



# GEF-7 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: (choose project type)

TYPE OF TRUST FUND:(choose fund type)

## PART I: Project Information

Project Title:	Sulu-Sulawesi Seascape Approach to Coral Reef Sustainable Livelihoods (SEACONNECT)		
Country(ies):	Indonesia, Malaysia, Philippines	GEF Project ID:	
GEF Agency(ies):	CI	GEF Agency Project ID:	
Project Executing Entity(s):	University of Queensland	Submission Date:	April 30, 2022
GEF Focal Area(s):	IW	Project Duration (Months)	60

## A. INDICATIVE FOCAL/NON-FOCAL AREA ELEMENTS

Programming Directions	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
IW 1-2 Strengthen blue economy opportunities through catalysing sustainable fisheries management	GEFTF	6,000,000	137,817,000
<b>Total Project Cost</b>		6,000,000	137,817,000

## B. INDICATIVE PROJECT DESCRIPTION SUMMARY

<b>Project Objective:</b> : Improve sustainability of coral reef resources, fisheries, and the blue economy in support of the “Seascape Approach to Securing Coral Reef Fishery and Biodiversity Resources in the Sulu-Sulawesi” Strategic Action Programme.						
Project Components	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
<b>Component 1:</b> Improved management of shared resources under climate change	Technical Assistance	<p><b>Outcome 1.1</b> Regionally developed management practices for climate change impacts on coral reef and related coastal resources are proposed for national adoption</p> <p><i>Indicator 1.1.1 At least three planning decisions, such as marine spatial or MPA plans, take account of climate change impacts on the ecosystem or peoples' livelihoods.</i></p>	<p><b>Output 1.1.1</b> Regional environmental impact assessment of climate change and local disturbances on coral reef resources within the SSS</p> <p><b>Output 1.1.2</b> Regional guidelines on management practices for climate change impacts on reef and related coastal resources</p> <p><b>Output 1.1.3</b> Report on climate change impacts on reef dependent small scale fishers</p>	GEFTF	900,000 IW	12,778,540

			of SSS			
		<p><b>Outcome 1.2</b> Consideration of shared resource distribution when planning management activities including MPA expansion and coastal monitoring</p> <p><i>Indicator 1.2.1 At least two planning decisions, such as marine spatial or MPA plans, take account of the shared distribution of coral reef resources</i></p> <p><i>Indicator 1.2.2 Number of participants in the seascape practitioner working group for making coordinated decisions on resource use</i></p> <p><i>Indicator 1.2.3 Number of planning or resource management decisions that the seascape practitioner working group contribute to</i></p> <p><i>Indicator 1.2.4 Number and diversity of institutions represented by the seascape practitioner working group</i></p> <p><i>Indicator 1.2.5 Number of MPAs subject to new</i></p>	<p><b>Output 1.2.1</b> Regional assessment of fisheries benefits that will accrue from alternative national management decisions based on shared nature of stocks</p> <p><b>Output 1.2.2</b> Regional network of marine planning practitioners (multi-state cooperation framework via CTI-CFF)</p> <p><b>Output 1.2.3</b> Guidelines to assess MPA fishery benefits (applies to shared and non-shared scales)</p>		1,200,000	11,909,910

		<i>fisheries evaluation</i>				
		<p><b>Outcome 1.3</b> Improved planning to prioritise sites for potential reef restoration</p> <p><i>Indicator 1.3.1</i> <i>Area of coast under improved management through the incorporation of information on climate change impacts or transboundary resource distribution</i></p>	<p><b>Output 1.3.1</b> Regional assessment of opportunities for habitat restoration (note that this activity also links with Output 2.2.1 on critical fishery habitats)</p>		300,000	15,678,660
<p><b>Component 2:</b> Enhancing the sustainability and opportunities for Blue Enterprise under climate change</p>		<p><b>Outcome 2.1</b> Fishers empowered to diversify their opportunities</p> <p><i>Indicator 2.1.1</i> <i>Number of fishers experiencing training in entrepreneurship</i></p> <p><i>Indicator 2.1.2</i> <i>Number of new business opportunities identified</i></p>	<p><b>Output 2.1.1</b> Workshops and mentoring implemented to stimulate entrepreneurship in coral reef fisheries sector</p>		600,000	15,560,000
		<p><b>Outcome 2.2</b> Improved management of critical fisheries habitat protection</p> <p><i>Indicator 2.2.1</i> <i>Area of critical coastal habitat identified</i></p> <p><i>Indicator 2.2.2</i> <i>Number of management activities that utilise new information on critical fish habitat</i></p>	<p><b>Output 2.2.1</b> Maps of critical coral reef and related coastal habitats for fisheries within the SSS</p>		600,000	17,877,640

		<p><b>Outcome 2.3</b> Increased sustainability of fishery by reducing incidence of habitat damage from destructive fishing</p> <p><i>Indicator 2.3.1</i> <i>Number of people engaged in behaviour change program</i></p> <p><i>Indicator 2.3.2</i> <i>Negative trend in the number of reported cases of fish bombing and cyanide fishing (noting that this may be prohibitively difficult to obtain for confidentiality reasons)</i></p>	<p><b>Output 2.3.1</b> Provision of piloted behaviour change strategy for destructive fishing practices</p>		300,000	18,690,250
		<p><b>Outcome 2.4</b> Stronger coral reef blue economy</p> <p><i>Indicator 2.4.1</i> <i>Number of actions to manage tourism more effectively during heatwaves</i></p> <p><i>Indicator 2.4.2</i> <i>Number of tourism partners engaged in process of business model review and refinement including the creation of new partnerships with data providers on issues like coral bleaching</i></p>	<p><b>Output 2.4.1</b> Regionally-developed plan for managing impacts of heatwaves on coastal tourism</p> <p><b>Output 2.4.2</b> Recommendations on building resilience to environmental shocks into tourism business</p>		600,000	13,400,000
<b>Component 3:</b> Regional capacity building and mutual learning among Large		<p><b>Outcome 3.1</b> Practitioners in other Coral Triangle LMEs</p>	<p><b>Output 3.1.1</b> Establishment of a multi-LME working group</p>		420,000	10,451,000

<p>Marine Ecosystems (LMEs) in the Coral Triangle</p>		<p>work with the Project to decide which approaches to climate change adaptation and managing shared resources are suited to their own regions (i.e., de-risking their own investments)</p> <p><i>Indicator 3.1.1 Number of people engaged in the cross LME network</i></p> <p><i>Indicator 3.1.2 Number of regional network activities including training carried out by group</i></p> <p><i>Indicator 3.1.3 Number of approaches to shared or climate adaptation piloted in the SSS that become identified as appropriate for use in the Lesser Sunda, Bismarck-Solomons, or Indonesian-Seas LMEs.</i></p>	<p>within the CTI-CFF that links activities in the SSS to up to three other LMEs in the region</p>			
<p><b>Component 4:</b> Stakeholder engagement, communication, monitoring and evaluation</p>		<p><b>Outcome 4.1</b> Effective communication of climate change and shared resource concepts improves understanding of stakeholders and planners</p> <p><i>Indicator 4.1.1 Improvement in end user understanding of the level of resource</i></p>	<p><b>Output 4.1.1</b> Project monitoring system established and implemented.</p> <p><b>Output 4.1.2</b> Project knowledge management strategy and communication strategy established and implemented</p>		<p>720,000</p>	<p>10,000,0000</p>

		<p><i>distribution and/or the location of climate change impacts</i></p> <p><i>Indicator 4.1.2 Participation in 3 IW Learn meetings and adoption of relevant IWLearn tools</i></p> <p><i>Indicator 4.1.3 One Project knowledge platform established and easily accessible for stakeholders.</i></p> <p><i>Indicator 4.1.4 At least 8 SEACONNECT lessons learned collated and accessibly, communicated through IWLearn fora.</i></p> <p><i>Indicator 4.1.5 At least 8 regional students trained in specialist techniques that can help implement project activities either within or beyond the SSS</i></p> <p><i>Indicator 4.1.6 At least five collaborations created between regional data and education providers and complementary providers within or beyond the Coral Triangle region</i></p>	<p><b>Output 4.1.3</b> Participation in IWLearn activities</p> <p><b>Output 4.1.4</b> Establishment of collaborations between suppliers of technical information for reef management, particularly among jurisdictions, as part of the CTI-CFF</p>			
		<p><b>Outcome 4.2</b> High levels of</p>	<p><b>Output 4.2.1</b> Report on</p>		60,000	10,000,000

		gender equity achieved in the development and implementation of regionally-created approaches to shared resources management, blue enterprise and training  <i>Indicator 4.2.1 Minimum project-wide level of gender minority inclusion exceeds 30%</i>  <i>Indicator 4.2.2 Proportion of gender minority featured in project communications exceeds 30%</i>	progress and continued challenges to increase gender equity			
Subtotal				GEFTF	300,000	1,471,000
Project Management Cost (PMC)				(select)		
<b>Total Project Cost</b>					6,000,000	137,817,000

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

### C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (\$)
GEF Agency	Conservation International	Grant	Investment Mobilised	6,000,000
Other	University of Queensland	Grant	Investment Mobilised	600,000
Other	University of Queensland	In-kind	Recurrent Expenditures	2,000,000
Recipient Country Government	Indonesia: Zoning KSNT	In-kind	Recurrent Expenditures	50,000
Recipient Country Government	Indonesia: National Marine Planning	In-kind	Recurrent Expenditures	100,000
Recipient Country Government	Indonesia: Integration of Provincial MSP land and coastal waters terkait mandat UU CK	In-kind	Recurrent Expenditures	140,000
Recipient Country Government	Malaysia (project management office)	In-kind	Recurrent Expenditures	271,000
Recipient Country Government	Malaysia: Fisheries ecosystem conservation project (Sabah State)	In-kind	Investment Mobilized	360,000
Recipient Country Government	Malaysia: CTI Sabah State	In-kind	Recurrent Expenditures	451,000

Recipient Country Government	Malaysia: Marine Sanctuary & Fisheries Conservation Project (Sabah State)	In-kind	Investment Mobilized	192,000
Recipient Country Government	Malaysia: Strengthening fisheries management through EAFM (Federal)	In-kind	Investment Mobilized	331,000
Recipient Country Government	Malaysia: CTI Seascape Federal Funding	In-kind	Investment Mobilized	444,000
Recipient Country Government	Malaysia: Fisheries resource conservation program community involvement (Federal)	In-kind	Recurrent Expenditure	2,400,000
Recipient Country Government	Malaysia: Development and Management of Fisheries Resource using Artificial Reefs	In-kind	Investment Mobilized	4,320,000
Recipient Country Government	Philippines: 10 Fisheries Management Areas Implementation (BFAR)	In-kind	Recurrent Expenditure	4,083,000
Recipient Country Government	Philippines: National stock assessment program in 10 SSS regions	In-kind	Recurrent Expenditure	12,075,000
Donor Agency	USAID Fish Right Program in Calamianes, Southern Negros and Visayan Seas	Grant	Investment Mobilized	10,000,000
Donor Agency	Fisheries and coastal resiliency (FishCore) project for FMA 9 to be funded by World Bank (to BFAR) (expected project)	In-kind	Investment Mobilized	100,000,000
<b>Total Co-financing</b>				143,817,000

“Investment Mobilized” was identified by each respective government or Executing Agency.

**D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS**

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
(select)	GEFTF		(select)	(select as applicable)			
<b>Total GEF Resources</b>							

**E. PROJECT PREPARATION GRANT (PPG)**

Is Project Preparation Grant requested? Yes  No  If no, skip item E.

**PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**

GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee (b)	Total c = a + b
CI	GEFT F (select)	Regional	International Waters	(select as applicable)	150,000	15,000	165,000

<b>Total PPG Amount</b>	150,000	15,000	165,000
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## F. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Provide the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex B and aggregating them in the table below. Progress in programming against these targets is updated at the time of CEO endorsement, at midterm evaluation, and at terminal evaluation. Achieved targets will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Project Core Indicators		Expected at PIF
1	<b>Terrestrial protected areas</b> created or under improved management for conservation and sustainable use (Hectares)	
2	<b>Marine protected areas</b> created or under improved management for conservation and sustainable use (Hectares)	7,000
3	Area of <b>land restored</b> (Hectares)	
4	Area of <b>landscapes under improved practices</b> (excluding protected areas)(Hectares)	
5	Area of <b>marine habitat under improved practices</b> (excluding protected areas) (Hectares)	520,00
6	<b>Greenhouse Gas Emissions Mitigated</b> (metric tons of CO <sub>2</sub> e)	
7	<b>Number of shared water ecosystems</b> (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited <b>marine fisheries</b> moved to more sustainable levels (metric tons)	360,000
9	<b>Reduction, disposal/destruction, phase out, elimination</b> and avoidance of <b>chemicals of global concern</b> and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)	
10	Reduction, avoidance of emissions of <b>POPs to air</b> from point and non-point sources (grams of toxic equivalent gTEQ)	
11	Number of <b>direct beneficiaries disaggregated by gender</b> as co-benefit of GEF investment	

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicators targets are not provided.

## G. PROJECT TAXONOMY

Please fill in the table below for the taxonomic information required of this project. Use the GEF Taxonomy Worksheet provided in Annex C to help you select the most relevant keywords/ topics/themes that best describe this project.

Level 1	Level 2	Level 3	Level 4
Influencing Models	(multiple selection)	(multiple selection)	(multiple selection)
Stakeholders	(multiple selection)	(multiple selection)	(multiple selection)
Capacity, Knowledge and Research	(multiple selection)	(multiple selection)	(multiple selection)
Gender Equality	(multiple selection)	(multiple selection)	(multiple selection)
Focal Area/Theme	(multiple selection)	(multiple selection)	(multiple selection)
Rio Marker	(multiple selection)		

## PART II: PROJECT JUSTIFICATION

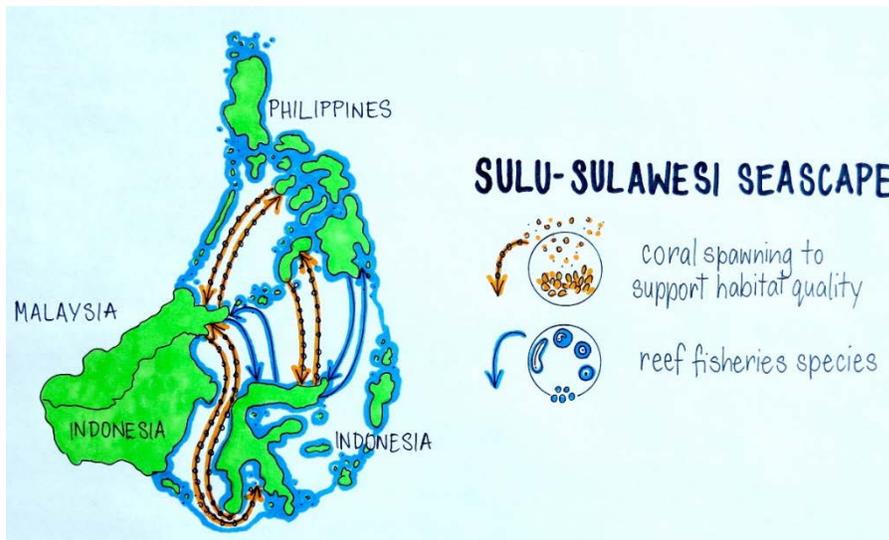
**1a. Project Description.** Briefly describe:

1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario with a brief description of expected outcomes and components of the project; 4) alignment with GEF focal area and/or

Impact Program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovation, sustainability and potential for scaling up.

## 1.1 Problems, root causes, and barriers that need to be addressed

The Coral Triangle (CT) is the centre of global marine biodiversity (Reaka-Kulda 1997), particularly owing to its highly diverse coral reefs (Veron et al. 2009). Even within the relatively small coastal area of Timor-Leste, there are more than 800 species of reef fish and 400 species of coral (Erdman and Mohan 2013).



The core of the Coral Triangle is known as the Sulu-Sulawesi Seascape (SSS), which is one of several Large Marine Ecosystems (LMEs) in the region. The SSS connects the islands of Sulawesi, eastern Borneo, and the southwest of the Philippines, including Palawan and the islands extending to Mindanao. As such, the SSS comprises the jurisdictions of Indonesia, the Malaysian state of Sabah, and the Philippines. A striking aspect of the SSS is the complex oceanography that

follows monsoonal reversals of currents and connects marine resources across national boundaries (Treml and Halpin 2012). The monsoonal forcing is important because different marine species spawn at different times of year, during which the prevailing flow can reverse in direction. Therefore, the connectivity of marine resources via larval dispersal is bidirectional across national borders, meaning that coordinated management has the potential to benefit both countries. This differs from the typically unidirectional movement of resources along rivers, where the benefits of coordinated action between neighbouring countries are likely to be more unequal.

Like most of the Coral Triangle, people in the SSS have an extremely high dependence on marine resources for livelihoods, food security, and culture. The combined values of coral reef ecosystem services in SE Asia are estimated to lie between \$23,000-270,000 km<sup>2</sup> y<sup>-1</sup> (Conservation International 2008). Yet, much of this occurs at small scales in local coastal communities. For example, 90% of people employed in fisheries do so at a small scale (The World Bank 2012). Coral reefs, and their associated seagrass and mangrove ecosystems, underpin significant levels of coastal ecosystem services. Unfortunately, the sustainability of these ecosystems and their ecosystem services are threatened by a number of problems.

### *Problem 1) Degradation of ecosystems and their services*

Marine ecosystems are heavily threatened in the region (Burke et al. 2011), and all have declined in either health or extent (or both). The health of coral reefs has declined (Tittensor et al. 2014) and seagrass beds have been lost, particularly in parts of eastern Borneo (Christianen et al. 2014). Indonesia has half of the World's mangrove cover (FAO 2007) but 80% has been lost since 1940, mostly to make way for development including aquaculture (Boggs et al. 2009). Declines in ecosystem state reduce biodiversity and the value of ecosystem services, which ultimately have deleterious impacts on people. For example, unhealthy coral reefs lose much of their structural complexity and this alters their ability to support productive fish populations. Recent analyses in the region suggest that habitat deterioration will reduce reef fisheries productivity between 50% to 70% even where levels of exploitation are managed well (Rogers et al. 2018).

