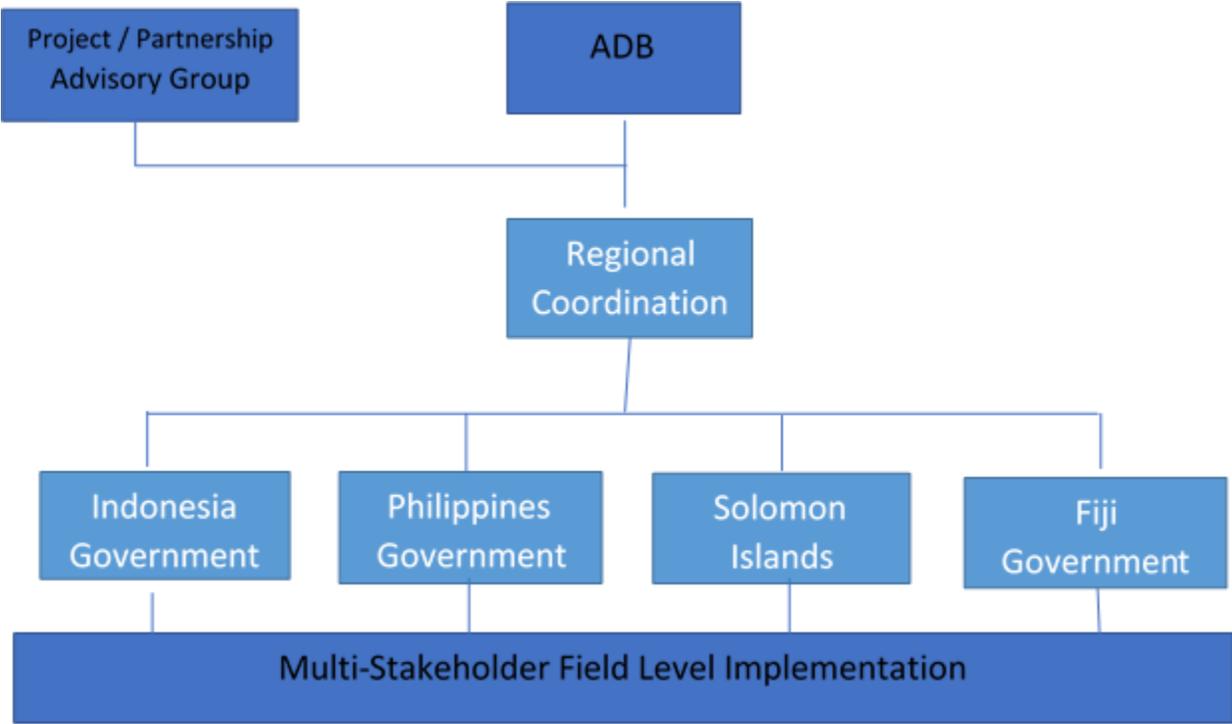
#### Regional Coordination Organization

The regional coordination organization, to be confirmed, will serve the following functions:

1. Convene the Project Advisory Committee
2. Provide thought leadership, overarching technical direction at operational levels, and advice in the project countries, with a view to scaling up at regional level in Asia and the Pacific
3. Facilitate a regional coral reef finance and insurance advisory group, including links to the insurance industry through the Ocean Risk and Resilience Action Alliance (ORRAA), and other fora. Among other things, this group would be valuable in creation of knowledge products and outreach to the insurance industry
4. Share knowledge on institutional and technical innovations and approaches to insuring nature to benefit country stakeholders, based on the Mexico experience.
5. Provide advice to the 3 project countries to conduct customized but uniformly specialized studies (e.g. valuation of ecosystems services) and prepare foundational elements which contribute to capacity development and training (rapid post-disaster response) for the project countries
6. Provide advice to the national project teams based on implementation of the successful reef financing and insurance models in other parts of the world

- 7. Contribute to preparation and packaging of knowledge and learning products and systems
- 8. Contribute to regional level performance tracking /reporting, monitoring and evaluation, and
- 9. Assist with additional mobilization of financial resources to expand activity sets, replication and scaling.

Institutional framework



Within each country the lead GEF Executing Entities will also try to create informal, inclusive, country-level, advisory networks and 'communities of practice'. These could form around the respective CTI-CFF National Coordinating Committees, and also involve members /participants of the CTI-CFF Climate Change Adaptation working group, and the CTI-CFF Strategic Partners group (which includes ADB and the GEF, TNC, WCS, USAID, CTC, CI, WWF and others)

**7. Consistency with National Priorities**

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project is consistent with the national strategies and plans to address urgent and immediate adaptation needs on climate change as well as supportive of the relevant conventions of commitments to international processes.

**Indonesia.** The project is consistent with the Indonesian national strategies and plans on climate change adaptation to address increase sea level rise and changes in weather, climate and rainfall and their impacts to livelihood.

The Indonesian Government in anticipation of these potential negative impacts has committed to implement its National Action Plan for Climate Change Adaptation (RAN API) or National Adaptation Plans (NAPs). The National Medium Term Development Plan (RPJMN 2015-2019) is the third phase of implementation of the 2005-2025 National Long-Term Development Plan (RPJPN).

RAN API, the most important long-term planning, synergizes government strategic policy documents to strengthen climate change adaptation action. It is the document to support the achievement of Indonesia Vision 2045 and Indonesian SDG One Platform and specifically on Sustainable Development Goal 14. This type of facility aligns with ADB Action Plan for Healthy Oceans and Sustainable Blue Economies and UNDP's evolving Blue Financial Instrument Framework (BFIF) on investments addressing marine resources issues with blue financing to attain SDG 14. This directly supports the Masterplan for Acceleration and Expansion of Indonesia Economic Development aiming to turn Indonesia into one of the world's largest economies by 2025. This supports an existing national-level BLU, such as the Environmental Fund Management Agency (BPDLH) or the Indonesia Climate Change Trust Fund (ICCTF), to add a window for coral reef rehabilitation. The BPDLH model has been proven in Indonesia (eg \$56 million from Norway reducing carbon emissions by 11.2 million tons of CO<sub>2</sub>eq in 2016-2017).

**Philippines.** The project supports the national strategies and plans for a climate risk-resilient Philippines with healthy, safe, prosperous and self-reliant communities in thriving and productive ecosystems.

In response to the urgency for climate change action, the Philippines passed the Climate Change Act that released the National Framework Strategy on Climate Change (NFSCC) that balances adaptation and mitigation. It laid the groundwork for the National Climate Change Action Plan (NCCAP) that addresses climate change challenges. A derivative plan is the National Adaptation Plan (NAP) on long-term programs and strategies for adaptation and mitigation on seven thematic. The Framework is adopted from the Philippine Agenda 21 (PA21) for Sustainable Development after the UN Conference on Environment and Development (UNCED).

Most national plans are anchored on the Philippine Development Plan (PDP) to address poverty, employment and inclusive growth. The Philippine Biodiversity Strategy and Action Plan (PBSAP) to conserve its biodiversity is anchored in the PDP. The National Coastal and Marine Ecosystems Management Program (CMEMP) for the effective management of the coastal and marine ecosystems contributes to the targets of PBSAP. The CMEMP and NCCAP are all major contributors to the PDP.

The project is directly supportive to other national strategies: National Disaster Risk Reduction and Management Plan; Wildlife Resources Conservation and Protection Act (Wildlife Act); National Integrated Protected Areas System (NIPAS) Act especially on critical habitats; Philippine Environment Code on natural resources management like fisheries; Integrated Coastal Management (ICM) Policy mandating its adoption.

The project is consistent with the Philippines international commitments: The PA21 and UNFCCC are commitments to the United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biodiversity (CBD). PBSAP also conforms to the global Aichi Biodiversity Targets and supports UN Sustainable Development Goals 14 (Life below Water). Wildlife Act is a commitment to international conventions on wildlife and habitats protection and contributory to the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES). The Manila Declaration on Green Industry in Asia addresses dangerous consequences of climate change. It includes adoption in the Green Growth Initiative of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), which harmonizes economic growth with sustainable development.

**Solomon Islands.** The project is consistent with the Solomon Islands' national plans and priorities in the adaptation to adverse effects of climate change.

One of the key national objectives of the government, Coalition for National Unity and Rural Advancement (CNURA) is to ensure the sustainable utilization and conservation of the natural resources and environment and successful adaptation to climate change. Solomon Islands will address the urgent and immediate needs through its National Adaptation Programme of Action (NAPA). The overall framework for adaptation to climate change and for development is embedded in the Medium Term Development Strategy 2008- 2010 (MTDS).

The project is consistent with Solomon Islands commitments to many other UN conventions, such as the United Nations Framework Convention on Climate Change (UNFCCC), combating desertification through the United Nations Convention to Combat Desertification (UNCCD) and among others on biosafety and Persistent Organic Pollutants (POPs). A number of climate change programmes, projects and activities have been carried out in Solomon Islands since the entry into force of the UNFCCC. It has assessed its capacity building for the implementation of the UNFCCC, CBD and the (UNCCD). It has implemented sustainable development programmes to include its contribution to World Summit on Sustainable Development (WSSD), Johannesburg Plan of Implementation (JPOI), Barbados Programme of Action on Sustainable Development of Small Islands Developing States (BPoA) and Mauritius Strategy for Implementation (MSI). It has addressed biological diversity in the National Biodiversity Strategy Action Plan (NBSAP) under the Convention on Biological Diversity (CBD).

Solomon Islands was one of the Pacific countries involved in a number of projects/ programs: the Pacific Islands Climate Change Assistance Programme (PICCAP), Pacific - European Union Marine Partnership Programme (PEUMP), Adapting to Climate Change and Sustainable Energy (ACSE), Climate and Oceans Support Program in the Pacific (COSPPac), Pacific Islands Regional Oceanscape Program (PROP), Pacific Ecosystems - based Adaptation to Climate Change (PEBACC) and Mekem Strong Solomon Islands Fisheries (MSSIF) Programme.

**Fiji.** The project is supportive of Fiji's commitments to relevant conventions and is consistent with Fiji's national strategies and plans to accelerate a climate-resilient development pathway for a vibrant society and prosperous economy.

The Fijian National Adaptation Plan (NAP) enables Fiji to anticipate, reduce and manage environmental and climate risks through its 160 adaptation measures. The NAP is closely aligned with five government-endorsed plans: The National Development Plan (NDP), the main national planning document which will undertake the five year cycle of NAP. The National Climate Change Policy (NCCP) that provided high-level policy guidance, strategic actions and institutional arrangements to the NAP implementation. The Climate Vulnerability Assessment (CVA) that provided its multi-sectoral analysis of Fiji's vulnerability to natural hazards and climate change that threaten its development plans and objectives. The Green Growth Framework (GGF) that aligned its focus on accelerating integrated and inclusive sustainable development. And, the Climate Change and Health Strategy Action Plan which builds resilience through an adaptive and sustainable health system.