The degradation of marine ecosystems and their services has multiple causes. Marine ecosystems are being degraded at unprecedented scales through climate change. For example, key drivers threatening small-scale pelagic fisheries and aquaculture in the Philippines include rising temperature, typhoons, and sea-level rise (Macusi et al. 2021). Of these, rising temperature has the most striking impact in causing mass coral bleaching often over thousands of square kilometres (Baker et al. 2008). Bleaching events have reduced coral reef biodiversity dramatically throughout the Coral Triangle (Jones et al. 2004) and impact upon ecosystem services (Rogers et al. 2015).

Climate change often creates an additive, or even synergistic, impact when overlain upon local sources of degradation (Brown et al. 2013). Local problems include poor agricultural practices that allow sediments and nutrients to enter riverine systems and pollute coastal habitats (Richmond et al. 2007). Moreover, overharvesting of resources, particularly key species such as parrotfish, unbalance ecosystem food-webs and result in blooms of seaweed that can smother reefs and prevent recovery (Mumby and Steneck 2008). The root cause of most local problems lie in poverty, inadequate capacity, and inadequate governance (Ostrom 1990).

Numerous barriers exist to sustaining ecosystems in the light of climate change. The first is that the direct impacts, such as rising sea temperatures, cannot be mitigated directly. Instead, most management seeks to reduce local stressors with the goal of minimising overall impacts and facilitating recovery. Yet operationalising such practices is difficult, not only because of the ingrained governance and capacity problems, but also because it is often unclear how best to proceed. For example, several countries in SE Asia have implemented tourism bans during coral bleaching events. While well intentioned, such strong measures might have long-term adverse impacts on the blue economy, driving people out of tourism and into exploitative livelihoods. An alternative is to implement a carrying capacity upon tourism, but a lack of regional comparisons and learnings means that the consequences and outcomes of such interventions are unclear.

An important component of climate change adaptation is targeting where to intervene and how. The application of vulnerability analysis has grown in the SSS, particularly in the Philippines (Cinner et al. 2012; Macusi et al. 2021). Yet there remain important barriers, such as mapping the scale of climate change impacts and how they affect peoples' activities, such as access to fishing grounds (Chollett et al. 2014), as well as which management interventions are most likely to be successful.

A well-known, yet persistently challenging, aspect of resource management is the very regional nature of their distributions. As stated above, marine resources are distributed across multiple jurisdictions of the Coral Triangle. Finding appropriate solutions to managing such resources presents both a governance / institutional challenge as well as a technical challenge in quantifying resource distributions (Blake et al. 1995).

### *Problem 2) Unproductive fisheries and greater usage of destructive methods*

Not only is climate change reducing the productivity of coral reef ecosystems, but overharvesting has already diminished their productivity and therefore potential food supply. A global analysis of the forgone net benefits of fishing found that Asia comprised the most significant region, comprising 65% of the global figure of \$54.8 billion (World Bank 2017). Indeed, the intersection of excessive resource exploitation and high dependence exacerbates poverty and fosters food insecurity (Lopez-Angarita et al. 2019).

The root causes of overcapacity in fisheries lie in a lack of alternative enterprise, high population density, poverty, and inadequate governance (Newton et al. 2007). Methods to reduce capacity include the facilitation of alternative livelihoods as a means of reducing fishing effort. Another approach to reducing effort has been the adoption of marine protected areas (MPAs) (Roberts et al. 2003). Indeed, Aichi Target 11 of the UN Convention on Biodiversity, requires countries to set aside 10% of their coast under protection. Yet despite concerted efforts, the Aichi target 11 was not met in most countries and many are now planning a new target of 30% protection by 2030. Thus, investments in MPA design and implementation will continue for the next decade at least.

Until recently, a barrier to MPA design was how to design both their size and locations in order to generate meaningful fisheries benefits. A recent World Bank/GEF project, Capturing Coral Reef Ecosystem Services (CCRES.net) developed practical tools to support this, which were piloted in the Philippines and adopted in Indonesia (Krueck et al. 2017a; Krueck et al. 2019). Importantly, analyses suggested that even achieving 10% MPA protection was likely to help rebuild the majority of coral reef fisheries, while 30% protection would have markedly greater benefits (Krueck et al. 2017b). While a technical design barrier has been overcome for MPAs, there remains a challenge of implementing such strategies across national borders. Failure to achieve such coordination means that many reef and fishery resources are not being managed at their appropriate scale – which often spans national borders – and the benefits of management in all jurisdictions are lower than could be attained.

More generally, understanding the distribution of marine resources is hampered by inadequate information on the locations of nursery habitats, spawning locations, and key brood stocks. Such data are patchy. Nursery habitats are relatively well understood in the Atlantic but less so in the Indo-Pacific (Igulu et al. 2014). Some important spawning aggregation sites are known and protected but many are unknown – at least to managers (Sadovy 2005).

One consequence of the scarcity of productive marine resources, particularly for people that have newly migrated to coastal areas, is the usage of destructive fishing practices, including blast (bomb) fishing and the use of cyanide to stun fish (McManus 1997). This is a long-standing problem, which means that barriers remain to its solution. Yet understanding those barriers can be complex and require more detailed social and psychological science, in the form of behaviour change strategies. Such strategies work with practitioners to identify the root causes of undesirable behaviours and identify and pilot potential solutions.

The continuing challenge of diversifying peoples' livelihoods has evolved from a somewhat 'outside-in' approach where feasible options, such as aquaculture facilities, have been provided together with capacity building. While this approach has doubtless had its successes, it has also experienced limitations in terms of galvanising stakeholder engagement and often lacked a compelling business model when donor support ends. Thus, a barrier to diversifying opportunities is how to help people help themselves, not only in identifying enterprise opportunities they desire but also in building appropriate business models, ideally with sustained mentorship.

### *Problem 3) Shocks to blue economy founded on those ecosystem services such as tourism*

The COVID-19 pandemic brought the concept of 'shocks' to a social and economic system into sharp relief. Yet climate change has already presented pervasive shocks to the blue economy by causing highly publicised coral bleaching events resulting in mass die-off of corals. This, coupled with the gradual loss of fisheries biomass over many years of overfishing have severely impacted the ability of local economies to thrive. COVID-19 is an additional and unexpected shock that has also placed pressure on communities to seek their income from more traditional sources such as fisheries. Most business models in the small-scale, tropical blue economy are unprepared for such shocks. Adapting to acute and sudden impacts requires a coordinated and appropriate response between resource managers and business owners. This, in turn, requires the development of 'best practice' management measures, rethinking of tourism business models by emphasising eco credentials and directly involving tourists in the recovery process. An area of tourism that has emerged strongly in recent years as Environmental, Social and Governance (ESG) concerns have become mainstream. Solutions also require effective communication across communities and jurisdictions to achieve sufficient scale to have a material positive impact. The creation of appropriate communication strategies to operationalise such measures rapidly is essential to success (Mumby et al. 2017).

### *Problem 4) Scaling up interventions hampered by 'reinventing of wheel' from one LME to another*

Countries often share similar problems, yet solutions are frequently sought on a national, or sometimes regional, level. Inevitably, there can be substantial unnecessary duplication of effort. Activities like the GEF IWLearn play an important role in bringing practitioners together to facilitate mutual learning. Indeed, the sharing of knowledge among LMEs is a core goal of GEF IW. Knowledge sharing is best achieved once partners have developed long-term relationships that generate the trust and allow the reinforcement of lessons. A common challenge in the development

sector is that many projects end after 5 years, just when relationships have cemented to the level that progress can accelerate. Thus, a barrier to long-term knowledge sharing is the creation of long-term partnerships.

## 1.2 Base case scenario and projects

### *Regional context and collaboration*

The combinations of climate change, fisheries management, and paucity of regional coordination over resource management were recognised formally in the SE Asian region and led to the formation of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF). The CTI-CFF is a multilateral partnership formed in 2009 by the governments of the six Coral Triangle countries to address the growing threats to the Coral Triangle. The goal is to work together to address crucial issues such as food security, climate change, and the maintenance of marine biodiversity. Under the CTI-CFF, the six countries (Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste) signed a declaration to protect the Coral Triangle and committed to implement a Regional Plan of Action (RPOA). The six countries then developed their respective CTI-CFF National Plans of Action (NPOA). Using their common concern from their NPOA, the Member Countries proposed five regional goals and other activities which they adopted in 2009.

The Coral Triangle is a geographical term that refers to a roughly triangular shape of marine waters between the Pacific and Indian oceans. It encompasses 647 million hectares of land and sea. The CTI-CFF Regional Secretariat was established in 2015 to coordinate and facilitate the implementation of RPOA activities across CTI-CFF Member Countries. These efforts will implement the goals and objectives of the RPOA. The original RPOA runs from 2009 to the present, until the new draft RPOA 2.0 is completed and endorsed.

The RPOA has five goals: designation of effectively managed seascapes (SEASCAPE); application of an ecosystem approach to fisheries management (EAFM); establishment of a fully functional marine protected area system (MPA); strengthening climate change adaptation and resilience (CCA); and improving the status of threatened marine species (TS). These goals are accompanied by similarly named technical working groups where the working groups are special bodies formed by the CT6 Member Countries under the CTI-CFF Rules and Procedures.

The new draft RPOA 2.0 has two goals. By 2025, coastal communities and coastal and marine ecosystems are enabled to cope with the impacts of climate change, natural, and anthropogenic threats due to measurable increased regional collaboration between the CT6 and our partners, for the implementation of the RPOA 2.0 facilitated through a strong and effective CTI-CFF. By 2030, coastal communities and coastal and marine ecosystems in the CT region are more resilient/able to adapt to impacts of climate change, natural and anthropogenic threats, by improving food security, sustainable fisheries and coastal livelihoods.

The Strategic Action Program (SAP) that underpins SEACONNECT was formally endorsed by the CTI-CFF at its 2018 Senior Officials Meeting. Indeed, SEACONNECT sits within the CTI-CFF and the creation of this PIF was undertaken by a writing team comprising two CTI-CFF representatives from each country (Indonesia, Malaysia, Philippines); one represented the Seascapes Working Group and the other represented the Ecosystem-based Fisheries Working Group. The writing team was chaired by the Chair of the CTI-CFF Seascapes Working Group.

The SAP for the Sulu-Sulawesi Seascape identified four priority objectives, each of which is targeted by SEACONNECT. These are

1. Enhance food security and biodiversity by creating a climate-resilient, management plan for shared coral reefs and associated small-scale fisheries,
2. Create and adopt regional guidelines of best practice for climate adaptation for coral reefs and fisheries in a shared context. Share with other seascape projects that consider connectivity,

3. Strengthen a regional network of practitioners and scientists to improve the provision of evidence-based policy for coastal biodiversity in connected seascapes,
4. Support the fulfilment of the UN Aichi Target 11 of 10% national marine protection for each country but taking advantage of shared network.

SEACONNECT includes three technical Project Components, which are designed to support the countries participating in the CTI-CFF. Component 1 tackles both climate change impacts and the shared distribution of resources. Component 2 considers ecosystem-based fisheries and improved sustainability of the blue economy, which is important for community resilience under climate change. Component 3 builds explicitly on the CTI-CFF partnership to enable regional linkages beyond the Sulu-Sulawesi Seascape (Large Marine Ecosystem), to build regional learning with three other LMEs in the CT including the Lesser Sunda, Bismarck-Solomons, and Indonesian Seas (with Timor-Leste).

#### *Current activities on climate adaptation*

Across all three partner countries, the CTI-CFF has a number of specific investment objectives for climate adaptation. By 2025, a knowledge management plan for climate adaptation should be created and a vulnerability needs assessment would have been carried out, with a particular focus on coastal and small-islands systems. SEACONNECT will support both objectives by building capacity and regional learning for vulnerability assessments in the context of coral reef fisheries.

**Indonesia:** Current Marine Spatial Plans (MSP) in Indonesia do not explicitly consider climate change adaptation. The Ministry of Marine Affairs and Fisheries (MMAF) wish to strengthen the incorporation of climate change impacts on the blue economy when designing and revising MSP in the Sulawesi Sea.

**Malaysia:** Current management of marine resources in the Semporna region – the demonstration site for SEACONNECT in Malaysia – does not explicitly consider climate change despite its impact on the prolific reefs, which are a draw for tourism. Yet there is significant interest from the Department of Fisheries to examine the vulnerability of coral reef fisheries to climate change in the Semporna region. Spatial vulnerability analyses lend themselves to MSP yet MSP is a new concept in Malaysia. However, the launch of the Semporna Marine Spatial Planning (SMSP) in June 2014 marked a beginning of a partnership between the Town and Regional Planning Department Sabah (TRPD) and WWF-Malaysia in committing to the MSP approach and the creation of a final planning document that will be adopted and incorporated into the Sabah State Government’s regulatory framework. The proposed SMSP strategy is timely to deliver a balanced approach for the demands of development in Semporna Priority Conservation Area (PCA), protect marine ecosystems and achieve social and economic objectives in an open and planned manner with all stakeholders. The process to create a final ISMP document for Semporna is ongoing and SEACONNECT Component 1 will contribute to its development.

**Philippines:** Vulnerability assessment, funded by ProBLUE (World Bank), has identified the drivers of climate change and their major impacts on the value chain of capture fisheries and aquaculture (Macusi et al. 2021). Major sources of exposure identified and include strong waves, and unpredictable rain. Factors that affect peoples’ sensitivity include boat size, coral reef degradation, fish quality, fishery access, and changes in the distribution of fish (Chollett et al. 2014). Adaptive capacity can be built through alternative livelihoods, cold storage, access to finance, gear subsidy and value additions. SEACONNECT will contribute in two fundamentally different ways. First, assist the implementation of vulnerability assessments to identify the most vulnerable locations and members of society. This will occur by strengthening the scenario planning of climate change impacts in causing coral reef degradation (i.e., where is more heavily affected) as well as issues like high wave action which can prevent access to fishing grounds. Second, the project will contribute adaptive capacity by taking an entrepreneurial approach to alternative livelihoods, which will include opportunities to add value to fishery products.

The DENR supports the monitoring and assessment of coral bleaching, in a project implemented by the University of the Philippines (UP). With partners at UP, SEACONNECT will ensure that lessons learnt will be shared with

resource managers and survey teams throughout the SSS. Moreover, the project will strengthen how such data can inform the management of bleaching events and their implications for tourism business models.

Marine Spatial Planning is still evolving in the Philippines and there is demand for capacity building on incorporating the impacts of climate change on sustainability. SEACONNECT will review investments and renewed policies in the Palawan or Zamboanga regions and consider how climate adaptation can be incorporated. Currently there is a focus on terrestrial impacts on the marine environment including sediment run-off, flooding, solid waste and marine debris. The project will bring representatives of Ridge-to-Reef planning that has been evolving rapidly in the eastern Coral Triangle (Solomons Islands) to help build capacity in the SSS (Brown et al. 2017; Delevaux et al. 2018; Wenger et al. 2018; Wenger et al. 2020). It will also examine how to incorporate climate change impacts within the Ridge-to-Reefs model of planning.

The Joint Administrative Order on the establishment of MPA Networks is in progress, which resulted from the GEF SMART-SEAS project and sits under the DENR Biodiversity Management Bureau. SEACONNECT will help support the DENR-BMB to consider how climate change impacts can be incorporated into MPA network design.

#### *Current activities on managing marine resources, particularly through MPAs*

Each of the three countries are investing in either broader MSP or MPA implementation within their jurisdictions of the Sulu-Sulawesi Seascape. There is as yet no formal management of small scale fisheries that are distributed across borders.

**Indonesia:** Indonesia is investing heavily in marine spatial planning (MSP) in the SSS. Two conservation areas have been established under the MMAF in East Kalimantan, at least one of which has close proximity to extensive mangroves, which are an important nursery habitat (Igulu et al. 2014). There are stock assessments on small pelagic species and reef fishes in part through reef fish monitoring programs. Yet there is a significant value in reviewing current management investments on either side of the Indonesian/Malaysian border to identify ways to refine smaller scale planning at sub-province scales and to inform the 5-yearly review of plans. SEACONNECT will include key decision-makers and planners in assessing the shared distribution of resources and ways in which Indonesia (and Malaysia) may increase their national benefits by reviewing their MSP in light of the state, threats, and protection of resources in the neighbouring jurisdiction.

**Malaysia:** Malaysia's MPAs are spread over West (Peninsular) Malaysia and East Malaysia (Borneo). Marine parks in West Malaysia are managed by the Department of Fisheries Malaysia, while marine parks in Sabah and Sarawak are managed by Sarawak Forestry Department and Sabah Parks respectively. Sabah is also home to the country's first privately managed marine conservation area, Sugud Islands Marine Conservation Area or SIMCA, which is located on the northeastern coast of Sabah, close to the international boundary between Malaysia & the Philippines. Semporna is the gateway to the protected Sipadan Island Park, managed by Sabah Parks. It is often hailed as one of the world's best diving sites and richest spots for marine diversity.

There are plans to add additional MPAs within the Sabah region, though not in Semporna itself, which already has a marine park. However, a challenge identified by Sabah Parks is how to prioritise areas for protection when so many seem to have similar state, being partly disturbed. SEACONNECT will help identify suitable locations based on their biodiversity and fisheries potential as well as the relative impact of climate change. Of particular importance is the degree to which sites might contribute to the shared security of marine resources. The focus here remains on maximising the national security of resources but by participating in SEACONNECT, practitioners will have a regional lens through which alternative decisions can be considered. Imagine that jurisdiction A has two important fishing grounds (A1 and A2) on its side of the border, but the source of fishes to A1 fall under the neighbouring jurisdiction B and are highly vulnerable and unprotected. Managers in A would do better to invest local resources in sustaining A2 and investigate ways in which B might increase protection to the source of A1. A similar informal agreement might occur in reverse for another important marine resource.

A seascape focus on shared ecosystem connectivity also includes the movement of fishes among key nursery, spawning, and adult habitats. Such data are in their infancy for the border region of Semporna so SEACONNECT will seek to identify such habitats and incorporate threats from climate change into a vulnerability assessment.

**Philippines:** The design of MPA networks benefits greatly from data on the connectivity of fishes and corals across the seascape (Krueck et al. 2019; Pata and Yñiguez 2021). The Philippines has drafted new legislation for MPA networks and SEACONNECT will assist its use in priority regions of the SSS that have a shared resource dimension (e.g., Balabac, Palawan). Similarly, the inclusion of key nursery habitats for migratory fishery species – sardines – is a rationale for considering the site of Zamboanga. This region has high biodiversity but has few MPAs and significant impacts on migratory species including turtles.

Data exist on the connectivity of migratory fishery species, including genetic and tagging studies. Dispersal models for reef fishes have also been undertaken by UP in a number of geographies (Pata and Yñiguez 2021) and the connectivity of resources from the West Philippine Sea to the broader SSS is well established (Trembl and Halpin 2012; Dorman et al. 2015), making it a priority seascape under the CTI-CFF Regional Plan of Action. Thus the broader context of connectivity is established for the Philippines, which makes it easier to extend this work further into the SSS under SEACONNECT.

#### *Current activities for managing destructive fishing practices on coral reefs & their fisheries*

**Indonesia:** The marine conservation department of the MMAF (KKP) includes destructive activities in their monitoring of IUU fishing. Enforcement of blast fishing is carried out by police departments throughout Indonesia.

**Malaysia:** The illegal and destructive practice of fish bombing (blast fishing) is a matter of grave and continuing concern in Sabah. In order to address this issue, the State Government of Sabah formed an Anti-Fish Bombing Committee in 2012 with representation from concerned government authorities and NGOs. The Department of Fisheries Sabah is a member of the committee. The committee aims to suppress fish bombing by 2020, as indicated in UNs SDG 14 and will achieve its objective by implementing the following approaches:

1. Increased engagement and coordination with local communities to implement initiatives to address the socio-economic root causes of fish bombing;
2. Improved enforcement using new technologies and enhanced capacity;
3. Increased research and development to improve our understanding of the situation and develop innovative approaches to rehabilitate damaged habitats;
4. Increased awareness of the issues surrounding fish bombing and the State Government of Sabah's efforts in this regard to a local, national and regional audience in order to facilitate cooperation and accelerate learning;
5. Improved coordination and management of government agencies and their partners; and
6. Formulation of a state-wide action plan taking into account all the above (*Reference: <https://oceanconference.un.org/commitments/?id=16712#updates>*)

All fishing activities in Malaysia are governed by the Fisheries Act 1985 and its regulations and fisheries management policies. Section 26 of the Fisheries Act 1985 deems fish-bombing as an offence punishable under Section 25, providing a fine of up to RM20,000 or a jail term of up to two years, or both, on conviction.

The Department of Fisheries Malaysia has also launched a National Plan of Action to Prevent, Deter and Eliminate IUU fishing (Malaysia's NPOA-IUU), in line with the FAO International Plan of Action on IUU Fishing to reflect

Malaysia's commitment towards combatting the issue on unsustainable fishing practices. The overarching goal of the plan is to ensure sustainability of fisheries resources.

**Philippines:** The Philippine government funded 700 permanent fisheries regulatory officers in the Bureau of Fisheries and Aquatic Resources to supplement the enforcement of IUU in addition to law enforcement agencies. While blast fishing remains a significant problem, reef damage also occurs by commercial fishers that exceed their national boundaries and cause regional impact.

SEACONNECT Component 2 will complement these activities by adapting a behaviour change project for piloting in fisher communities. It is likely that the behaviour change strategy will target blast fishing but we will also consult further during the PPG to consider whether a focus on commercial fisher behaviour outside national jurisdictions is a higher priority.

#### *Current activities enhancing enterprise for the blue economy associated with coral reefs*

The blue economy is a major source of community resilience, both in terms of sustainable fisheries and alternative enterprise. The CTI-CFF has proposed to strengthen community resilience through appropriate projects as well as develop partnerships with private sector and strategic partners by 2030.

**Indonesia & Malaysia:** Indonesia is participating in several large blue economy programmes, many of which are organised under the World Bank's Indonesia Sustainable Oceans Program. Yet there remains a need to find diverse approaches to promoting alternative livelihoods. Like the Philippines, Indonesia was a pilot site for the World Bank/GEF Capturing Coral Reef Ecosystem Services (CCRES) project. Approaches to building entrepreneurship and improved business models within fisher communities were developed in the southern Sulawesi district of Selayar. Outcomes included connecting fishers to more profitable supply chains in return for adherence to good fisheries practice. Lessons from these activities will be incorporated in the SSS under SEACONNECT.

While the blue economy sector is experiencing expanded investment under various development projects and national commitments, there remain some significant gaps. One is helping small business enterprise cope with shocks such as climate change or pandemics. SEACONNECT will build the capacity of small business owners to plan for and adapt to shocks on their enterprise by mimicking an early warning system so that identified stress indicators in the biophysical, social and economic spheres are rapidly communicated to other areas and a coordinated solution implemented. These activities will focus on the tourism sector which is important throughout the SSS, and offers the most prominent alternative income sources for fisher communities.

Part of the challenge of helping businesses adapt to environmental shocks is direct intervention in coordinating and regulating tourism activities. Yet countries have taken different approaches. For example, Malaysia and Thailand have closed some tourism sites during coral bleaching. Other areas, including Indonesia and the Philippines, have asked whether a carrying capacity should be placed on tourist density on fragile ecosystems during these events (and even at other times). SEACONNECT will enable groups to share their experiences and collaborate on the production of 'best practice' guidelines for managing coral bleaching events and recovery planning through rapid communications and solutions networks that are grounded at community level. A similar case can be made for the role of restoration. One of the candidate SEACONNECT sites in Indonesia is Maratua Island (Derawan) where local tourism businesses have been developing restoration actions to help adapt to climate change impacts. Sites like this will help ensure a productive regional learning exchange, particularly where restoration is concerned.

Malaysia has existing livelihood projects for fishing communities including assistance with boats and infrastructure and capacity building for adding value to fishery resources downstream. Enhancing peoples' capacity to create business models has not yet been undertaken and therefore SEACONNECT will help fill this gap.

The Department of Fisheries Sabah implements a number of direct aid and incentives programs to help fish farmers, fishermen and fish processors. A number of these are implemented by the Department itself while some are carried out in close cooperation or jointly with other government agencies. The following direct aid is given:

1. Fish cage materials (Netlon/netting, ropes, lumber, floats, etc)
2. Seaweed culture materials (floats, ropes and monofilaments, etc.)
3. Freshwater Fish Broodstock incentives
4. Fish processing/fish feed processing equipment
5. Fish/prawn pond culture materials (pumps, paddle wheels, pipes, lime, etc.)
6. Hatchery materials (plankton stock, fish eggs, aeration equipment, etc.)
7. Small fishing boats
8. Fishing gears
9. Marine equipment (outboard engines, winches, line haulers, cooler boxes, etc.)

These direct aids are given with four major objectives in mind:

1. To help small-scale farmers with some initial capital to start or expand their enterprise. This is targeted to improve their incomes and thereby improve their standard of living.
2. To attract new entrepreneurs and operators to enter the local aquaculture industry.
3. To help poor fishermen in enhancing their fishing capability and thereby improve their incomes.
4. To encourage fishermen to have an additional or alternative source of income or economic activity.

A virtual Workshop on Opportunities and Challenges for a Blue Economy in the Asia-Pacific Region in a COVID-19 World was conducted on 2 – 3 February 2021. This workshop was jointly organised by Maritime Institute of Malaysia (MIMA), the Asian Institute of Technology (AIT) in Bangkok, The Energy and Resources Institute (TERI) of India, and Konrad-Adenauer-Stiftung (KAS), Germany, to examine opportunities and challenges for an Asia-Pacific Blue Economy framework that impinges on regional cooperation, resource security, science and technological cooperation, and sustainable development.

The overall discussion centred on deliberating interlinkages and potential for cooperation in Blue Economy in the geopolitical, economic, and sustainable development landscape of the region. The forum also discussed the possible implementation of Blue Economy strategies to complement stimulus and recovery packages with an emphasis on regional cooperation, besides exploring policy options to enable recovery both within countries and in the Asia Pacific region. The SEACONNECT project will consider the outcomes of these discussions as it plans during the PPG phase.

**Philippines:** The diversification of enterprise as a means of reducing fishery capacity is a key objective of the Fishery Management Areas. Business incubation and enterprise development programs are being rolled out by BFAR with a particular focus on the aquaculture sector. BFAR has livelihood / enterprise programmes that are focused on governance and regulation at this point. SEACONNECT will add value to these on-going programmes by focusing on business model development and training in entrepreneurship.

#### *Current activities scaling up interventions among LMEs*

The need to build regional exchanges of ideas and approaches to common problems is the primary justification for the CTI-CFF. The primary means of achieving technical cooperation on issues of climate adaptation, MPAs, and ecosystem-based fisheries is through the existence of relevant Technical Working Groups. The CTI-CFF Regional Plan of Action 2.0 is essentially an investment framework to ensure that donor funds can be funnelled to support priority activities within the region. That SEACONNECT falls under the umbrella of the CTI-CFF ensures maximum complementarity with on-going activities. For example, the RPOA identifies that regional exchanges, training and learning are conducted on generating and reporting information on Climate Change Adaptation and risks by 2025. SEACONNECT will help achieve this for the climate change adaptation issues identified in Component 1 and in on going bridge activities from the SSS to the Lesser Sunda, Bismarck-Solomons, and Indonesian Seas LMEs.

### 1.3 The proposed alternative scenario with expected outcomes and components of the project. Link to SAP. Describe components and key activities and outcomes

The SEACONNECT Project responds to three of the six Transboundary Problems identified by the regional TDA: unsustainable exploitation of fish, habitat loss and community modification, and climate change. It also addresses four of the five RPOA goals of the CTI-CFF: designation of effectively managed seascapes (SEASCAPE); application of an ecosystem approach to fisheries management (EAFM); establishment of a fully functional marine protected area system (MPA); and strengthening climate change adaptation and resilience (CCA).

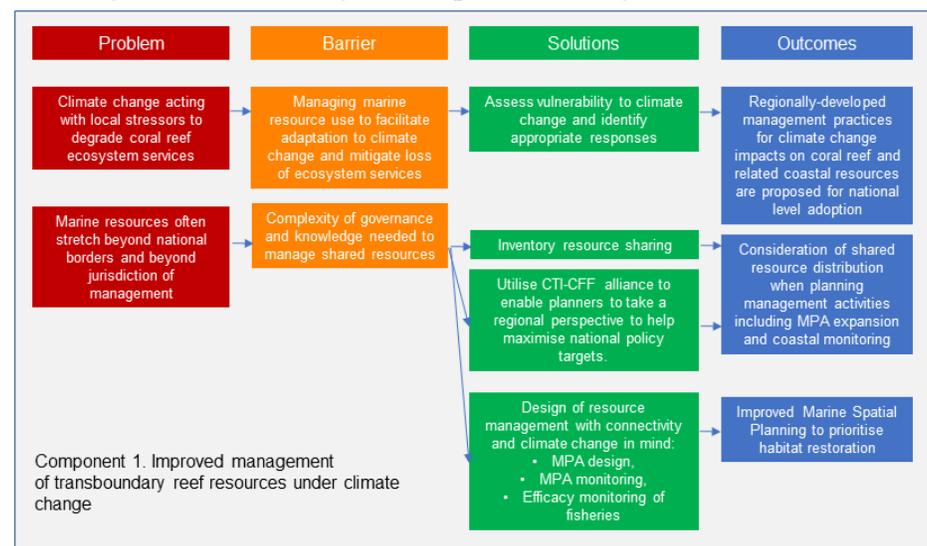
Perhaps most uniquely, SEACONNECT is designed to take a seascape perspective to sustaining and enhancing shared coral reef related resources and the associated blue economy. Like most ecosystems, managing shared resources of coral reefs is challenging (Blake et al 1995).

SEACONNECT has four primary objectives, which will be achieved through three technical components. The fourth component focuses on project management, monitoring and evaluation, and promoting gender equity. The objectives are:

1. Enhance food security and biodiversity by creating a climate-resilient, management plan for coral reefs and associated small-scale fisheries that spans borders.
2. Create and adopt regional guidelines of best practice for climate adaptation for coral reefs and fisheries in a seascape context. Share with other seascape projects operating at a regional scale.
3. Strengthen a regional network of practitioners and scientists to improve the provision of evidence-based policy for coastal biodiversity in connected seascapes
4. Support the fulfilment of the UN Aichi Target 11 for the multi-national network

#### Component 1: Improved management of shared resources under climate change

Component 1 partners resource management practitioners across neighbouring jurisdictions and provides the knowledge resources to design and implement strategies that are both climate-smart and operate at appropriate



scales. There are three principal outcomes.

*Outcome 1.1 Regionally-developed management practices for climate change impacts on coral reef and related coastal resources are proposed to national level adoption*

Climate change is impacting ecosystems and fishers in various ways. Coral reefs are being impacted severely by coral bleaching events, which impacts coastal people through reductions in ecosystem services including

fish production, coastal protection, and tourism attraction. But changes in weather are also affecting fishers' ability to

access resources, particularly when winds and storminess increase (Chollett et al. 2014). In order to plan for these impacts, the project will build on previous assessments (e.g., Penaflor et al. 2009) to map the vulnerability of ecosystems and fishers to climate change.

Coral bleaching events cannot be mitigated directly but practical solutions can help reefs recover during the period between events. The first step is to identify local regions that are predictably cooler, forming refugia from the worst of the warming (Cheung et al. 2021). This is done by analysing time series of satellite-based sea surface temperature. The next step is to find the most important sources of coral larvae, which are reefs whose upstream position allows them to replenish multiple coral populations as the larvae they release travel on ocean currents (Hock et al. 2017). Priority areas for management intervention can be identified that meet several criteria including being local refugia from heatwaves and important sources of coral larvae, particularly to areas vulnerable to damage (Mumby et al. 2021). Once prioritised, practitioners in each jurisdiction can then review whether it is valuable to protect such reefs from other forms of damage such as from blast fishing or excessive tourism visitation. Ultimately, safeguarding such reefs helps to build resilience and promote the rapid recovery of damaged areas. Moreover, such locations are often priorities for reef restoration efforts.

Where fishers' access to marine resources is expected to be impacted by climate change, such information will be considered in the design of MPAs. For example, if fishing will tend to intensify close to shore then priorities for MPA locations may move further offshore.

#### *Outcome 1.2 Consideration of shared resource distribution when planning management activities including MPA expansion and coastal monitoring*

The monsoonal reversals of winds in the SSS drive complex connections in marine resources across national boundaries (Treml and Halpin 2012). The continued increase in availability of larval dispersal models means that practitioners can now access insightful data to understand how populations are connected (Paris et al. 2013). A recent GEF project, CCRES.net, created freely available tools to harness such data in the design of MPAs for both fisheries and biodiversity benefits (Krueck et al. 2017a). More than 100 people have been trained in these approaches in the Philippines and Indonesia, and Indonesian planners have used this approach in more than 20 marine planning activities. Specifically, these tools allow planners to identify locations that meet ecological criteria for effective functioning. For MPAs motivated to help rebuild fisheries, a priority is to identify sources of population replenishment to important fishing grounds. MPAs in those locations can help rebuild the spawning brood stock where it can best support the fishery. Alternatively, biodiversity planning will tend to favour areas with a high self-reliance (self-replenishment) of larvae so their biodiversity is only weakly dependent on the fate of unprotected populations outside.

Although methods to harness population connectivity data have been used within Indonesia, they are well suited to informing the planning of resources across boundaries. Here, practitioners on either side of a border will predict the consequences of making alternative decisions such as the placement of MPAs. The project will help them maximise their national benefits following an ecosystem approach to fisheries that recognises fishery species will differ in their responses to decisions. This form of cooperation does not require a transboundary agreement; rather, each country will continue to pursue its national priorities, such as MPA expansion, but seek planning decisions that improve the sustainability of their portfolio of stocks.

Coastal practitioners in the SSS will also use information on population connectivity to review current management activities. For example, the analysis will highlight which existing MPAs provide the greatest expected fishery and biodiversity benefits. This can then be used to prioritise monitoring or enforcement activities.

#### *Outcome 1.3 Improves marine spatial planning to prioritise habitat restoration*

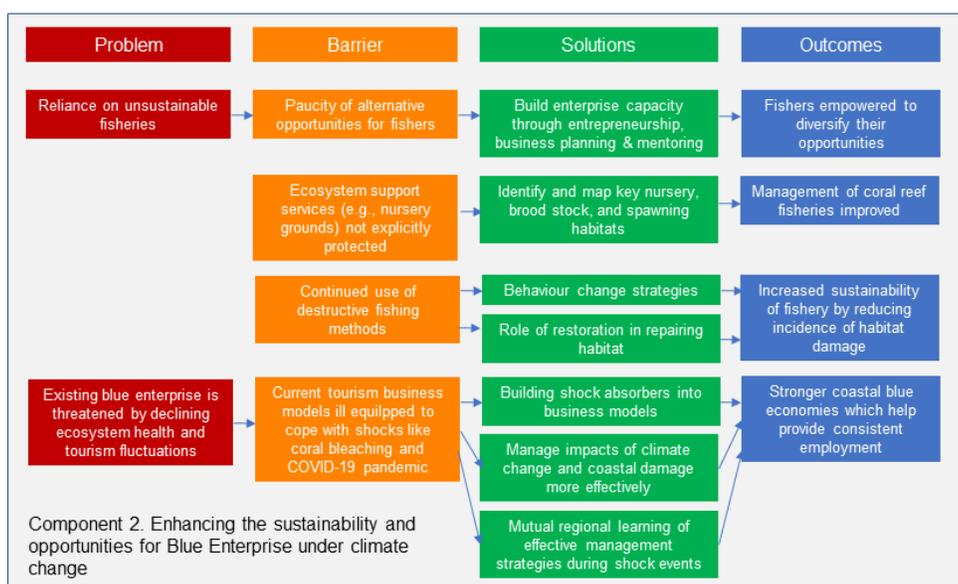
Increasingly, countries are looking to restoration methods to help mitigate the decline in habitat quality on coral reefs (Fox et al. 2019). Given the high costs of such approaches (Bayraktarov et al. 2019), it is important that restoration is targeted where it can be most beneficial. Practitioners in the SEACONNECT project will utilise recent tools to

identify where restoration methods will be most useful. This includes locating areas of potential sources of coral larvae, areas where rubble – generated by blast fishing – will likely become a persistent problem, and avoiding areas where other stressors, such as poor water quality, will likely prevent long-term success of restoration.