The NAP is the major vehicle for the Fijian Government's commitments to international processes. The NAP incorporated relevant actions from the Framework for Resilient Development in the Pacific (FRDP). The plan also integrated relevant disaster risk reduction with climate change adaptation from the National Disaster Risk Reduction Policy (NDRRP) to be consistent with the UNFCCC and Sendai Framework for Disaster Risk Reduction. The NAP support efforts to achieve the Sustainable Development Goals (SDG): SDG Goal 13 at strengthening resilience and adaptive capacity to environmental and climate-related hazards and natural disasters; SDG Goal 14 through sustainable management and protection of marine and coastal ecosystems to strengthen resilience; SDG Goal 15 through its biodiversity and natural environment section that is likewise very relevant for fulfilling Fiji's commitments under the United Nations Convention to Combat Desertification (UNCCD) and National Biodiversity Strategy and Action Plan (NBSAP).

At a regional level, Fiji is consistent with the Pacific Islands Regional Ocean Policy that sets out the framework for an integrated strategic action on the Oceans and the Framework for a Pacific Oceanscape. Fiji's first National Oceans Policy (NOP) as the overarching national legal framework in the ocean follows the NCCP and NDC. The draft NOP follows various international commitments such as the United Nations Conference on the Environment and Development, World Summit on Sustainable Development, United Nations Conference on Sustainable Development, United Nations Conferences on Small Island Developing States and Agenda for Sustainable Development.

## **8. Knowledge Management**

**Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.**

The KM approach is presented in Outcome 3; with some activities under Outcomes 1 and 2, which have knowledge management relevance. During project implementation the Regional Coordination Organization, through the "Coastal Risk and Resilience and Knowledge Management Specialist", will develop a more detailed strategy to guide the project, and also support efforts to promote financial sustainability through a multi-stakeholder partnership coalition. There will also be a KM and learning

specialist engaged in Indonesia. These 2 specialists will work closely with the Government stakeholders as well as ADB's KM staff in its Department of Communications and Environment Thematic Group (ETG).

The main elements of the KM Strategy could be:

- utilize low cost methods during early stages of the project, and graduate to more sophisticated multi-media approaches as more funding support is mobilized
- aim to 'socialize' some of the main messages, including: i) coral reefs, mangroves and other ecosystems provide valuable services to societies, and ii) upfront investments in responsible management of natural capital assets, including protection from climate-related disasters, will yield long term financial and non-financial benefits (ie the "resilience dividend" argument). Aim to engage with the insurance industry through ORRAA and others
- target many different levels - both horizontal and vertical; and be inclusive - governments, civil society and private sector corporate
- conceptualize and create a multi-stakeholder platform to share knowledge, technology and financing options to increase the scale of the initiative.
- be clear about the potential benefits: climate adaptation, socio-economic (esp tourism, travel, fisheries etc), political, financial etc

## 9. Monitoring and Evaluation

### Describe the budgeted M and E plan

A budgeted M&E plan is presented below:

M&E Activity	Description	Responsible Parties	Indicative budget (USD)
--------------	-------------	---------------------	-------------------------

M&E Activity	Description	Responsible Parties	Indicative budget (USD)
Inception Workshop (IW) (virtual)	<p>Report prepared following the IW, which includes:</p> <ul style="list-style-type: none"> <li>- A detailed workplan and budget for the first year of project implementation,</li> <li>- An overview of the workplan for subsequent years, divided per component, output and activities.</li> <li>- A detailed description of the roles and responsibilities of all project partners</li> <li>- A detailed description of the PAU, TSU and PSC, including an organization chart</li> <li>- Updated Procurement Plan and a M&amp;E Plan, Gender Action Plan</li> <li>- Minutes of the Inception Workshop</li> </ul>	ADB and regional coordination organization	Included in project budget and co-financing
Project Advisory / Steering Committee Meetings	Agenda and discussion highlights prepared for each meeting.	ADB and regional coordination organization	Included in project budget and co-financing
GEF Project Implementation Review (PIR)	Prepared annually as analysis of project performance over the reporting period. Draws lessons and makes clear recommendations for future orientation in addressing the key constraining factors to implementation.	ADB project officer in collaboration with national executing entities and regional coordination organization	Included in project budget and co-financing
ADB Semi-Annual Progress Report	<p>Part of Asian Development Bank requirements for project monitoring.</p> <ul style="list-style-type: none"> <li>- Narrative of the activities undertaken during the considered semester</li> <li>- Analyzes project implementation progress over the reporting period.</li> <li>- Describes constraints experienced in the progress towards results and the reasons.</li> </ul>	Regional coordination organization in collaboration with national executing entities and consultants	Included in project budget and co-financing
Co-financing Report	Report on co-financing (cash and/or in-kind) fulfilled contributions from all sources identified in project documentation, including any co-financing which materializes during implementation.	MTR and TER consultants	Included in project budget and co-financing
GEF Medium-Term Review (MTR)	The purpose of the MTE or MTR is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way.	Collaboratively with regional coordination organization and national executing entities, consultants	GEF: US\$ 10,000

M&E Activity	Description	Responsible Parties	Indicative budget (USD)
Final Report	The regional coordination and execution organization, in consultation with in-country stakeholders will draft and submit a Project Final Report, with other docs (such as the evidence to document the achievement of end-of-project targets). Comprehensive report summarizing all outputs, achievements, lessons learned, objectives met or not achieved structures and systems implemented, etc. Lays out recommendations for any further steps to be taken to ensure the sustainability and replication of project outcomes.	Regional coordination organization in collaboration with national executing entities, consultants, ADB	Included in project budget and co-financing
GEF Terminal Evaluation (TE)	Further review the topics covered in the mid-term evaluation. Looks at the impacts and sustainability of the results, including the contribution to capacity development and the achievement of global environmental goals.	Independent Evaluator	GEF: US\$ 25,000
TOTAL M&E Cost			\$35,000

## 10. Benefits

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCCF/SCCF)?**

### Adaptation benefits

The GEF project will contribute to: i) Increased resilience of physical (e.g. property, people) and natural assets made vulnerable to climate variability and change in project areas, ii) Enhanced capacity of businesses and communities in coral reef-adjacent coastal areas in select site(s) to extract a resilience dividend (effectively cost-savings) from up-front investments that reduce future losses and enhance recovery readiness, iii) Demonstrated innovation in insurance, including through creation of enabling policies, financial mechanisms, climate data analytics and institutional capacities for risk transfer and pooling, noting the differences in tenure systems (Pacific vs SE Asia), and iv) Practical steps to support and scale up reef insurance model areas pending results of feasibility analysis through additional funding for complementary project(s).

In terms of monitoring and reporting, the project will use the new LDCCF/SCCF tracking tool, under the options for LDCCF and SCCF Challenge Windows, and address climate change challenges under "natural hazards". The project will track the four Core Indicators, and report specifically on the following overarching outputs: i) new / improved climate information systems deployed (in project areas), ii) vulnerable natural ecosystems strengthened in response to climate change impacts, iii) number of people made aware of, and training in climate adaptation response measures, iv) financial instruments or models to enhance climate resilience developed, iv) systems and frameworks established for continuous monitoring, reporting and review of adaptation, v) climate risks and vulnerability assessments conducted, vi) institutional coordination mechanisms created or strengthened to access and/or manage climate finance, among others.

Socio-economic benefits:

The loan project in the Philippines will provide direct support to coastal communities in El Nido and Coron to for livelihood activities. Similarly in Solomon Islands, the "blue financing" aims to assist local communities to mobilize long term finance for management of the Arnavons conservation area. This will also include focus on women's entrepreneurship.

## 11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

### Overall Project/Program Risk Classification\*

<b>PIF</b>	<b>CEO Endorsement/Approva I</b>	<b>MTR</b>	<b>TE</b>
<b>Low</b>	<b>Low</b>		

#### Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

#### Environment and social safeguards

During project preparation, rapid ESS assessments were conducted as part of the baseline reports. The project will confirm to GEF Minimum Standards for Environment and Social Safeguards as well as the ADB Safeguard Policy Statement (2009).

Overall rating: LOW

<b>Safeguard Standard</b>	<b>Indonesia</b>	<b>Philippines</b>	<b>Solomon Is</b>	<b>Fiji</b>
-------------------------------	------------------	--------------------	-------------------	-------------

<p><b>Gender Equality</b></p>	<p><b>LOW Risk</b></p> <p>The project will advance gender equality through a gender action plan designed to mainstream consideration of gender across all project activities.</p>	<p><b>LOW Risk</b></p> <p>The project will have specific activities/ targets/ indicators to ensure and address gender equality in the project design.</p>	<p><b>LOW Risk</b></p> <p>The project will advance gender equality through a gender action plan designed to mainstream consideration of gender across all project activities.</p>	<p><b>MEDIUM Risk</b></p> <p>The project GAP will address some of these significant gender inequalities throughout Fijian society.</p>
<p><b>Biodiversity and natural habitats</b></p>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>	<p><b>LOW Risk</b></p> <p>The project will ensure conservation of biodiversity and protection of natural habitat integrated in the coastal management plans.</p>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>	<p><b>LOW Risk</b></p> <p>The project will support proactive efforts to restore and maintain healthy coral reefs and associated life-supporting coastal and marine ecosystems services.</p>
<p><b>Resource efficiency, pollution prevention, chemical and wastes management</b></p>	<p><b>LOW Risk</b></p> <p>Project will be consistent with any existing plan in support of resource efficiency, pollution prevention and reduction.</p>	<p><b>LOW Risk</b></p> <p>The project will strengthen coastal management plans to address pollution prevention, waste control and resource efficiency.</p>	<p><b>LOW Risk</b></p> <p>The project will ensure conservation of biodiversity and protection of natural habitat, especially in the coastal management plans.</p>	<p><b>LOW Risk</b></p> <p>Project interventions will aim to strengthen and maintain coastal and marine ecosystems.</p>

<p><b>Involuntary resettlement</b></p>	<p><b>LOW Risk</b></p> <p>Project will not be involved in any involuntary resettlement and will provide information about risks from coastal flooding faced by communities.</p>	<p><b>LOW Risk</b></p> <p>Project has provided information on vulnerable areas at risk to SLR and coastal flooding. But addressing this vulnerability is under local government intervention, and covered under the ADB Safeguards Policy Statement.</p>	<p><b>LOW Risk</b></p> <p>Project has not considered as an option the involuntary resettlement, unless there are credible data with evidence and vulnerability assessments and modelling to determine that the site is at high risk.</p>	<p><b>LOW Risk</b></p> <p>Project assessment showed unlikely that coastal inhabitants will be recommended to resettle unless the vulnerability assessments and modelling determine that coastal communities would be at high risk.</p>
<p><b>Indigenous peoples (IP)</b></p>	<p><b>LOW Risk</b></p> <p>The project will ensure IPs in all stakeholder consultations and in the creation of the post-storm response capacity.</p>	<p><b>LOW Risk</b></p> <p>The project will work in the ancestral domains (AD) of the IPs and adopt their AD management plans (eg ADSDPP).</p>	<p><b>LOW Risk</b></p> <p>The project will work with customary tenure framework, where resources are managed and community-owned, adopted the community-based resource management strategy.</p>	<p><b>LOW Risk</b></p> <p>The project will engage closely with FLMMA and the iTaukei Affairs Board who represent the interests of iTaukei communities.</p>
<p><b>Occupational health, safety and labor conditions</b></p>	<p><b>LOW Risk</b></p> <p>The project will aim to improve health, safety and labour conditions through capacity development and training of reef brigades? (if additional funding becomes available).</p>	<p><b>LOW Risk</b></p> <p>The project will support livelihood and provide income through sustainable financing mechanisms and management.</p>	<p><b>MEDIUM Risk</b></p> <p>If additional funding is available to train reef brigades, the project will adhere to recognized security protocols for divers working in reef brigades, which are quite strict to reduce risk to minimum levels.</p>	<p><b>LOW Risk</b></p> <p>The project will not use child labour, nor will it decrease employment.</p>