Together, the three sub-components of C1 will strengthen spatial decision making so that it is more climate resistant, considers the natural scale of marine resource populations, and is as cost-effective as possible.

## Component 2: Enhancing the sustainability and opportunities for Blue Enterprise under climate change

Component 2 focuses on the sustainability of blue economy and contributes to the diversification and growth of enterprise which is necessary to reduce overcapacity in the fishery. It has four sub-components.



### *Outcome 2.1 Fishers empowered to diversify their opportunities*

All three countries of the SSS support various ‘alternative livelihood’ programmes (reviewed in section 1.2). SEACONNECT will enhance capacity in entrepreneurship and the creation of sound business models, which is highly complementary to existing capacity building activities. The project seeks to enhance livelihoods while also improving the ecosystem the fishers communities rely on to sustain them. Economic and

financial pressures across a generation have eroded the capacity for many communities to fish sustainably as their ability to capture the value they create from their efforts has diminished. Empowering fishers to diversify their activities, funding sources and employment choices through an enterprise led program creates income and opportunities without relying on external funding beyond the short term. The program will utilise the EcoBiz tools (CCRES.net) that were developed in both the Philippines and Indonesia for coral reef fishery contexts. EcoBiz itself is built on a commercial feasibility assessment framework that has been employed on over 500 technologies and business ideas in a wide range of countries and in similar settings. In short, the programme provides training in entrepreneurship and works with fishers to systematically support them in developing new business ideas and structured plans based on feasible business models. The business models are focused on building alternative sustainable income for their community through a business that also improves the marine ecosystem that provides their core livelihood. The programme will build a tiered support network through local and national mentors who already have experience in creating and growing similar enterprises. The EcoBiz approach is very scalable and will be implemented in all three jurisdictions and will encourage the mutual learning and sharing of ideas and practices across the network. EcoBiz encourages local and national social enterprises to engage extensively using a framework that is intuitive and easily integrated with existing community support programmes. Such engagement will further the capacity to share business models and pathways to market for new businesses across the network through community embedded communication networks.

### *Outcome 2.2 Management of coral reef fisheries improves*

This part of the project is strongly aligned with Component 1 in helping to rebuild and sustain fisheries through improved management planning. Here, the focus is on identifying critical habitats for small-scale fisheries as part of an ecosystem approach. Specifically, project teams will collaborate to identify key nursery habitats, such as mangroves and seagrass beds, as well as known spawning sites and the locations of good brood stock. Activities will start with a desk-based exercise to review the current knowledgebase in the region. Field reconnaissance will then confirm the importance of such habitats, such as surveying areas of mangroves that have the smallest tidal fluctuations, which tend to have the most important nursery roles (Igulu et al. 2014).

Knowledge of key support services for reef fisheries, such as nursery and spawning habitats, are highly influential in designing ecosystem approaches to sustaining fisheries. Several approaches exist to incorporate such information into marine planning (Sadovy and Domeier 2005; Edwards et al. 2010) and a shared perspective is relevant in border regions. The project will combine data on both larval dispersal (Component 1) and adult migrations (this sub-component) to inform and review the locations of management actions including MPA planning, watershed management, and monitoring.

Models will be used to evaluate the expected improvements to both the fisheries and biodiversity resulting from inclusion of new locations and habitat protection.

### *Outcome 2.3 Increased sustainability of fishery by reducing incidence of habitat damage*

Undesirable behaviours by a minority of fishers threaten the sustainability of the fishery. Two of the most egregious activities are blast fishing and poaching across international borders, both of which are usually classified under IUU fishing. Behaviour change strategies may help reduce the incidence of such problems as has recently been demonstrated for marine plastic pollution (CCRES.net). Behaviour change strategies work with participants to help them identify the core reasons for the problem and develop workable solutions. The CCRES behaviour change strategy, “My Future, My Oceans” (Simmons and Fielding 2019), was created by psychologists who’d had decades of experience working with parents to promote positive practices. A behaviour change strategy will be piloted in one jurisdiction and project steering committee will decide the specific problem that will be addressed during the PPG phase (i.e., blast fishing, IUU, etc).

### *Outcome 2.4 Stronger coral reef blue economy*

Two of the most important activities in the blue economy are fishing and tourism. Yet both experience shocks, whether from habitat collapse, fish stock crash, the covid-19 pandemic, security threats (e.g., security threats in Palawan have occasionally shut down the tourism industry) and the imposition of regulations on coastal and island tourism development and participation in the tourism sector. Unfortunately, many business models are precarious, have little if any cash reserves, and simply cannot accommodate such shocks. Resilient businesses are those that can survive multiple shocks, however the number and size of these business is often insufficient to support their communities. Here, the project will partner with leading experts on tourism and business planning to consider opportunities for adding resilience to local business.

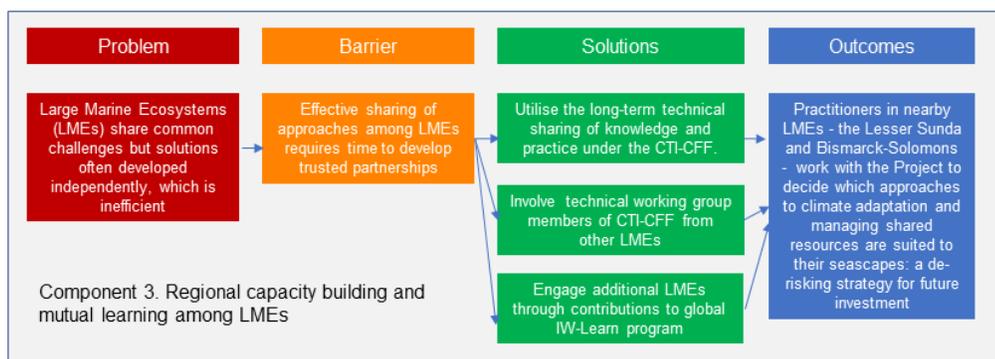
All enterprises create value from their activities. However, in many communities local enterprises are not capturing the value they create because as producers they are at the opposite end of the supply chain to where the financial returns are concentrated. In fisheries returns are often found in regional centres and international markets. Long supply chains with many intermediaries mean that returns from sales, value capture, is shared disproportionately along the supply chain to the point of being unsustainable for the fisher communities. This ‘value leakage’ from the community means that essential infrastructure such as refrigeration, the fishing fleet, electricity, water, sanitation, as well as government supported services such as regulation, policing, education and financial services decline and diminish. To attract new investment in to communities requires, existing enterprises need to be thriving.

The first step is to build the local business ecosystem that is in tune with the marine ecosystem. This is what EcoBiz and SEACONNECT are designed to do. Once some momentum has been achieved, the second step, a coordinated

effort to improve infrastructure through local through to national government leadership, investment and regulation is possible. Momentum here will enable the third step, a coordinated effort to attract impact investors with a passion for simultaneously improving marine ecosystems and livelihoods, particularly by shortening the supply chain and ensuring a better return to fisher communities. This three step process requires time and extensive coordination, however as it is enterprise led minimises that pressure on public funding and agencies to deliver the solution and increases the likelihood that marine ecosystem dependent businesses and communities can withstand shocks from coral bleaching to COVID.

### Component 3: Regional capacity building and mutual learning among LMEs in the Coral Triangle

*Outcome 3.1 Practitioners in other Coral Triangle LMEs work with the Project to evaluate which approaches to climate change adaptation and managing shared resources are suited to their own regions (i.e., de-risking their own investments)*



In 2018, the CTI-CFF held a workshop to explore seascape level planning in the eastern geography encompassing Papua New Guinea, Solomon Islands, and Timor Leste (i.e., the Bismarck-Solomons and Indonesian Seas Large Marine Ecosystems). While countries in the Sulu-

Sulawesi Seascape (Sulu-Celebes Large Marine Ecosystem) had already embraced seascape approaches in the development of this PIF, there was justified caution about its use in regions with often contrasting governance arrangements. Governments in these eastern LMEs desired to explore the benefits of multi-jurisdictional and large-scale seascape approaches before committing to them. The SEACONNECT project will enable this to occur through the CTI-CFF partnership. Importantly, country representatives have been interacting for more than a decade through the CTI-CFF technical working groups and annual Senior Officials Meetings. This has built the relationships and trust to allow open evaluations of the pros and cons of activities piloted by one region of the Coral Triangle.

SEACONNECT will include partners from geographically related Bismarck-Solomons and Indonesia Seas LMEs and help them de-risk their adoption of climate change adaptation and approaches for managing shared coral reef resources. This activity fits with the vision of the CTI-CFF which has proposed that “all six participating countries will be able to develop or implement climate change adaptation programs and the capacity building, agreement on regional best practice, and regional networking by 2030”.

#### 1.4 Alignment with GEF focal area or regional priorities

The project is closely aligned with the regional priorities of the CTI-CFF Regional Plan of Action as documented below.

Working Groups	Objective	and how we will complement
Seascape	To help implement Goal 1 of the CTI-CFF Regional Plan of Action, Priority Seascapes Designated and Effectively Managed. The role of this working group is to regulate all activities including programs and projects in the CTI-CFF related to the Priority Seascape and established the Priority Seascapes. <a href="https://www.coraltriangleinitiative.org/index.php?q=seascapes">https://www.coraltriangleinitiative.org/index.php?q=seascapes</a>	The project will complement the shared resource issues in the priority seascapes mainly in SSS and later in LSS and BSS

EAFM	To help implement Goal 2 of CTI-CFF Regional Plan of Action, Ecosystem Approach to Management of Fisheries (EAFM) and other Marine Resources Fully Applied. This working group plans, develops, and manages fisheries in a manner that addresses the multiple needs and desires of societies, without threatening the ecosystems and marine resources for the benefit of the future generation. <a href="https://www.coraltriangleinitiative.org/index.php?q=eafm">https://www.coraltriangleinitiative.org/index.php?q=eafm</a>	This project will complement the concerns of connectivity of coral fish larvae and nursery/refuge/breeding/feeding areas important for coastal and small pelagic fisheries e.g., COASTFISH for sustainable livelihoods for small scale fishers.
MPA	To help implement Goal 3 of CTI-CFF Regional Plan of Action, Region-Wide Coral Triangle Marine Protected Area System (CTMPAS) in place and fully functional. The MPA Working Group assists the CT6 to identify and nominate CTMPAS comprising prioritized individual MPAs and networks of MPAs that are connected, resilient and sustainably financed and designed in ways that generate significant income, livelihoods, and food security benefit for coastal communities and conserve the region's rich biological diversity. <a href="https://www.coraltriangleinitiative.org/index.php?q=mpa">https://www.coraltriangleinitiative.org/index.php?q=mpa</a>	This project will complement the network of MPAs CTMPAS in terms of coral restoration, seagrass and mangroves and for sustainable management.
CCA	To help implement Goal 4 of the CTI-CFF Regional Plan of Action, Climate Change Adaptation Measures Achieved. The CCA working group helps to address economic and livelihood needs of coastal communities heavily dependent on marine and coastal resources <a href="https://www.coraltriangleinitiative.org/index.php?q=cca">https://www.coraltriangleinitiative.org/index.php?q=cca</a>	This project will complement the concerns of CTI-CFF in terms of the impacts of the Climate Change e.g., the IPCC projected significant decline in tropical fisheries (refer to Annex 1 for draft RPOA 2.0 outcomes and outputs related to CCA).
Threatened Species	To help implement Goal 5 of the CTI-CFF Regional Plan of Action (RPOA), Threatened Species Status Improving. The role of this working group is to improve the status of marine species listed on the IUCN Red List of Threatened Species or listed under CITES such as sharks and rays, sea turtles, seabirds, marine mammals, corals, and other identified threatened species, as key steps for preventing their extinction and supporting healthier overall marine ecosystem. <a href="https://www.coraltriangleinitiative.org/index.php?q=ts">https://www.coraltriangleinitiative.org/index.php?q=ts</a>	This project will complement the CTI-CFF concern over priority threatened species.
WLF	Is a Cross-Cutting Initiatives that was established to actively engage and incorporate the perspectives of women and girls towards achieving its Regional Plan of Action (RPOA) and National Plan of Action (NPOA) goals and targets. In May 2014, the CTI WLF was officially adopted at the CTI-CFF 5th Ministerial Meeting in Manado, Indonesia. <a href="https://www.coraltriangleinitiative.org/wlf">https://www.coraltriangleinitiative.org/wlf</a>	This project will complement the GESI policy of the CTI-CFF in improving the gender parity in the CTI-CFF.

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The project is closely aligned to GEF IW Priority Areas as follows:

<b>Project Outcomes (abbreviated)</b>	<b>GEF Priority Areas</b>
1.1 Regionally-developed management practices for climate change impacts	<ul style="list-style-type: none"> <li>• Establish and support existing marine protected areas in key biodiversity hotspots and coastal habitats;</li> <li>• Formulate and formalize cooperative legal and institutional frameworks built on TDAs/SAPs approach, towards addressing the multiple anthropogenic pressures, including climate related effects in the Large Marine Ecosystems;</li> <li>• Mainstream marine area based management and spatial tools in regional entities; including helping to clarify which policy instruments may be useful in reaching the global target of conserving 10 % of the world’s coastal and marine areas by 2020;</li> <li>• Policy reforms to end IUU, overfishing and sustainably manage marine capture fisheries.</li> </ul>
1.2 Consideration of shared resource distribution	<ul style="list-style-type: none"> <li>• Establish and support existing marine protected areas in key biodiversity hotspots and coastal habitats;</li> <li>• Formulate and formalize cooperative legal and institutional frameworks built on TDAs/SAPs approach, towards addressing the multiple anthropogenic pressures, including climate related effects in the Large Marine Ecosystems;</li> <li>• Mainstream marine area based management and spatial tools in regional entities; including helping to clarify which policy instruments may be useful in reaching the global target of conserving 10 % of the world’s coastal and marine areas by 2020;</li> <li>• Policy reforms to end IUU, overfishing and sustainably manage marine capture fisheries.</li> </ul>
1.3 Marine spatial planning to prioritise habitat restoration	<ul style="list-style-type: none"> <li>• Establish and support existing marine protected areas in key biodiversity hotspots and coastal habitats;</li> <li>• Mainstream marine area-based management and spatial tools in regional entities; including helping to clarify which policy instruments may be useful in reaching the global target of conserving 10 % of the world’s coastal and marine areas by 2020;</li> <li>• Restore degraded key habitats;</li> </ul>
2.1 Fishers empowered to diversify their opportunities	<ul style="list-style-type: none"> <li>• Develop and implement environmentally sustainable Blue Economy strategies;</li> </ul>
2.2 Management of coral reef fisheries improves	<ul style="list-style-type: none"> <li>• Formulate and formalize cooperative legal and institutional frameworks built on TDAs/SAPs approach, towards addressing the multiple anthropogenic pressures, including climate related effects in the Large Marine Ecosystems;</li> <li>• Mainstream marine area based management and spatial tools in regional entities; including helping to clarify which policy instruments may be useful in reaching the global target of conserving 10 % of the world’s coastal and marine areas by 2020;</li> <li>• Policy reforms to end IUU, overfishing and sustainably manage</li> </ul>

	marine capture fisheries.
2.3 Increased sustainability of fishery by reducing incidence of habitat damage	<ul style="list-style-type: none"> <li>• Formulate and formalize cooperative legal and institutional frameworks built on TDAs/SAPs approach, towards addressing the multiple anthropogenic pressures, including climate related effects in the Large Marine Ecosystems;</li> <li>• Restore degraded key habitats;</li> <li>• Policy reforms to end IUU, overfishing and sustainably manage marine capture fisheries.</li> </ul>
2.4 Stronger coral reef blue economy	<ul style="list-style-type: none"> <li>• Develop and implement environmentally sustainable Blue Economy strategies;</li> <li>• Engage with national, regional and global stakeholders to increase collaboration and cross support to investments and processes, including through IW-LEARN;</li> </ul>
3.1 Regional learning in other Large Marine Ecosystems	<ul style="list-style-type: none"> <li>• Foster collaboration among LMEs, Regional Seas conventions and Regional Fisheries Management Organizations (RFMOs) to protect and restore these key habitats.</li> <li>• Formulate and formalize cooperative legal and institutional frameworks built on TDAs/SAPs approach, towards addressing the multiple anthropogenic pressures, including climate related effects in the Large Marine Ecosystems;</li> </ul>
4.1 Effective communication of climate change and shared resource concepts	<ul style="list-style-type: none"> <li>• Develop and implement environmentally sustainable Blue Economy strategies;</li> </ul>
4.2 High gender equity achieved	<ul style="list-style-type: none"> <li>• GEF Gender Equality Action Plan</li> </ul>

### 1.5 Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, and co-financing

Indonesia, the Philippines and Malaysia are each undertaking substantive work programs and investing heavily in actions to improve their own coastal and marine related resources, and the millions of livelihoods that depend on them. National programs for climate adaptation, MPA management including marine spatial planning, reducing IUU and destructive fishing on coral reefs, and blue economy programmes are notable. Together these programmes are valued at over \$130m, as detailed in the co-financing for this project.

The CTI-CFF provides the investment framework and technical lead to enable the three countries to partner and achieve their mutual aims. GEF investment in the project will enable the CTI-CFF to draw national partners together, in the Sulu-Sulawesi Seascape, to share their particular strengths and tackle their biggest challenges for securing coral reef resources. The impact will ultimately extend beyond this seascape to other large marine ecosystems in the region as project lessons and innovations are scaled out through the CTI-CFF family to include two other LMEs. GEF financing will be used to coordinate actions at a regional level for global significance.

Specifically, GEF investment will:

1. Accelerate *regionally relevant management frameworks for coral reefs* in the SSS that considers how national resources are connected across boundaries and coordinates national parties to work together to achieve mutual benefits. This work will capitalise on ecological connectivity in the SSS and on existing social relationships among national government partners in the CTI-CFF family. GEF investment will support a platform for sharing knowledge, learnings, and management outputs (e.g. zoning plans and dashboards) among SSS practitioners. Thereby, SSS stakeholders will be able to learn and adapt

practices for their situation and share their ways with neighbouring partners who have similar scenarios to deal with, particularly regarding climate impacts and degraded ecosystem health. GEF-Investment will accelerate ground level cooperation by three national partners sharing one seascape. It will allow partners to understand their shared seascape and the flow of ecological resources between them, and then use that information to prioritise their own marine park zoning plans and use of management resources – capitalising on the shared flow wherever possible.

2. Deliver improved marine spatial planning across the seascape to *restore degraded reef ecosystems* using a framework that identifies the sites most likely to support successful ecological and social outcomes. This will allow national partners to know where (and how) to conduct reef restoration efforts, in locations with higher likelihood of success and that are most beneficial to both the nation and their neighbouring countries. GEF investment will provide an efficient means of advancing prioritised marine spatial planning in the shared seascape. Undertaking marine park zoning and costly restoration programs without considering the Region’s ecological connectivity has been a barrier to success.
3. *Increase sustainability of coral reef related livelihoods in the SSS.* GEF investment will allow communities and countries to come together to help improve their local small-scale fishery businesses and reduce destructive fishing practices. Vulnerable coastal and island communities in the SSS will become more sustainable and more resilient to climate change as well as non-climate shocks (e.g. COVID-19). The challenges of poverty, remoteness, IUU, and ecosystem degradation in the SSS will benefit strongly from the collaborative partnership afforded by the CTI-CFF into which this GEF investment supports. By working together the three partner countries can combine their resources and knowledge to co-deliver / co-access training activities, shared SSF business ideas, shared reef management activities and plans, shared behaviour change programs, and climate appropriate tourism models - all coordinated via GEF funding.
4. Deliver a *stronger coral reef blue economy* in the two primary domains of fisheries and tourism. GEF investment will allow delivery of previously successful economic initiatives within the three countries to be shared and adapted with their neighbours. Regional collaboration therein will allow more rapid delivery of products and their impacts. Enterprise stimulation tools to be used in the project have already proven their scalability and SEACONNECT will give a platform to use them at a regional level. Attracting longer term investors in small scale fisher and tourism businesses in the seascape is only possible with extensive regional coordination efforts that GEF funding would provide.
5. *Provide shared communication frameworks, engagement, monitoring & evaluation plans.* By bringing stakeholders in the SSS together, mostly across similar socio-cultural frameworks, key learnings can be shared rapidly and effectively. Effective communication will be designed and delivered in concert to minimise unnecessary national duplication. Communication activities will integrate with and build on successes from IW Learn platforms, CCRES, and other CTI-CFF initiatives. Similarly supporting access to one shared knowledge and reporting framework for the project will assist policy makers in all three countries access substantive and disaggregated data for their national reporting needs (e.g. to UNDP, COP, FAO etc).
6. *Increase shared capacity building and knowledge networks* for national university and research institutes that leverages on disciplinary strengths within each country, and on existing informal relationships. This will ultimately give countries access to a much wider skill network (within the CTI-CFF family), speed up innovation, knowledge bases, and technical skill banks within the institutional networks of the seascape. This will generate a substantive platform of SSS expertise for the wider CTI-CFF for the near future, particularly of use to other LMEs in the CT. Additionally, the next generations of training and technical experts will be empowered, connected and mentored through their involvement in the project.

7. *Improve gender equity.* The project will be one of the first opportunities to enact the new CTI-CFF endorsed GESI policy from inception to completion. This will be hugely significant for the CTI-CFF family. Within the project, tools and frameworks from the policy can be trialled and developed further. The data output resulting from project aspects (e.g. disaggregated data on coral reef fisheries, MPA and tourism activities by gender, and the improvement of status therein) would be a substantive contribution to global measures of progressing gender equity and highlight the three member countries shared traction (and challenges). GEF investment will allow the member countries to tackle gender equity challenges in a shared, coordinated manner that is otherwise not feasible.

## **1.6 Global environmental benefits (GEF IW focal area, area to benefit, how much fisheries will be improved)**

### *Focal Area Benefits*

The project will directly benefit resource management, fisheries, and livelihoods within the Large Marine Ecosystem of the Sulu Sulawesi Seas. The SSS covers approximately 900,000 km<sup>2</sup> of international waters between Indonesia, Malaysia and The Philippines. About 40 million people live within the SSS and depend on the coastal and marine resources therein. It is the apex of the Coral Triangle holding the highest marine biodiversity globally with extensive coral reefs, seagrass, and mangrove areas. More than 500 species of corals, 1000 reef fish species, 400 species of algae, 16 seagrass species, 5 sea turtles, the coelacanth, and 22 marine mammal species are found in the SSS (Chou 1997; Jacinto et al. 2000; Carpenter and Springer 2005; Veron et al. 2009). Threatened species in the SSS include species of sharks, rays, turtles, whales, dolphins, corals and fish. Coral reefs in the SSS cover approximately 6 million hectares. An average reef fish biomass on reefs in the region is about 500kg / ha (Campbell et al. 2020). Given most of the SSS reefs are substantively overfished and degraded, much of the SSS reef fish productivity falls short of historical levels and the average biomass does not reach threshold estimates (1,150 kg / ha) for viable ecosystems (McClanahan et al. 2014). This project seeks to improve reef fishery productivity and longevity from this estimated low base. The potential finfish yield for the SSS has been estimated at 675,380 metric tonnes (Sulu-Celebes Sea Sustainable Fisheries Management Project 2014).

Beyond the direct focal area, outcomes of the project will rapidly benefit the Coral Triangle region (6.4 million km<sup>2</sup>) through knowledge, tools, networks to be enabled through the CTI-CFF partnership. In particular, the benefit to management of other priority seascapes in the CT will be rapidly deployed (e.g. Lessa Sunda Seascape and Bismarck-Solomon Seascape).

### *Global benefits*

Project actions will generate significant global environmental benefits by:

- a) Addressing three problems identified under the Transboundary Diagnostic Analysis (TDA) for the Sulu-Celebes (Sulawesi) Large Marine Ecosystem: Unsustainable Fisheries, Habitat Loss and Community Modification, and Climate Change.
- b) Supporting seascape management of marine resources across borders, which builds explicitly on the ecosystem-approach to fisheries by considering the impacts of climate change and local stressors on fisheries productivity.
- c) Strengthening coastal fisheries by providing adaptation measures for the impacts of climate change.
- d) Strengthen coastal fisheries capacity by empowering national, regional and local governments to plan in a multi-jurisdictional context as well as improving their ability to adapt to climate change impacts.
- e) Complement the Large Marine Ecosystems (LME) approach by developing seascape management approaches to small-scale reef based within existing LMEs.

f) Scaling up behaviour change projects to reduce unsustainable fishing practices in concert with entrepreneurial activities for dependent fisheries that enables sustainable long term economic growth in coastal and small island regions.

g) Building the joint capacity of local, national, and regional institutions of (e.g., research based, education, private sector, and government levels) to enact positive and lasting changes. Joint collaboration will speed up actions particularly through sharing knowledge and practices.

### *Global targets*

The project will contribute to the Aichi Targets No. 4 (sustainable production and consumption), No. 6 (applying ecosystem-based approaches in fish harvest management), No. 11 (10% of coastal and marine areas are conserved) and No. 14 (ecosystems that contributed to the livelihood are restored and safeguarded). The primary purpose of the UN CBD Aichi Target 11 is to improve biodiversity conservation. Yet climate change is the greatest long-term threat to coral reef biodiversity. By implementing MPA strategies that explicitly support recovery from coral bleaching events, the project will increase the biodiversity benefits associated with achieving the Aichi target.

The project will contribute directly to the Sustainable Development Goals, particularly SDG 14 (Life Below Water). Using marine spatial planning tools to sustain coral reef resources, reduce overfishing and habitat destruction, guide restoration activities and partnering across the LME, the livelihoods of coastal and small island communities depending on coral reefs will be more secure and sustainable. Therein the project also addresses SDG 1 alleviating poverty compounded from resource loss, SDG 2 alleviating hunger by sustaining food provisions from coral reefs, SDG 5 addressing gender equity challenges in coral reef related sectors, and SDG 8 for decent work and economic growth by training in business skills and incentivizing sustainable entrepreneurial activities by fisher communities. SDG 13 for Climate Action is a core deliverable for the project enabled through spatial planning, and reef ecosystem management tools that help improve the resilience of climate threatened reef systems in the SSS. By helping SSS communities and governments better prepare and respond to climate disasters (like coral bleaching events), livelihoods and ecosystems will be more resilient to climate change.

## **1.7 Innovation, sustainability and potential for scaling-up Innovations**

### *Extension of regional partnerships*

Developing and operationalising regional partnerships are core to the SEACONNECT project. Through the CTI-CFF, tri-national government relationships among Malaysia, Philippines, and Indonesia in the relevant ministries for marine resource management are strong, highly functional, and co-operative. Government representatives for each of the SSS countries have worked closely in the CTI-CFF since 2009, as well as under the Sulu-Celebes Sea LME Tri-national committee (Tri-com) prior to CT-CFF formalisation. SEACONNECT will extend these nation-nation partnerships to the provincial levels wherein practitioners, park managers, provincial government officers and regional data providers will collaborate directly while pursuing national planning priorities.

Developing regional networks of marine planning practitioners, marine park and tourism managers, technical experts, data providers, and education institutions means that knowledge can be shared among practitioners facing similar environmental and social issues. The network will enable improvements in reef management, reef restoration, fisheries sustainability, tourism and business practices within and across jurisdictions. Importantly the establishment of trust among member states, provided for by the CTI-CFF governance framework, will enable quick and ongoing exchange of shared experiences and management approaches for the whole of SSS.

The existence of the CTI-CFF governance framework de-risks the project because key collaborative and communication mechanisms already exist even to the level of ministers. Indeed, the Regional Secretariat of the CTI-CFF will be a key contributor and coordination mechanism within SEACONNECT. Further, the existence of SEASCAPE working groups with representation across neighbouring countries greatly simplifies the task of

factoring regional connectivity into decision making. With appropriate data and planning frameworks, countries can maximise their national benefits while considering connectivity yet not need to implement a new formal policy agreement, which can be burdensome and oft restrictive.

Existing partnerships within the CTI-CFF partnership will be used to build capacity and share knowledge in the SSS, beyond just the three focal countries. For example, leaders from the Solomon Island Ridge to Reef management programs will assist in capacity building SSS practitioners from focal sites via the sharing of knowledge, experience and tools. The established CTI-CFF relational partnerships again make this goal easily achievable as strong, collegial working relationships already operate between the member countries.

#### *Shared nature of national investments and targeted prioritisation of resource distribution*

By taking a shared seascape connectivity perspective, the project seeks to achieve optimal biodiversity and blue economy outcomes for all jurisdictions. The SEACONNECT project will help countries achieve this aspiration by facilitating transparent decision-making. Decisions are most informed when the expected consequences of alternative decisions can be compared. This is the very essence of the project, in bringing stakeholders, scientists, and decision-makers into the same process and quantifying the benefits (or costs) of alternative management strategies. SEACONNECT will prioritise management activities in locations and communities where the most beneficial local and regional results can occur. This will include identification of locations and subsequent resource deployment with a connectivity lens strategy wherein both the host country / province and the neighbouring country and states can attain the highest environmental and social gain. This will maximise resource use for the benefit of the SSS.

#### *Vulnerability assessments for SSS reef fisheries*

Vulnerability assessments under the project will be the first to identify the ecological and socio-economic vulnerability of reef fisheries and fisher communities to climate and other shocks, within the SSS (Output 1.1.1, 1.1.3). This work will subsequently inform prioritisation of resource management actions taking a seascape connectivity approach (Output 1.1.2). Similarly, the project will be the first to develop guidelines on MPA fishery benefits within the context of SSS's coral reefs (Output 1.2.3).

#### *Best practice management guidelines for priority reefs*

The new network of SSS regional practitioners, stakeholders, and planners will convene and create a state-of-the-art series of best practice guidelines for managing climate impacts on coral reefs and optimising MPA design for regionally connected resources. Guidance would be included for managing climate shocks, tourism management, fishery tools, and more. These reports would be the first to consider the SSS context directly, and recommendations will have a high likelihood of uptake because they are developed by the practitioners themselves and not by external parties in different geographical contexts.

#### *Innovations in the blue economy: tourism and fisheries*

SEACONNECT will build the capacity of small business owners to plan for and adapt to shocks in their enterprise. By applying lessons and tools from the South Sulawesi and Palawan-based CCRES program (CCRES.net), SEACONNECT will enable business diversification activities and innovations by local business operators and fisher communities. These will focus on tourism operations and reef fisheries. Innovations in behaviour change programs that reduce destructive fishing practices and increase the sustainability of reef tourism and fishery businesses will result. In addition, lessons learnt and adaptive tools gained during the COVID-19 pandemic, by SSS business, will be shared and skills further developed upon. Critically, SEACONNECT will enhance peoples' capacity to create business models and provide training in entrepreneurship.

## **Sustainability**

The SEACONNECT project is formally ‘owned’ and adopted by the CTI-CFF, which is a major asset for ensuring long-term sustainability. The CTI-CFF is a long-term, ministerial-level commitment of six neighbouring countries whose collaboration will extend far beyond the end of SEACONNECT.

Several of the project outputs describe lessons learnt and best practice for planning and management. These will be archived online and made available through IWLearn.

Project outcomes including behaviour change strategies for undesirable fishing activities, will be carried out at demonstration sites across the three countries. By representing a range of environments and social contexts, the outcomes will be readily scalable to many other parts of the Coral Triangle, particularly throughout SE Asia. Upskilling the reef-based fishery and tourism industry with critical business planning skills and tools will enable their longer-term sustainability in the face of increasing climate change events that currently threaten their viability.

Environmental sustainability of coral reef biodiversity and fishery resources is a central goal of the project. The project seeks to improve the capacity of the marine environment within the SSS to withstand further climate change shocks and continue to sustain the livelihoods of its dependent communities. This can be achieved via the outcomes and targets of the SEACONNECT project detailed herein.

Social sustainability will be ensured via the implantation of the CTI-CFF Gender and Social Inclusion policy. Work will be built on the vision and strategies derived from the CTI-CFF Women Leaders Forum, whose successes are already at the forefront of gender equity breakthroughs in south-east Asia. The project will ensure through strong participation of women and men throughout each phase, and utilise existing partnerships with minority groups and agencies that work with them. By collecting disaggregated data on women and minority group’s activities in reef based enterprises and their livelihood drivers, the project can help identify and implement resource avenues for sustainable long-term behavioural changes. Successful adaptive practices will be scaled out to other locations within the coral triangle by the established CTI-CFF partnerships in the region. Sustainability of practices in the SSS will be enabled through the focus on building stronger local, provincial and national partnerships within and between countries. While the project work may cease at these pilot sites at the end of the funding cycle, the goal is to operationalise practitioners in other LMEs to use the lessons and tools to similar benefit. Upskilling the reef-based fishery and tourism industry with critical business planning skills and tools will enable their longer-term sustainability in the face of increasing climate disturbances that threaten their viability.

In order for the work to be sustained after the project, it is imperative that training materials and training capacity are maintained in the region. This will be achieved by engaging the **CTI-CFF University Partnerships** and strengthen their links with management planners in government and NGOs where necessary.

## Scalability

Perhaps the most important means of achieving scalability is the project’s tight integration within the CTI-CFF, which includes collaborating practitioners across at least three other Large Marine Ecosystems. The CTI-CFF’s activities operate through multi-jurisdictional teams that consider MPA design, climate adaptation, the ecosystem-approach to fisheries, and seascape planning. As SEACONNECT progresses, practitioners in other LMEs will share in the developments both through routine updates in each technical working group and the annual CTI-CFF conference.

Another means of achieving scalability is by extending the use-case studies of earlier GEF IW investments. For example, the World Bank/GEF Capturing Coral Reef Ecosystem Services project (ccres.net), also executed by the University of Queensland, developed and demonstrated the use of practical tools for MPA design, governance improvement, behaviour change, and building enterprise. The tools were implemented in rural Indonesia and the Philippines and will be adopted in SEACONNECT where appropriate. For example, while the original behaviour change strategy focused on marine plastic pollution, SEACONNECT will adapt the strategy to assist in reducing undesirable fishing behaviours. The growing number of cases will be archived and communicated at fora such as IWLearn.

**1b. Project Map and Coordinates.** Please provide geo-referenced information and map where the project interventions will take place.

The Sulu-Sulawesi (Celebes) Sea is connected from East Kalimantan and Sulawesi in the south, to Sabah Malaysia, and both Palawan and Mindanao in the southern Philippines. The project has identified likely study sites in each jurisdiction and final selections will be undertaken during the Project Preparation Grant phase.

Indonesia has identified three areas, two of which are in East Kalimantan (Tarakan and East Derawan) and the third being the outer Sangihe islands, which lie between Northern Sulawesi (Indonesia) and Mindanao (Philippines). Both



Kalimantan sites were used for previous fisheries management projects that took an ecosystem approach. These sites also lie in close proximity to the Malaysian site of Semporna. The outer Sangihe Islands fit with the Indonesian government’s focus on managing its outermost small islands. This area is also particularly vulnerable to climate change and the project would support the government in its intent to incorporate climate change in its marine spatial plan in the region. Moreover, Indonesia is currently finalizing an inter-regional zoning plan for the Sulawesi Sea and the project would help review the degree to which the plan considers changing environments and their impacts upon people.