<b>Physical cultural heritage</b>	<b>MEDIUM Risk</b>  The project will have strategies to identify and protect such values will be jointly developed through participatory processes with local communities.	<b>MEDIUM Risk</b>  The project will respect the cultural heritage in the areas and work with the local communities in aligning strategies.	<b>MEDIUM Risk</b>  The project will need to recognize and protect historical, cultural artistic traditional or religious values.	<b>MEDIUM Risk</b>  The project will identify strategies to protect such values and will be jointly developed through participatory processes with local communities.
<b>Economic sustainability</b>	<b>LOW Risk</b>  The project will not have negative impacts on livelihood rather it seeks to provide protection of natural capital assets towards maintaining job security for local people.	<b>LOW Risk</b>  Project will support maintenance and protection of the coastal assets to support the heavily dependent economy and livelihood.	<b>LOW Risk</b>  The project provides protection of natural capital assets which would have the effect of maintaining job security for local people.	<b>LOW Risk</b>  The project will not have direct negative impacts on livelihood for local coastal communities.

**Supporting Documents**

Upload available ESS supporting documents.

**Title**

**Module**

**Submitted**

**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

**ANNEX A: DESIGN AND MONITORING FRAMEWORK**

<b>Design Summary</b>	<b>Performance Targets and Indicators with Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Assumptions and Risks<sup>a</sup></b>
<p><b>Impact</b> Coral reef ecosystems in project areas improved to provide protection, provisioning, regulation and cultural services in project areas by 2027</p>	<p>Sustainable financing mechanisms, legally operational by 2028 in selected countries of Asia and the Pacific</p> <p>Risk transfer mechanisms, including reef insurance, to encourage coastal resilience established in at least 6 project areas in selected countries by 2028</p>		<p><b>Assumptions:</b></p> <p>Countries are willing to commit investments in natural capital assets to support fisheries, tourism and ancillary sectors</p> <p><b>Risks:</b></p> <p>Economic development priorities are stalled especially in view of recovery from Covid-19 pandemic</p>
<p><b>Outcome</b> Large-scale finance to increase the climate resilience of coastal businesses, communities and livelihoods in selected countries of Asia and the Pacific, through an innovative coral reef financing and insurance model by 2027</p>	<p>Sustainable financing mechanisms dedicated to supporting coastal resilience and adaptation established and operational in 3 countries by 2027</p> <p>Multi-stakeholder partnership coalition created to provide technical, policy and financial support for durable coral reef and other ecosystems</p>		<p><b>Assumptions:</b></p> <p>Governments take lead to create enabling conditions for coral reef finance and insurance to take hold at scale</p> <p><b>Risks</b></p> <p>Overlapping mandates, lack of coordination across Government ministries / agencies and perverse subsidies hamper nature-positive investments</p>
<b>Outputs</b>			

<p>1. Sustainable financing mechanism established and reef insurance product structured at one site in Indonesia, providing resources to repair/restore the reef that provides protective services to the site</p> <p><u>Gender indicators</u></p> <p>Targets of up to 50% participation of women in output related activities</p> <p>Women's inputs, representation (at management level) and access to resources from design and operations of financial mechanism addressed</p>	<p>a. Business case for coral reef financing and insurance prepared for one high-opportunity site in Indonesia</p> <p>b. Guide on post-disaster risk management and response capacity prepared for one site (focus on reef repair)</p> <p>c. Reef financial mechanism and institutional arrangements established</p> <p>d. Insurance and other risk management financial instruments designed</p>	<p>Project technical reporting</p> <p>Project / Partnership Advisory Committee proceedings</p> <p>Project monitoring systems and updates to baseline assessments (covering biophysical, socio-economic, demographic and policy parameters)</p>	<p><b>Assumptions:</b></p> <p>Sub-national Government leadership is willing to take lead as first mover for coral reef finance and insurance in the region</p> <p><b>Risks:</b></p> <p>Technical, policy and economic challenges impede securing sources of long-term finance to capitalize fund mechanisms</p>
--	---	--	---