Malaysia has selected the town of Semporna and its environs for the project. Semporna is at the crossroads of terrestrial run-off yet is also the gateway to some of the most important tourism sites in Malaysia, such as the island of Sipidan. Yet the marine resources of Semporna lie in close proximity to those of Indonesia.

The Philippines has identified four potential study sites. Zamboanga was a previous demonstrate for the UNDP/GEF small-scale fisheries project that led to an alternative SAP. It has a high biodiversity of coastal reef, seagrass, and mangrove habitats

that include nursery grounds for sardines. It is also vulnerable to climate change and marine turtle poaching is prevalent. This is a priority area for capacity building for coastal management.

Sarangani Bay is also located in the east and is a legislated protected area facing Celebes/Sulawesi. Marine mammals and endangered turtles use this area on migratory routes. Security, peace and order are high and data are widely

available through the DENR’s protected area management office. The adjoining areas (Kalimba-Ledac) are proposed protected area sites under the NIPAS. Mindanao State University provides a local centre of excellence.

Apo Island is a legislated protected area where tourism is popular. Biodiversity is high and there are no security issues. Silliman University provides local research and survey capacity.

Balabac is located in the western, Palawan region of the Philippines and was also adopted by the UNDEP/GEF small-scale fisheries project that contributed to the Regional Strategic Action Program on which this project is partly based. It was also selected for the UNEP SMART-SEAS project so would allow for continuity. Balabac has a high biodiversity and new MPAs and fish sanctuaries have begun to be established under the SMART-SEAS program. It is important to sustain the SMART-SEAS initiative so this would be a useful sight for SEACONNECT.

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

- Indigenous Peoples and Local Communities;
- Civil Society Organizations;
- Private Sector Entities;
- If None of the above, please explain why.

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Stakeholder	Stakeholder Benefit
CTI-CFF Regional Secretariat	Ensure continued alignment between CTI activities and project
CTI-CFF Technical Working Group Leads for Seascapes, Climate Adaptation, MPAs, Ecosystem-based Fisheries	Collaborate on approaches across jurisdictions and enable participation of members from other LMEs within the region
National government (Indonesian Ministry of Marine Affairs and Fisheries, Malaysia Department of Fisheries, Philippines Department of Environment and Natural Resources)	Develop a more impactful implementation strategy for Aichi targets. Coordinate with planners in other countries. Build capacity in reporting on MPA benefits
Regional government planners for marine resources and MPAs including Sulawesi and Kalimantan Provincial governments, Sabah Parks, Palawan Council for Sustainable Development	Coordinate regional MPA design with local governments and communicate fishery and biodiversity benefits of alternative plans. Increase capacity in evaluating network benefits of MPAs
Local government planners influencing marine protection at demonstration sites (e.g., district fisheries sector, Sabah Parks, land and survey Sabah, maritime enforcement agencies, environment protection departments, local government units).	Communicate values of different planning options with stakeholders including minority groups and those with limited access to decision making opportunities. Improved readiness to manage coral bleaching events and advise on restoration efforts
Indigenous people (depending on choice of study site)	Incorporation of traditional ecological knowledge, identification of key resources
NGO practitioners Conservation International, Wildlife Conservation Society, World Wildlife Fund, local NGOs	Co-implementation of MPA design where appropriate, engaging communities, and co-development of bleaching management plans, restoration strategies. Acquire new methodologies that can be applied elsewhere and increase impact

Local industry representatives from the tourism and fisheries sectors	Participate in dialogue regarding response planning for bleaching impacts and needs for MPA design
Regional university lecturers and students under CTI University Partnership	Engage in technical solutions and provide advice to government. Build student capacity to deal with issues of climate adaptation and fisheries
Coastal communities associated with MPAs	Improved or stabilised fishery access
International planning experts for connectivity and MPA design	Collaboration towards providing essential data sets for marine planning with a seascape focus

The project will involve stakeholders at all levels of government as well as NGOs and local training organisations, coordinated under the CTI-CFF University Partnerships. Key industry counterparts will be identified during the PPG phase as this will be highly dependent on the final set of demonstration sites.

**3. Gender Equality and Women’s Empowerment.** Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis). Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? yes  /no  / tbd  ; If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

- closing gender gaps in access to and control over natural resources;
- improving women’s participation and decision-making; and/or
- generating socio-economic benefits or services for women.

Will the project’s results framework or logical framework include gender-sensitive indicators? yes  /no  / tbd

The project will actively pursue a **Gender Equity and Social Inclusion policy**. The CTI-CFF is a recognized regional leader in our work to address gender equity in marine conservation and resource management. The CTI-CFF Women’s Leader Forum (WLF) has developed a policy for GESI, due to be endorsed at the 2021 Senior Officials Meeting and henceforth underpin all CTI-CFF project work, governance, monitoring & evaluation and communications. Importantly, the GESI policy includes the engagement of minority peoples within any given seascape. This policy will direct and underscore the SEACONNECT project in all phases. The SEACONNECT project will also be aligned with the GEF’s and FAO’s policies, strategies and action plans for gender equality, including the FAO Regional Gender Strategy and Action Plan 2017-2019 for Asia and the Pacific, the GEF Gender Implementation Strategy, as well as the SEAFDEC Gender Strategy. The project will contribute towards SDG 5 on Gender Equality and the empowerment of woman and girls through deliberate efforts to increase and empower women’s participation in decision making and in entrepreneurial activities.

In addition to the CTI-CFF’s GESI policy and action plan, member countries already have target goals for gender equity that the project will meet and possibly exceed. Namely, Malaysia seeks to achieve 50% participation of the minority gender, particularly in training activities. The Philippines has legally mandated that any government planning and management body must include 40% participation of women. Moreover, at least 5% of the Philippines government project expenditures should be targeted to gender participation or activities. Several recent fisheries and marine conservation programs in Malaysia and the Philippines have had good success in addressing gender equity goals and program learnings will be built upon in SEACONNECT. These include the delivery of gender targeted training programs, knowledge products, monitoring and evaluation frameworks and establishing women leadership networking platforms (Siles et al. 2019). SEACONNECT will seek to undertake a transformative approach to gender equity and social inclusion in relation coral reef socio-ecological systems (sensu Lau and Ruano-Chamorro 2021), the delivery of which will be further developed in the PPG phase.

Specific approaches and action plans for enactment of the CTI-CFF GESI policy in the SEACONNECT project will be further determined in the PPG phase. Particular activities and outcomes targeting gender equity will include:

- Gender analysis in focal sites conducted to (1) understand gender differences in the use and access of coral reef resources, market access and economic values, and henceforth identify marine park management systems and zoning plans that target improvements women's livelihoods. These analyses will subsequently generate knowledge and learning products, meeting targets for the GEF policy on gender equity.
- Considering how we are incorporating inputs from both men and women into the MPA design, including by consulting in ways that targets women's participation and removes / reduces gender specific barriers.
- Exploring options to ensure that benefits that result are distributed equitably between women and men (e.g. increased fisheries resources, market access, increased business and leadership skills)
- Deliberate efforts to profile women and men equitably in project communications
- Monitoring, evaluation and reporting frameworks that specifically disaggregate data by gender and for minority groups.
- Project reporting required to demonstrate actions and accountability in these issues. Operational delivery of the GESI actions will be undertaken by on-the-ground partners such as NGOs and local / regional government partners. The selection of NGO partners will be based on their credentials/training in gender equity approaches
- Utilising the CTI-CFF WLF models for gathering, training and mobilising women leaders in coral reef fisheries, tourism and marine park management, including in regional network forums.

Relevant Project Outputs involving gender equity approaches:

- Output 1.2.2 Regional network of Marine Planning practitioners
- Output 1.2.3 Assessment of MPA fishery benefits
- Output 2.1.1 Entrepreneurship in coral reef fishery sector
- Output 2.3.1 Behaviour change pilot project on destructive fishing
- Output 3.1.1 Knowledge sharing and Scalability of project through working groups across multiple LMEs
- Component 4 – Engagement, communication, Monitoring & evaluation
  - Outputs 4.1 (1 – 4) All to be implemented using GESI approach.
  - Output 4.2.1 Gender equity progress report

**4. Private sector engagement.** Will there be private sector engagement in the project? (yes  /no ). Please briefly explain the rationale behind your answer.

The project seeks to provide training and capacity to diversify fisher's business enterprises (Output 2.1.1) through accessible and scalable opportunities, each designed to also enhance the fishers' local marine ecosystem. The specific business sectors to be involved in this training will be identified after consultation with fisher communities at the focal sites, and assessment of their needs. The capacity building program developed in the GEF/UQ CCRES program (EcoBiz) will be used. Previous experience through CCRES and other programs that employed the EcoBiz framework suggests a wide diversity of sustainable opportunities exist to select from and encourage. Following

consultation, mentors from the private sector, including social enterprises, who have successful business models will be identified that can then help mentor project participants into their new businesses.

Likely industry mentors include those from fisheries and aquaculture, near coastal land-based enterprises, agriculture, digital technology, services, tourism, indigenous arts, education, retail enterprises, and transport and supply chain management.

**5. Risks.** Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved or may be resulting from project implementation, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

Risks	Assessment without mitigation	Key assumptions	Mitigation measures	Assessment with mitigation
<b>Risks to project implementation</b>				
Insufficient tri-lateral cooperation between member countries of SSS	<b>High</b>	The CTI-CFF provides sufficient legal mandate to facilitate regional cooperation (i.e., that a new legal framework is not required)	CTI-CFF has ministerial level representation in all countries and has already superseded previous bilateral agreements for management	<b>Low</b>
		Regional benefits can be achieved by each country focusing on their national agenda but with a view to how to improve national benefits through coordinated actions	A key novelty of this project is that the shared nature of resources can be sufficiently transparent, and the tools exist to operationalise this at a national scale	
		Shared learning is possible over approaches to manage coastal tourism during heatwaves	The three countries have adopted different practices to managing heatwaves and tourism so much scope to learn and review cooperatively	
Insufficient engagement and commitment by governments to their own national actions	<b>High</b>	Countries will adapt their management planning to take account of climate change and shared resources	Countries already signed up to Aichi Targets and the 30/30 successors, demonstrating national priorities	<b>Medium</b>
Spatial planning can't be implemented due to insufficient governance and technical	<b>Medium</b>	Marine spatial planning to improve fisheries benefits can be implemented (i.e., the governance and technical infrastructure exist)	Techniques already developed and piloted at >20 sites in Indonesia by national government and technical partner collaborations,	<b>Low</b>

Risks	Assessment without mitigation	Key assumptions	Mitigation measures	Assessment with mitigation
infrastructure			demonstrating feasibility. Technical infrastructure available through implementing partners	
Co-finance commitments from country partners don't eventuate due to emerging priorities	<b>High</b>	Co-finance agreements on existing and emerging projects will be maintained (or increased).	Member countries already committed to funding of CTI-CFF cooperative mechanisms and national representatives actively working on current and emerging SSS projects.	<b>Medium</b>
Insufficient technical expertise in the region to deliver tools needed	<b>Medium</b>	Technical aspects of the work such as identifying carrying capacity for tourism and MPA benefits and management guidelines are achievable	Project will operationalise the regional capacity of University partnerships within the CTI-CFF	<b>Low</b>
<b>Social and gender impacts</b>				
<p>Gender equity is not sufficiently achieved within project.</p> <p>Notable risk that engagement with women fisherfolk in other small-scale fisheries projects is typically nascent and difficult to get information on.</p>	<b>Medium</b>	<p>The capacity and tools exist to garner high and equal participation from both women and men in all project phases.</p> <p>CTI-CFF GESI policy and protocol can be implemented throughout the project, including PPG phase</p>	<p>The CTI-CFF member countries and technical partners have a good record of female engagement and leadership development, particularly in national governance levels.</p> <p>This project will learn and build on these successes to (1) gather information on women and men's livelihoods and (2) increase women's access and participation in and through project.</p> <p>Regional experts in gender and social equity to be deeply involved in the PPG design phases of the project and enable delivery of CTI-CFF GESI framework.</p>	<b>Medium</b>
Planned approaches to reducing	<b>High</b>	Behaviour change strategies will have efficacy for destructive	Behavioural approaches already found to be	<b>Low</b>

Risks	Assessment without mitigation	Key assumptions	Mitigation measures	Assessment with mitigation
destructive fishing and overfishing behaviours are ineffective		fishing	successful with plastic pollution in Indonesia, which is another difficult challenge and illustrates capacity for change.	
		Increased capacity building in entrepreneurship will help reduce overfishing	Planned approaches piloted in Indonesia and Philippines under CCRES project already demonstrate some success, with lessons and tools learnt to be applied here	
Social unrest (incl. terrorism) within the SSS prevents project getting access to key locations where resources are most closely shared among jurisdictions	High	Project's learning sites can be selected in locations that have a good history of social stability, MPAs, coral reef fisheries and reef associated resources are likely ecologically connected across national boundaries.	Learning site selection in each country will be informed by very experienced governance & technical practitioners in a collaborative process, such that site selection is well informed & access deemed feasible.	Low
<b>Environmental impacts</b>				
Ecological resources are not shared or connected across jurisdictional boundaries	High	Marine resources flow bi-directionally among countries so that all can benefit from coordinated action	The monsoonal nature of oceanic flows, together with variations in the time of reef reproduction over the year, ensures that flows are bidirectional and ecological connectivity likely very high	Low
Insufficient information status of coral reef ecosystems in seascape (e.g. bleaching history, reef fisheries catch data, degree of damage from destructive fishing and oceanographic connectivity)	High	Sufficient information is already available on coral reef condition, oceanographic conditions, and fishing activities to inform project outputs.	The project will first focus on the connectivity of reefs among and within existing MPAs, particularly at designated pilot sites. Existing monitoring programs by MPA managers at these locales coupled with satellite and modelling data on reef dynamics means that very minimal new in-situ recording will be needed. Where key gaps are	Low

Risks	Assessment without mitigation	Key assumptions	Mitigation measures	Assessment with mitigation
			<p>identified, including on fishing pressure or reef damage, the project will harness regional expertise and logistical support from managers and regional scientists. Much information can be collated from existing regional knowledge depositories.</p>	
<p>Limited integration of climate change considerations into project implementation</p>	<p><b>High</b></p>	<p>Project’s activities will sufficiently capture climate pressure and enable climate adaptation in it’s outcomes</p>	<p>Addressing climate change (CC) is central to the project design, particularly due to the major impacts that CC is already having within the seascape. Program activities and outputs are focused on improving sustainable use &amp; management of coral reef resources in light of increased climate disruption.</p> <p>A specific Climate Adaptation Working Group is to be tasked with the delivery of CC impact evaluation, action plans, knowledge sharing &amp; training for the project.</p>	<p><b>Low</b></p>
<p>Intensified climate disruption in the project’s tenure, with increased storm and heatwave activity occurring in the region and causing repeated bleaching events and / or coastal infrastructure damage effecting fisher livelihoods.</p>	<p><b>Medium</b></p>	<p>Project is able to operationalise support for regional MPA managers and fisheries communities in responding to increased frequency and intensity of heatwaves and related climate events.</p>	<p>Project will operationalise regional networks of practitioners, educators, and MPA managers such that these networks are able to share learnings and tools effectively for measuring, responding, and mitigating for increased climate events.</p> <p>Further events will also provide increased opportunity to test and measure tools &amp; guidelines developed in the project</p> <p>Project output will inform MPA zoning and increase</p>	<p><b>Low</b></p>

Risks	Assessment without mitigation	Key assumptions	Mitigation measures	Assessment with mitigation
			overall resilience of reef resources to further climate impacts.	
<b>COVID-19 Pandemic impacts</b>				
Continued restrictions on regional and within-country movements restricts project activities, especially with on the ground meetings and pilot activities, travel of international consultants	Medium - High	Project activities will be feasible despite COVID-19 impacts on travel. Domestic and International travel restrictions will have eased by late 2022	The 1 year PPG phase of the project can be delivered online, without travel requirements. The CTI-CFF community is now well practiced in this and has carried out innumerable online planning and governance meetings through 2020-2021. Travel will be necessary in subsequent years, but can be further planned / re-prioritised during the PPG phase wherein travel and health restrictions are clearer.	<b>Medium</b>
Rise of IUU / destructive fishing practices during COVID19, due to unemployed people resorting to fishing to provide for their families, with additional pressure on coral reef systems.	Medium	Destructive fishing pressure has not increased due to COVID_19 impacts, and health of marine environments may have improved due to decreased fishing pressures.	The status of destructive fishing in SSS, during the pandemic is not known and information nascent. Reporting on COVID-19 impacts in other coral reef regions and SSF situations suggests that fishing activities decreased due to lockdown rules, albeit in detriment to SSF livelihoods (FAO 2021; Patterson Edward et al. 2021)	<b>Low</b>
Funding commitments are re-prioritised because of COVID-19 related impacts to national economies	<b>Medium</b>	Co-finance agreements on existing and emerging projects will be maintained (or increased).	National economic priorities post COVID appear increasingly focused on security and sustainability of marine and coastal resources which this project addresses	<b>Medium</b>

**6. Coordination.** Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

## **Project Coordination**

Implementation of the project requires four principal activities, which are divided into three technical working groups and project coordination. This project structure is modelled, in part, on the current CTI-CFF organisation and will link with the CTI-CFF's technical working groups.

### *Project Management*

A project management unit (PMU) will be established at the Executing Agency (EA) headquarters. The PMU's responsibilities include coordination among technical WGs, budgetary oversight, reporting to the Implementing Agency (IA), monitoring and evaluation, sub-contracting and procurement, and communications. The PMU will also sub-contract a national coordinating body to support on-the-ground activities in each jurisdiction.

Oversight of the project's progress and direction will be carried out by a Board with an independent chair and high-level representation of CTI-CFF Regional Secretariat, National Country Coordinators of the CTI-CFF, IA and EAs, the Chief Scientist, and, if relevant, each country's national government body with responsibility for implementing the UN Aichi Target 11. The three technical working groups are:

### *Multi-jurisdictional Working Group (MJWG)*

The Multi-jurisdictional Planning Working Group (MJWG) will have two principal activities. The first is to quantify the levels of connectivity using models of oceanography and particle tracking to map connections of key coral and fisheries species throughout the seascape. This will result in datasets that support the identification of keystone reefs and planning for seascape benefits of MPAs.

The second activity of the MJWG is to integrate inputs from other technical WGs and provide a multi-national – yet informal – environment to coordinate national action plans so that they maximise national benefits through a 'whole of seascape' approach. Outputs from the FRWG will quantify the benefits to be expected to each party by taking a coordinated approach to siting Fisheries Replenishment Zones as well as keystone reef protection to promote habitat quality. With participation of multiple levels of government and stakeholder involvement – local, regional and national – the TPWG will facilitate the communication and planning processes to seek approval of plans that maximise net domestic benefits. Progress will be monitored at the international ministerial level through the annual CTI Senior Official's Meetings.

### *Climate Adaptation Working Group (CAWG)*

The Climate Adaptation Working Group will develop MPA and restoration strategies that help reefs recover from coral bleaching. They will do this by combining connectivity data from the MJWG, analysing historical records of thermal stress, and evaluating the range of ancillary stressors across the seascape. The CAWG will also conduct exchange programmes and engage heavily with the tourism industry to identify appropriate action plans for managing bleaching events.

### *Fisheries Replenishment Working Group (FWG)*

The FWG will contain a mix of practitioners and scientists and its mandate is to develop guidelines on how to maximise and evaluate the fisheries benefits of MPAs designated as Fisheries Replenishment Zones. This is strategically important in identifying MPA locations that offer the greatest national and benefits to fishers by considering the whole of seascape. Moreover, a sound means of evaluation the fisheries benefits of MPAs will strengthen their legitimacy and help governments monitor MPA function and take corrective action where functions are lacking. Working with the MJWG, the FWG will identify reefs with the greatest ability to support the replenishment of critical fishing grounds.

## **Coordination with other GEF-projects and other initiatives:**

The PMU and in-country nodes, will coordinate with other GEF-projects in the three member countries that involve management of coral reef resources and seek to improve livelihoods of their dependent local communities. It will be particularly useful to coordinate with PEMSEA (Partnerships in Environmental Management in South-East Asia), and coordinate activities at their workshops. The SEACONNECT project will benefit greatly from the acquired knowledge and understanding, technical capacity and collaborative cross-sector partnerships of more than a decade of GEF-project investments in the Coral Triangle region.

### *Current projects*

COREMAP CTI III (5171) project by Indonesia's MMAF, BAPPENAS and LIPI agencies coordinates the national infrastructure and training MPA management and continues on COREMAP CTI I and II. SEACONNECT will coordinate closely with COREMAP partners to further implement MPA planning and management plans in the Indonesian jurisdiction of SSS, with a multi-jurisdictional lens to coral reef management that is mutually beneficial to both Indonesia and its SSS neighbours. A primary focus of COREMAP III is to decentralise resource management responsibilities. SEACONNECT's focus on provincial level training, knowledge sharing and networking (across provinces and nations) will complement the COREMAP model in a different focal area. Lessons learnt in COREMAP, particularly around project management and sustainability will be reviewed and applied in the project plan during the PPG phase. SEACONNECT seeks to deepen the MPA management actions and planning initiated from MMAF COREMAP programs, with zoning prioritization, identifying future priority MPAs, building on initiatives to reduce destructive fishing via behaviour change practices, enhancing effective tourism management MPAs and creating active intervention guidelines for local managers. All such tools build on the existing MPA management and monitoring platforms and practitioner networks that COREMAP I – III have operationalized. Coordination with COREMAP will be operationalized through the MMAF implementing partner who are also the primary Indonesian body in the CTI-CFF SEACONNECT project.

Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities (CRR, 10575). This project seeks to identify and improve the resilience of priority reefs around the world, identified as such because of their greater contribution to the ecological and social systems in the region. Additionally, it seeks to establish a global learning network of marine practitioners involved in the conservation and management of these high priority coral reef sites and LMEs. The SSS is one of the CRR's focal ecosystems. SEACONNECT will communicate with CRR to leverage training and networking opportunities, particularly for provincial level government employees. Doing this will enable stronger partnerships between government, industry, NGO, scientific and academic parties in the SSS, allowing greater sharing of tools, knowledge and prioritisation of limited resources. Additionally, there are shared goals in deploying marine spatial planning, economic valuation and financial tools for small scale fishers (using CCRES models).

Partnerships for Coral Reef Finance and Insurance in Asia & the Pacific (10431). This project seeks to develop a globally sustainable financial instrument to invest in coral reef conservation. Focal areas include Indonesia and the Philippines. SEACONNECT will call upon the expertise of this project to deliver guidance when designing the project in more detail during the PPG.

Ecosystem approach to Fisheries Management (EAFM) in Eastern Indonesia Fisheries Management Areas 715,717 & 718 (9129). This project seeks to deliver sustainable coastal fisheries management in several FMAs of North Eastern Indonesia. The EAFM project is already integrated with the CTI-CFF and reports to the EAFM technical working group. As a sister project within the CTI-CFF program, SEACONNECT will seek to collaborate in the delivery of knowledge management and knowledge sharing components, including via the CTI-CFF seminar and training events. The SEACONNECT project will collaborate with the EAFM team to accommodate learnings from the development of reef fishery management plans (FMPs) in neighbouring provinces. EAFM project representatives will be invited to share their practices with the SEACONNECT reef fisheries working group, enabling efficiencies in determining vulnerability assessments and making any policy recommendations for enhancing reef fishery management in the seascape (e.g. changes in fishing gear / seasonal closures / locating nursery grounds etc).

Protecting priority coastal and marine ecosystems to conserve globally significant Endangered, Threatened, and Protected (ETP) marine wildlife in southern Mindanao, Philippines (10536). This project is currently being developed and focuses on establishing well managed and connected MPA networks for migratory marine megafauna in the Mindanao region. Focal areas include overlap with some of the proposed SEACONNECT sites. Utilising similar focal sites and local communities provides opportunities for co-delivery of training modules and collecting information on various indicators of biological, social and economic indicators. This will be facilitated through in-country delivering partner DENR.

Promoting the blue economy and strengthening fisheries governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish, 666461). While this project considers multi-jurisdictional management of mostly pelagic fish stocks, it includes a component on climate adaptation and MPA design along the eastern coast of Peninsular Malaysia. This is not part of the SSS but lessons learnt during GoTFish will be shared with SEACONNECT and vice versa. This will be facilitated by both projects being executed by the University of Queensland and the institutional linkages between the Department of Fisheries Malaysia (both projects) and Sabah Parks (SEACONNECT).

Other initiatives:

SOMACORE “Solutions for Marine and Coastal Resilience” (SOMACORE) program, in the Coral Triangle- Sulu Sulawesi Seascape” aims to strengthen the resilience of the region’s ecosystems and communities in multi-jurisdictional seascapes through protection, good governance and effective management of coastal and marine biodiversity. The project is supported and delivered by the GIZ, a key partner of CTI-CFF whose work is well integrated and adopted within the CTI-CFF network. The SOMACORE program’s support for good governance in the CTI-CFF has been critical to the continued operational effectiveness of the Regional Secretariat and major deliverables of the CTI-CFF partnerships. The program’s support has therefore assisted in the sustainability of the CTICFF network and the development of the SEACONNECT project herein.

The GEF-IW Learn network will be a critical partner for the SEACONNECT project, enabling a knowledge sharing platform for lessons and tools generated, as well as a portfolio for accessing training products for coral reef practitioners.

**7. Consistency with National Priorities.** Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes  /no  ). If yes, which ones and how:

- National Bio Strategy Action Plan (NBSAP)
- CBD National Report
- Cartagena Protocol National Report
- Nagoya Protocol National Report
- UNFCCC National Communications (NC)
- UNFCCC Biennial Update Report (BUR)
- UNFCCC National Determined Contribution
- UNFCCC Technology Needs Assessment
- UNCCD Reporting
- ASGM National Action Plan (ASGM NAP)
- Minamata Initial Assessment (MIA)
- Stockholm National Implementation Plan (NIP)
- Stockholm National Implementation Plan Update

- National Adaptation Programme of Action Update

- Others

National Policy / Priority	SEACONNECT project alignment
<b>International Waters and Regional Priorities</b>	
SDG 14 Life below water	<p>The project will contribute substantively to SDG 14 to “Conserve and sustainable use the oceans, seas and marine resources” as well as give input to a range of other SDGs that incorporate sustainable environmental management and improving livelihoods of coastal and island based communities.</p> <p>The project will contribute to the following SDG 14 targets:</p> <ul style="list-style-type: none"> <li>- 14.1 prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution</li> <li>- 14.2 sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</li> <li>- 14.3 minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels</li> <li>- 14.4 effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</li> <li>- 14.5 conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information</li> <li>- 14b provide access for small-scale artisanal fishers to marine resources and markets.</li> </ul>
CBD – Marine & Coastal Biodiversity goals - NBSAPs	<p>The project will contribute to each country’s work on reaching Aichi Biodiversity Targets and the following targets in particular:</p> <ul style="list-style-type: none"> <li>- Target 1: Raising awareness of the value of biodiversity and targeting behavior changes that result in more sustainable use of biodiversity</li> <li>- Target 6: By incentivizing the improved management of coral reef ecosystems so that overfishing is avoided and community-led fisheries management plans are in place that take into account vulnerable ecosystems</li> <li>- Target 10: By maintaining or improving ecosystem health and biodiversity in coral reef ecosystems</li> <li>- Target 11: By incentivizing the creation of and compliance with community based reserve systems that designate on average 20 percent of the area to fully protected NTZs</li> <li>- Target 14: By incentivizing the creation of and compliance with community-managed reserves that allow coastal fisheries to recover and contribute to the restoration of ecosystem services and livelihood</li> </ul>

	benefits to local communities
CTI – CFF RPOA v1 and v2	SEACONNECT is fully consistent with the priorities for the CTI-CFF. The SSS is the first designated priority seascape of the CTI-CFF. SEACONNECT enables CTI-CFF to take this priority seascape to the next level given the project’s multi-jurisdictional goals and outcomes laid out herein. The project includes most core elements of the RPOA (v1 & 2) and all cross cutting themes of the CTICFF into the workplans.
Trans Diagnostic Approach for Sustainable Fisheries Management in the Sulu-Celebes Sea (2014)	The Transboundary Diagnostic Analysis (TDA) of the Sulu-Celebes (Sulawesi) Large Marine Ecosystem identified five priority transboundary problems (TPs) as (1) unsustainable exploitation of fish, (2) habitat loss and community modification, (3) marine pollution, (4) freshwater shortage, and (5) climate change. SEACONNECT work aligns with 4 of these priorities and supports work to address their root causes, namely priorities 1,2,3 and 5.
RSAP for sustainable fisheries management in the Sulu-Celebes Sea Large Marine Ecosystem (2013)	SEACONNECT is consistent with key components of this RSAP where it involves coral reef ecosystems. The TRENSREEF model has been developed from the work done in the TDA and RSAP and by many of the same tri-national committee members. Thereby, SEACONNECT adopts much of the RSAP model yet with a lens for coral reefs.
Sustainable Development Strategy for the Seas of East Asia Implementation Plan (2018-2022) UNDP, PEMSEA 2018	SEACONNECT work addresses the priority management programs for (1) Biodiversity, Conservation & management, and (2) Climate Changes and Disaster Risk Reduction. Additionally, SEACONNECT activities and outcomes directly contribute to the cross cutting governance themes of (1) Ocean Governance and Strategic Partnerships, (2) Knowledge Management and Capacity Development and (3) Blue Economy Investment and Sustainable Finance.
<b>Indonesia</b>	
National Mid-Term Development Plan 2020-2024, Agenda No. 6 MMAF 2020	SEACONNECT project addresses national priorities for environmental management, increasing disaster resilience and climate change - specifically for coral reefs. Sustainable economic and livelihood activities for coral reef communities are directly addressed in SEACONNECT activities (Component 2). Increased resilience for environmental management and economic activities on coral reefs, within national waters is addressed in components 1, 2 and 3 – 4 (via capacity building).
National Mid-Term Development Plan 2020-2024, MMAF 2020	National government determination to use designated fishery management zones (WPP) as a spatial basis for maritime and marine management. SEACONNECT will operate in WPP 713 and 716, aiding in the improvement of strategies for: <ol style="list-style-type: none"> <li>1 Management quality and institutional arrangements – particularly marine spatial planning and coastal zoning plans. SEACONNECT will work with government planning offices in the region to identify suitable zoning levels within existing MPAS, M&amp;E tools for MPA managers &amp; fishery department, and identify future priority MPA sites. Training and knowledge networks will enable on-going strengthening of institutional capacity at state and national offices.</li> <li>2 Sustainable management of the marine ecosystem and marine services.</li> </ol>

	<p>SEACONNECT will provide evaluations, tools and strategies to improve ecosystem health and ecosystem services, particularly in light of increased climate risks.</p> <p>3 Increased production, productivity and quality of marine and fishery products PLUS</p> <p>4 Improve business facilitation, financing, technology and markets, protection of small-scale business and access to resource management. Component 2, Outcome 2.1 and 2.2 of SEACONNECT focus on fishers livelihoods, products via support and development of small business entrepreneurship including sustainable supply chain development.</p> <p>5 Improve competence, human resource capacity, technological innovation and research in maritime and marine, as well as strengthening the marine and fisheries database. SEACONNECT delivers on all aspects of this priority, particularly through Component 3. Additionally outputs 1.1.1, 1.3.1, and 2.2.1 are marine data products incorporating national reef systems.</p>
<p>Indonesia Biodiversity Management Action Plan IBSAP 2003 – 2020 MMAF Strategic Plan</p>	<p>Seeks to advance sustainable fisheries management and effective MPA management so as to achieve national targets : 10% of national waters in MPAs, conservation of marine threatened species, reduction of anthropogenic and climate related impacts on coral reefs and associated ecosystems.</p> <p>Increase MPA coverage to 20 million hectares of effectively management MPAs in 2020 and meet Aichi Biodiversity targets.</p> <p>Reduce and stop rate of biodiversity degradation and extinction at national, regional and local levels, along with rehabilitation &amp; sustainable use efforts</p> <p>Align market activity with management plans of MPAs and create economic incentives for fishers, reduce enforcement costs and contribute to sustainability</p> <p>The SEACONNECT project will help identify potential areas with high biodiversity for protection &amp; improve management of gazetted parks. In particular it will support and assist meet national priorities of safeguarding key ecosystems, species and genetic diversity.</p>
<p>National Marine Spatial Planning (law 27) MMAF 2020</p>	<p>The Project will help to identify management of critical habitat, areas suited to fisheries, and potential core zones, enabling more detailed spatial planning (beyond MPA boundaries).</p>
<p>CTI-CFF National Plan of Action (NPoA) And National Action Plan on Coral Reef Conservation (NAPCRC) 2017-2021 MMAF 2020</p>	<p>SEACONNECT directly supports the national plan in all components. SEACONNECT will deliver outputs and outcomes that address several of the national targets: (1) increase the availability of data and information on Indonesia’s coral reefs, (2) enables movements towards community based management models, and (3) increases the awareness and participation of stakeholders.</p>
<p>RAN-API: National Action Plan on Climate Change Adaptation. State Ministry of Environment 2007</p>	<p>This national plan identifies priorities for addressing climate change impact on livelihoods, particularly from sea level rise, changes in weather, climate, and rainfall. National government seeks to address these via budget reform, SE policy development, and socio-cultural transformation.</p> <p>SEACONNECT supports RAN-API through vulnerability assessments of</p>

	coastal and island communities to climate related impacts on coral reef related livelihoods (fisheries & tourism), supporting and enabling livelihood diversification so as to increase adaptive responses and increase climate resilience. Capacity building and regional knowledge sharing will also inform local community responses (especially financially), and provincial and national policy developments.
Guideline for Utilization of Sustainable Fisheries Zones in Marine Protected Areas for Fishing by Local and Traditional Communities  MMAF 2016	<p>Policy gives local communities responsibility for co-management of coastal resources and MPAs with government partners. Involves small-scale fisher folk in most stages of MPA development and management, and fishery zone management. Enables Community Based Fishery Management for future MPAs.</p> <p>SEACONNECT socio-economic assessments for SSF on reefs, small business training, M&amp;E tools for MPA managers (especially regarding reef fishery benefits) will contribute to empowering SSF in business management, self evaluation of MPA success, adaptive management schemes and sustainability of CBFM.</p> <p>SEACONNECT will help the national government operationalise guidelines in the SSS region. Regional communities of practice / knowledge partnerships will assist local and provincial practitioners glean from CTI neighbour's success (e.g. Philippines &amp; Solomon Islands strengths in CBRM) and share their learnings. This will further strengthen resilience of community and intuitions, making them better prepared for future disturbances with increased ability to operationalise emergency response mechanisms (e.g. response to bleaching events).</p>
Law No. 23 of 2014 Concerning Local Government	<p>Governance of coastal marine resources (0-12NM off shore) is now under jurisdiction of provincial management.</p> <p>SEACONNECT will provide provincial departments critical capacity building, knowledge partnerships to aid and direct their operations. Particularly in M&amp;E frameworks for MPAs, reef fisheries, tourism in MPAs, coral reef restoration and small scale fisher business development.</p>
<b>Malaysia</b>	
National Fisheries Act, 1985  (+ National anti-fish bombing committee, 2012)	<p>The act governs all fisheries activities in Malaysia. Particular current priorities are to improve the sustainability of small scale fisheries, utilise MPAs and Marine Spatial Planning, and suppress IUU. Additionally a National committee aims to suppress fishing bombing by 2020 through a number of targeted approaches</p> <p>The goals of the SEACONNECT project align with the National Fisheries Act and current priorities in fisheries management. In particular, the project's vulnerability assessments and guidelines on M&amp;E frameworks for fishery benefits from MPAs will contribute to sustainable development of small scale fisheries in coral reef environments. Additionally the project's behaviour change aspects seek to further suppress destructive fishing practices.</p>
NPoA on IUU, Malaysia Department of Fisheries.	Commitment to combat issues on unsustainable fishing practices and thereby ensure sustainability of fisheries resources.