<p>2.1 Enabling conditions for coral reef financing and insurance in Philippines supported</p> <p><u>Gender indicators</u></p> <p>Targets of up to 50% participation of women in output related activities</p> <p>Women's inputs, representation (at management level) and access to resources from design and operations of financial mechanism addressed</p> <p>Women-led enterprises encouraged and supported in livelihood related activities</p>	<p>2.1.1 Management plan for key marine and coastal tourism sites developed and implemented in four priority clusters in Coron and El Nido (ADB loan)</p> <p>2.1.2 Loss and damage assessments conducted for project area (GEF funding)</p> <p>2.1.3 Ecosystem values determined for 2 tourism zones and <b>Tubbataha Reefs National Park</b> (GEF funding)</p> <p>2.1.4 Guide on post-disaster risk management and response capacity to climate-induced reef ecosystem damage prepared (GEF funding)</p> <p>2.1.5 Sustainable financing mechanisms explored and designed, including legal / regulatory assessment for <b>potential trust funds or similar instruments</b> (ADB + GEF funding)</p>	<p>Workshop proceedings</p> <p>Project technical reporting</p> <p>Project / Partnership Advisory Committee proceedings</p> <p>Project monitoring systems and updates to baseline assessments (covering biophysical, socio-economic, demographic and policy parameters)</p>	<p><b>Assumptions</b></p> <p>Private sector and local communities willing to engage in public-private partnership to address sustainable financing concerns</p> <p><b>Risks:</b></p> <p>Financing mechanisms created are not sufficient to cover all the costs of maintenance and operations of coral reef ecosystems, create reserve funds, and also cover premium payments. Hence a graduated subsidy may need to be considered</p>
---	--	--	---

<p>2.2 Enabling conditions for coral reef financing and insurance in Solomon Islands supported</p> <p><u>Gender indicators</u></p> <p>Targets of up to 50% participation of women in output related activities</p> <p>Women's inputs, representation (at management level) and access to resources from design and operations of financial mechanism addressed</p> <p>Women-led enterprises encouraged and supported in livelihood related activities</p>	<p>2.2.1 Ecosystems valuation study for ACMP conducted (with outreach to other coral reef areas in Isabel province)</p> <p>2.2.2 Financial mechanisms for nature-based solutions to climate change analysed through Arnavon Community Marine Park (ACMP) case study</p> <p>2.2.3 Onshore Coastal Resilience Management Fund for the Arnavon Community Managed Park (ACMP) developed</p> <p>2.2.4 Nature-based coral reef management and coastal resilience sub-projects implemented</p>	<p>Consultant's report</p> <p>Project technical reporting</p> <p>Project / Partnership Advisory Committee proceedings</p> <p>Project monitoring systems and updates to baseline assessments (covering biophysical, socio-economic, demographic and policy parameters)</p>	<p><b>Assumptions:</b></p> <p>Institutional financial donors support the capitalization of the Arnavon Community Marine Park Endowment, with a special sub-account for climate adaptation and resilience</p> <p><b>Risks:</b></p> <p>Annual income from endowment, and 'green fee' mechanism is insufficient to cover costs of managing MPA, which will necessitate introduction of additional blue finance mechanisms</p> <p>Government is reluctant to consider reef insurance due to prior experience</p>
---	---	---	--

<p>3. Improved awareness by national &amp; local stakeholders of the benefits provided by coral reef ecosystems and their protective services to coastal businesses and livelihoods</p> <p><u>Gender indicators</u></p> <p>Gender checklist / toolkit applied to design and dissemination of all knowledge products and communications materials</p> <p>ADB loan for Philippines includes mechanism to prevent and respond to gender-based violence, including sexual abuse, exploitation and harassment during project implementation and operation. Included in loan project Grievance Redress Mechanism. Lessons applied to other countries through Executing Entities and Regional Coordination Organization</p> <p>Monitoring and evaluation approaches benefit from gender review and reporting on gender</p>	<p>3.1 Playbook on financing and insuring natural capital in Asia and the Pacific produced and disseminated</p> <p>3.2 Improved awareness and understanding of coral reef finance and insurance</p> <p>3.3 Project monitoring and evaluation conducted</p>	<p>Knowledge products developed and disseminated</p> <p>Training and capacity development conducted and supported by guidance materials</p> <p>Web-enabled communications (e.g. social media, blogs, etc) documented</p> <p>Project mid-term review and terminal</p>	<p><b>Assumptions:</b></p> <p>Audiences are receptive to messaging</p> <p><b>Risks:</b></p> <p>Reluctance to adopt and internalize new concepts in absence of proven model in Asia, and the need to take a long-term view (ie be patient). Other short-term economic priorities may take precedence</p>
---	--	--	---

a {It is not essential for all rows to include both assumptions and risks.}

Source: Asian Development Bank.

**ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).**

N/A

**ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:**

N/A

**ANNEX D: Project Map(s) and Coordinates**

**Please attach the geographical location of the project area, if possible.**

1. Seven candidate sites in Indonesia

Raja Ampat Regency (West Papua Province) 0° 50' 0" S, 130° 30' 0" E

Wakatobi Regency (South East Sulawesi) 5° 32' 9" S, 123° 45' 29" E

Rote Ndao Regency (East Nusa Tenggara) 10° 28' 0.12" S, 123° 22' 59.88" E

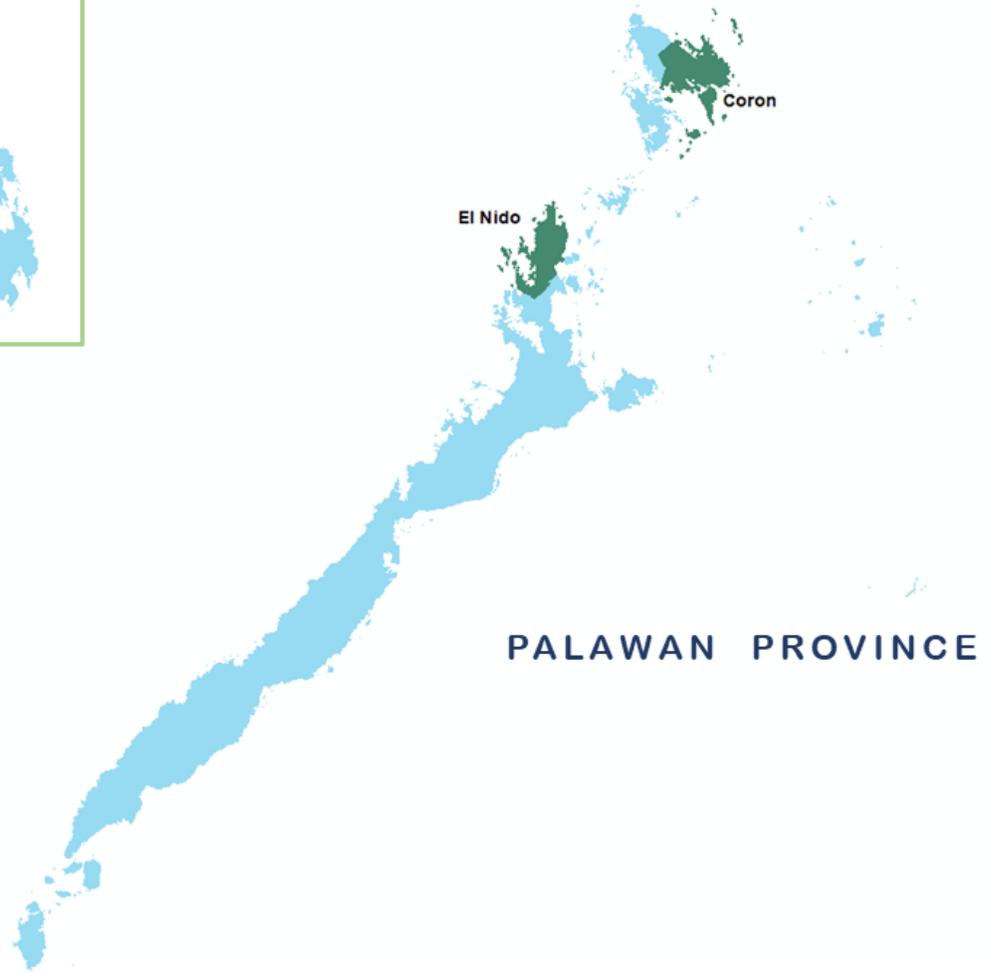
Berau Regency (East Kalimantan) 2° 0' 0" N, 117° 18' 0" E

Klungkung Regency (Bali) 8° 32' 20.12" S, 115° 24' 16.24" E

Makassar City (South Sulawesi) 5° 7' 59" S, 119° 24' 49" E

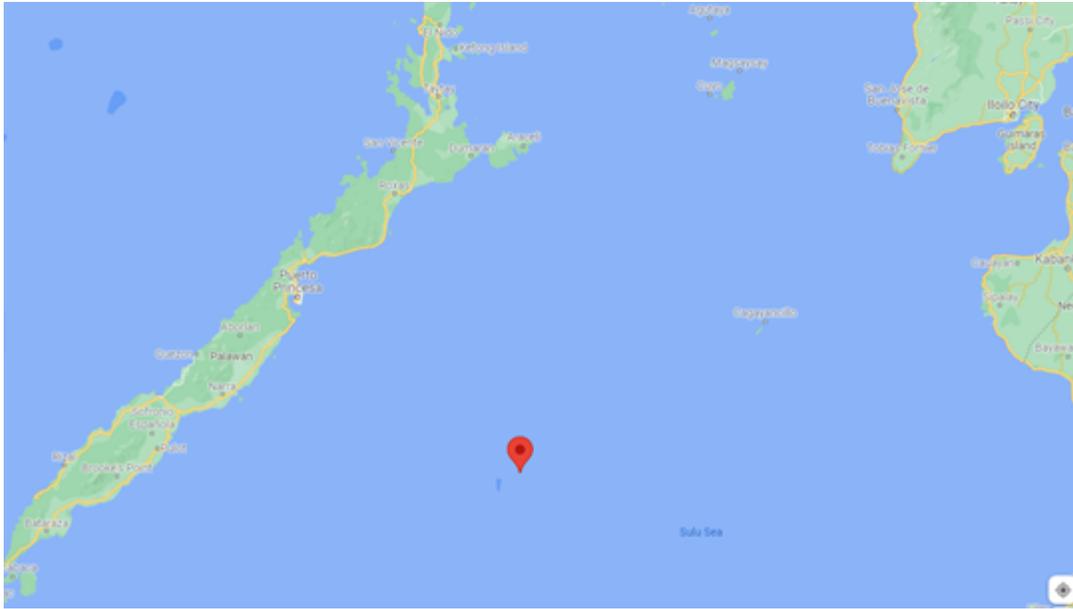
Pandeglang Regency (Banten) 6° 18' 33" S, 106° 6' 17" E



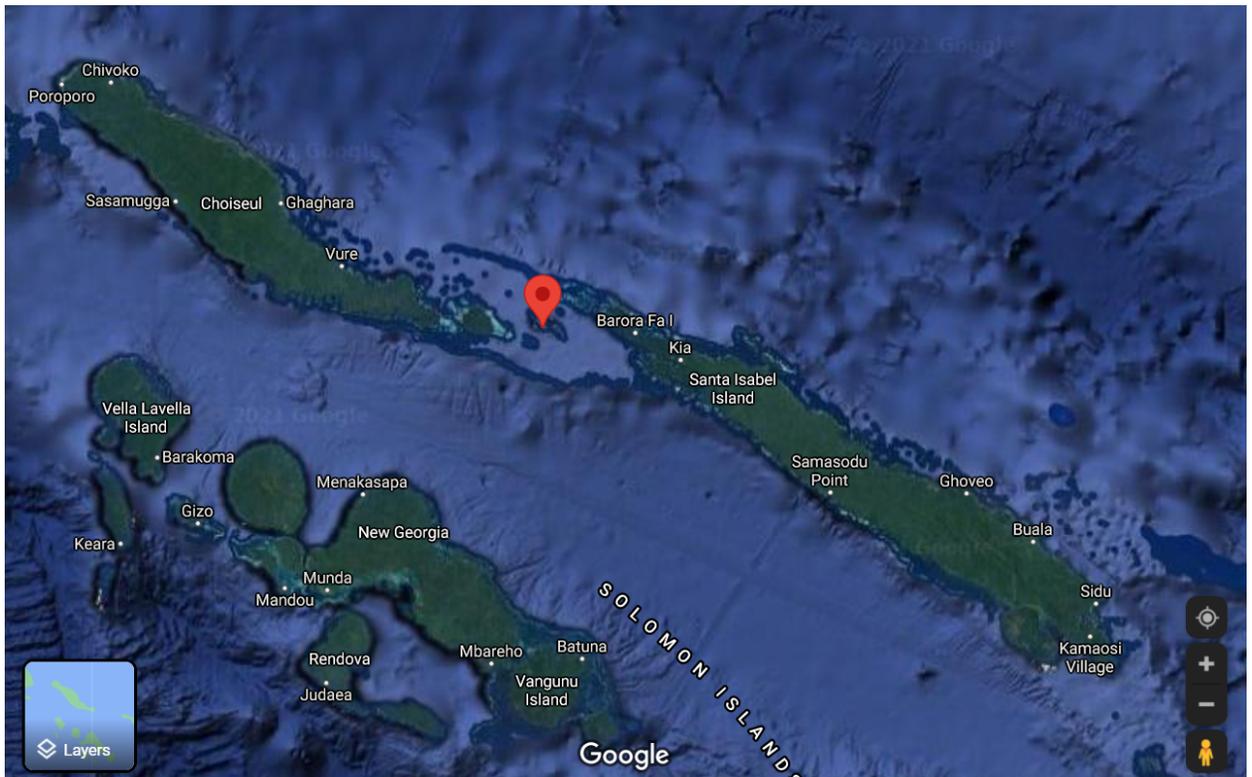


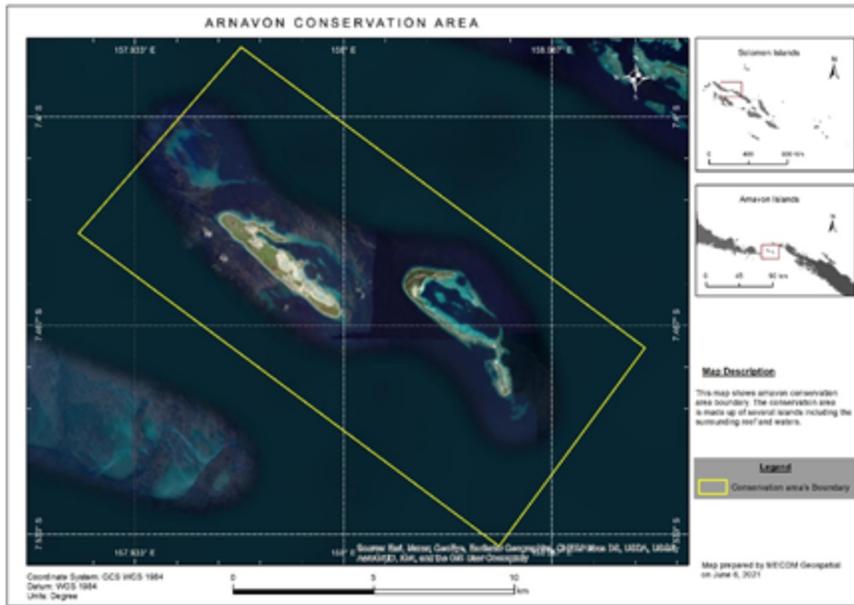
Tubbataha Reef Natural Park

8° 57' 12" N, 119° 52' 3" E



3.. Arnavon Islands, Solomon Islands 7° 27' 0" S, 158° 0' 0" E





## ANNEX E: Project Budget Table

Please attach a project budget table.

**Appendix A: Indicative Project Budget Template**

Expenditure Category	Detailed Description	Component (USDeq.)					Total (US Deq.)	Responsible Entity
		Component 1	Component 2	Component 3	M&E	PM C		
<b>Works</b>	?							
<b>Goods</b>		17,825					17,825	
<b>Vehicles</b>	?						-	
<b>Grants/ Sub-grants</b>	Arnavons Community Marine Park Endowment		250,000				250,000	Solomon Islands Government
<b>Revolving funds/ Seed funds / Equity</b>	?						-	
<b>Sub-contract to executing partner/ entity</b>	?						-	
<b>Contractual Services ? Individual</b>	Conservation Finance Specialist		34,596				34,596	Philippines Government
	Operations Assistant (for ADB RETA)					29,404	29,404	
	Knowledge products			33,668			33,668	
<b>Contractual Services ? Indonesia Nature-based Solutions Firm /NGO/ Consortium</b>								
	Risk assessment: severity and scope of damages to reefs	23,000					23,000	Indonesian Government
	Estimate potential losses to the economy from reef	11,500					11,500	Indonesian Government

**ANNEX F: (For NGI only) Termsheet**

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

N/A

**ANNEX G: (For NGI only) Reflows**

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

N/A

**ANNEX H: (For NGI only) Agency Capacity to generate reflows**

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

N/A