	The project will contribute to this NPoA by addressing such issues in coral reef fisheries.
National Park Enactment 1977 Sabah Parks Enactment 1984	National, provincial and local government levels are committed to adopting and implementing marine spatial planning approaches. This project will enable timely assistance for the MPS approaches to be socialised, designed and implemented in the Malaysian areas.  The project will help identify potential areas with high biodiversity for protection and improve management of gazetted parks
National Policy on Climate Change 2009	Project will help develop climate change actions that contribute to environmental conservation and sustainable use of natural resources.
National Policy on Biological Diversity 2016-2025	Project aligns with NPBDS activities in Goal 3 – to safeguard key ecosystems, species and genetic diversity.
<b>Philippines</b>	
Philippines Biodiversity Strategy and Action Plan (PBSAP)  Philippines CBD targets for 2028	National goal is a 20% increase by 2028 in the coverage of marine and aquatic protected areas since 2015 (PH-CBD Target 20). The project will help identify potential areas with high biodiversity for protection and improve management of gazetted parks. In particular the national priorities of safeguarding key ecosystems, species and genetic diversity. Additionally the project supports target 3, target 8 for sustaining economically important fish stocks to have no net loss in areas of coral cover, mangrove and seagrass, target 9 towards an increase in related jobs and target 12 on strengthening capacity building for biodiversity conservation.
Amendment to the fisheries code about IUU (Republic Act 10654)	The project aligns by developing behaviour change strategies to help mitigate destructive fishing practices (part of addressing IUU).
National Plan for Integrated Coastal Management (ICM, 2016)  NIPAS – National Integrated Protected Area System Act (1992), 2018. Wildlife Resources Conservation & Protection Act Indigenous People’s Rights Act Ecotourism Development in the Philippines & Guidelines for Ecotourism planning and management in PAs 2015 2015 Implementation of coastal and marine ecosystems management program (CMEMP, 2016)	National policies to conserve biodiversity and encourage sustainable use of resources, and for communities to attain economic benefits from this. Including financial mechanisms, and incentives for biodiversity friendly enterprises within MPAs / NIPAS. The project supports these priorities for coral reef related ecosystems including provision of small business enterprise support  These include sustainable fisheries, eco-tourism, manufacturing of agricultural and fisheries products, and other fee generating ecosystem services. National priorities seek to benefit enterprises for sustainable fisheries, which reduce pressure and overexploitation of aquatic resources, address food security.

**8. Knowledge Management (includes M& E planning during PPG)** Outline the “Knowledge Management Approach” for the project and how it will contribute to the project’s overall impact, including plans to learn from relevant projects, initiatives and evaluations.

Knowledge management is essential for the success of the project, both in order to achieve the longer term outcomes and to attain sustainability and scalability goals for the project. During the PPG phase an in-depth strategy for knowledge management will be developed, outlining the development and delivery of products and identifying the channels through which they will be best disseminated.

The Executing Agency and CTI-CFF Regional Secretariat will be the primary delivery channels for knowledge products. These will, where possible, be made publicly available through the CT atlas portal<sup>1</sup>. The CT atlas is an online GIS database, providing governments, NGOs and researchers with a view of spatial data at the regional scale. This database enables efficiency of management and conservation planning in the region by giving researchers and managers access to spatial information while encouraging them to share their data to complete the gaps. The data created in this project, particularly on connectivity of coral reef resources within the seascape, will be made publicly available through the CT atlas. The CT atlas and CTI-CFF websites also provide repository's of information for stakeholders and practitioners on CT resources, management guidelines and various status reports. The SEACONNECT knowledge products will be made available on this site, ensuring their long-term accessibility.

The project will share lessons earned with other platforms, particularly through the existing CTI-CFF networks, and via IW learn workshops. The project will actively contribute to IW learn, the GEF IW conference, and the project website will have links to the IW learn site, CT atlas and CTI-CFF portals.

### **Knowledge products to be delivered in the project include:**

#### Component 1

- Regional guidelines on management practices for CC impacts on reef and related coastal resources
- Report on CC impacts on reef dependent small-scale fishers of SSS
- Guidelines to assess fishery benefits from MPAs (with and without multi-jurisdictional scales)

#### Component 2

- Maps of critical coral reef and related coastal habitats for fisheries within the SSS
- Regional plan and guidelines for managing impacts of heatwaves on coastal tourism

#### Component 4

- Minimum of 8 SEACONNECT lessons made available through IW LEARN forum
- Report on progress and challenges to improving gender equity in the region

The project's monitoring & evaluation plan will produce semi-annual, mid-term and final reports and share these with all stakeholders.

### **References**

- Baker AC, Glynn PW, Riegl B (2008) Climate change and coral reef bleaching: An ecological assessment of long-term impacts, recovery trends and future outlook. *Estuar Coast Shelf Sci* 80:435-471
- Bayraktarov E, Stewart-Sinclair PJ, Brisbane S, Bostrom-Einarsson L, Saunders MI, Lovelock CE, Possingham HP, Mumby PJ, Wilson KA (2019) Motivations, success, and cost of coral reef restoration. *Restor Ecol* 27:981-991
- Blake GH, Hildesley WJ, Pratt MA, Ridley RJ, Schofield CH (eds) (1995) *The peaceful management of transboundary resources*. Graham and Trotman, London
- Boggs G, Edyvane K, de Carvalho S, Penny J, Rouwenhorst P, Brocklehurst I, Cowie C, Barreto A, Smit AN, Monteiro J, Pinto P, Mau R, Amaral L, Fernandes L (2009) *Marine and coastal habitat mapping in Timor Leste (North Coast) - Final Report*. Ministry of Agriculture and Fisheries, Government of Timor Leste, Timor Leste
- Brown CJ, Saunders MI, Possingham HP, Richardson AJ (2013) Managing for interactions between local and global stressors of ecosystems. *PLoS One* 8:e65765
- Brown CJ, Jupiter SD, Lin HY, Albert S, Klein C, Maina JM, Tulloch VJD, Wenger AS, Mumby PJ (2017) Habitat change mediates the response of coral reef fish populations to terrestrial run-off. *Mar Ecol Prog Ser* 576:55-68

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<sup>1</sup> CT Atlas: <http://ctatlas.coraltriangleinitiative.org/>

- Burke L, Reynter K, Spalding MD, Perry A (2011) Reefs at risk revisited. World Resources Institute, Washington DC
- Campbell SJ, Darling ES, Pardede S, Ahmadi G, Mangubhai S, Amkieltiela, Estradivari, Maire E (2020) Fishing restrictions and remoteness deliver conservation outcomes for Indonesia's coral reef fisheries. *Conservation Letters* 13:e12698
- Carpenter KE, Springer VG (2005) The centre of the centre of marine shorefish biodiversity: the Philippine Islands. *Environ Biol Fishes* 72:467-480
- Cheung WM, Hock K, Skirving WJ, Mumby PJ (2021) Cumulative bleaching undermines systemic resilience of the Great Barrier Reef. *Curr Biol* in press
- Chollett I, Canty SWJ, Box SJ, Mumby PJ (2014) Adapting to the impacts of global change on an artisanal coral reef fishery. *Ecol Econ* 102:118-125
- Chou LM (1997) Southeast Asia as the global centre of marine biodiversity. *Trop Coasts* 4:4-8
- Christianen MJA, Herman PMJ, Bouma TJ, Lamers LPM, van Katwijk MM, van der Heide T, Mumby PJ, Silliman BR, Engelhard SL, van de Kerk M, Kiswara W, van de Koppel J (2014) Habitat collapse due to overgrazing threatens turtle conservation in marine protected areas. *Proceedings of the Royal Society B: Biological Sciences* 281:20132890-20132890
- Cinner JE, McClanahan TR, Graham NAJ, Daw TM, Maina J, Stead SM, Wamukota A, Brown K, Bodin Ö (2012) Vulnerability of coastal communities to key impacts of climate change on coral reef fisheries. *Global Environ Change* 22:12-20
- Conservation International (2008) Economic values of coral reefs, mangroves, and seagrasses: A global compilation. Center for Applied Biodiversity Science, Conservation International, Arlington, VA, USA
- Delevaux JMS, Jupiter SD, Stamoulis KA, Bremer LL, Wenger AS, Dacks R, Garrod P, Falinski KA, Ticktin T (2018) Scenario planning with linked land-sea models inform where forest conservation actions will promote coral reef resilience. *Sci Rep* 8:12465
- Dorman JG, Castruccio FS, Curchitser EN, Kleypas JA, Powell TM (2015) Modeled connectivity of *Acropora millepora* populations from reefs of the Spratly Islands and the greater South China Sea. *Coral Reefs* 35:169-179
- Edwards HJ, Elliott IA, Pressey RL, Mumby PJ (2010) Incorporating ontogenetic dispersal, ecological processes and conservation zoning into reserve design. *Biol Conserv* 143:457-470
- Erdman MV, Mohan C (2013) A rapid marine biological assessment of Timor-Leste. Conservation International, Jakarta
- FAO (2007) The World's mangroves 1980-2005, Rome
- FAO (2021) The impact of COVID-19 on fisheries and aquaculture food systems, possible responses: Information paper. FAO, Rome
- Fox HE, Harris JL, Darling ES, Ahmadi GN, Estradivari, Razak TB (2019) Rebuilding coral reefs: success (and failure) 16 years after low-cost, low-tech restoration. *Restor Ecol* 27:862-869
- Hock K, Wolff NH, Ortiz JC, Condie SA, Anthony KRN, Blackwell PG, Mumby PJ (2017) Connectivity and systemic resilience of the Great Barrier Reef. *PLoS Biol* 15:e2003355
- Igulu MM, Nagelkerken I, M. D, Grol MGG, Harborne AR, Kimirei IA, Mumby PJ, Olds AD, Mgaya YD (2014) Mangrove habitat use by juvenile reef fish: Meta-analysis reveals that tidal regime matters more than biogeographic region. *Plos One* e0114715
- Jacinto GS, Alino PM, Villanoy CL, Talaue-McManus L, Gomez ED (2000) The Philippines. In: Sheppard CRC (ed) *Seas at the Millennium: An environmental evaluation Vol II Regional Chapters: The Indian Ocean to the Pacific*. Pergamon Press, The Netherlands,
- Jones GP, McCormick MI, Srinivasan M, Eagle JV (2004) Coral decline threatens fish biodiversity in marine reserves. *Proc Natl Acad Sci U S A* 101:8251-8253
- Krueck N, Ahmadi GN, Green A, Jones GP, Possingham HP, Riginos C, Treml EA, Mumby PJ (2017a) Incorporating larval dispersal into MPA design for both conservation and fisheries. *Ecol Appl* 27:925-941
- Krueck NC, Abdurrahim AY, Adhuri DS, Mumby PJ, Ross H (2019) Quantitative decision support tools facilitate social-ecological alignment in community-based marine protected area design. *Ecol Soc* 24
- Krueck NC, Ahmadi GN, Possingham HP, Riginos C, Treml EA, Mumby PJ (2017b) Marine Reserve Targets to Sustain and Rebuild Unregulated Fisheries. *PLoS Biol* 15:e2000537
- Lau J, Ruano-Chamorro C (2021) Gender equality in coral reef socio-ecological systems. CARE and CRRRI
- Lopez-Angarita J, Hunnam KJ, Pereira M, Mills DJ, Pant J, Teoh SJ, Eriksson H, Amaral L, Tilley A (2019) Fisheries and aquaculture of Timor-Leste in 2019: Current knowledge and opportunities. Worldfish, Penang
- Macusi ED, Geronimo RC, Santos MD (2021) Vulnerability drivers for small pelagics and milkfish aquaculture value chain determined through online participatory approach. *Mar Policy* 133:104710
- McClanahan TR, Graham NA, MacNeil MA, Cinner JE (2014) Biomass-based targets and the management of multispecies coral reef fisheries. *Conserv Biol* 29:409-417
- McManus JW (1997) Tropical marine fisheries and the future of coral reefs: a brief review with emphasis on Southeast Asia. *Coral Reefs* 16:S121-S127
- Mumby PJ, Steneck RS (2008) Coral reef management and conservation in light of rapidly-evolving ecological paradigms. *Trends Ecol Evol* 23:555-563

- Mumby PJ, Mason RAB, Hock K (2021) Reconnecting reef recovery in a world of coral bleaching. *Limnol Oceanogr Methods* 3:10455
- Mumby PJ, Sanchirico JN, Broad K, Beck MW, Tyedmers P, Morikawa M, Okey TA, Crowder LB, Fulton EA, Kelso D, Kleypas JA, Munch SB, Glynn P, Matthews K, Lubchenco J (2017) Avoiding a crisis of motivation for ocean management under global environmental change. *Global Change Biol* 23:4483-4496
- Newton K, Cote IM, Pilling GM, Jennings S, Dulvy NK (2007) Current and future sustainability of island coral reef fisheries. *Current biology* : CB 17:655-658
- Ostrom E (1990) *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press, Cambridge
- Paris CB, Helgers J, van Sebille E, Srinivasan A (2013) Connectivity Modeling System: A probabilistic modeling tool for the multi-scale tracking of biotic and abiotic variability in the ocean. *Environ Model Software* 42:47-54
- Pata PR, Yñiguez AT (2021) Spatial Planning Insights for Philippine Coral Reef Conservation Using Larval Connectivity Networks. *Frontiers in Marine Science* 8:719691
- Patterson Edward JK, Jayanthi M, Malleshappa H, Immaculate Jeyasanta K, Laju RL, Patterson J, Diraviya Raj K, Mathews G, Marimuthu AS, Grimsditch G (2021) COVID-19 lockdown improved the health of coastal environment and enhanced the population of reef-fish. *Mar Pollut Bull* 165:112124
- Penaflo EL, Skirving WJ, Strong AE, Heron SF, David LT (2009) Sea-surface temperature and thermal stress in the Coral Triangle over the past two decades. *Coral Reefs* 28:841-850
- Reaka-Kulda ML (1997) The global biodiversity of coral reefs: A comparison with rainforests. In: Reaka-Kulda ML, Wilson DE, Wilson OE (eds) *Biodiversity II: Understanding and protecting our natural resources*. Joseph Henry/National Academy Press, Washington DC, pp83-108
- Richmond RH, Rongo T, Golbuu Y, Victor S, Idechong N, Davis G, Kostka W, Neth L, Hamnett M, Wolanski E (2007) Watersheds and coral reefs: Conservation science, policy, and implementation. *Bioscience* 57:598-607
- Roberts CM, Branch G, Bustamante RH, Castilla JC, Dugan J, Halpern B, Lafferty KD, Leslie H, Lubchenco J, McArdle D, Ruckelshaus M, Warner RR (2003) Application of ecological criteria in selecting marine reserves and developing reserve networks. *Ecol Appl* 13:S215-S228
- Rogers A, Blanchard JL, Mumby PJ (2018) Fisheries productivity under progressive coral reef degradation. *J Appl Ecol* 55:1041-1049
- Rogers A, Harborne AR, Brown CJ, Bozec YM, Castro C, Chollett I, Hock K, Knowland CA, Marshall A, Ortiz JC, Razak T, Roff G, Samper-Villarreal J, Saunders MI, Wolff NH, Mumby PJ (2015) Anticipative management for coral reef ecosystem services in the 21st century. *Glob Chang Biol* 21:504-514
- Sadovy Y (2005) Trouble on the reef: the imperative for managing vulnerable and valuable fisheries. *Fish Fish* 6:167-185
- Sadovy Y, Domeier M (2005) Are aggregation-fisheries sustainable? Reef fish fisheries as a case study. *Coral Reefs* 24:254-262
- Siles J, Prebble M, Wen J, Hard C, Schuttenberg H (2019) Advancing gender in the environment: Gender in fisheries - a sea of opportunities. IUCN and USAID, Washington
- Simmons EC, Fielding KS (2019) Psychological predictors of fishing and waste management intentions in Indonesian coastal communities. *Journal of Environmental Psychology* 65:101324
- Sulu-Celebes Sea Sustainable Fisheries Management Project (2014) *Transboundary Diagnostic Analysis*
- The World Bank (2012) *Hidden harvest: The global contribution of capture fisheries*, Washington DC
- Tittensor DP, Walpole M, Hill SLL, Boyce DG, Britten GL, Burgess ND, Butchart SHM, Leadley PW, Regan EC, Alkemade R, Baumung R, Bellard C, Bouwman L, Bowles-Newark NJ, Chenery AM, Cheung WWL, Christensen V, Cooper HD, Crowther AR, Dixon MJR, Galli A, Gaveau V, Gregory RD, Gutierrez NL, Hirsch TL, Hoft R, Januchowski-Hartley SR, Karmann M, Krug CB, Leverington FJ, Loh J, Lojenga RK, Malsch K, Marques A, Morgan DHW, Mumby PJ, Newbold T, Noonan-Mooney K, Pagad SN, Parks BC, Pereira HM, Robertson T, Rondinini C, Santini L, Scharlemann JPW, Schindler S, Sumaila UR, Teh LSL, van Kolck J, Visconti P, Ye YM (2014) A mid-term analysis of progress toward international biodiversity targets. *Science* 346:241-244
- Treml EA, Halpin PN (2012) Marine population connectivity identifies ecological neighbors for conservation planning in the Coral Triangle. *Conservation Letters* 5:441-449
- Veron JEN, Devantier L, Turak E, Green AL, Kininmonth S, Stafford Smith M, Peterson N (2009) Delineating the Coral Triangle. *Galaxea* 11:91-100
- Wenger AS, Harris D, Weber S, Vaghi F, Nand Y, Naisilisili W, Hughes A, Delevaux J, Klein CJ, Watson J, Mumby PJ, Jupiter SD, Dhanjal ~~et al (2020) Best practice for estuary and reefs with increased land clearing~~. *Ecol* 57:2381-2392
- Wenger AS, Rawson CA, Wilson S, Newman SJ, Travers MJ, Atkinson S, Browne N, Clarke D, Depczynski M, Erfteimeijer PLA, Evans RD, Hobbs J-PA, McIlwain JL, McLean DL, Saunders BJ, Harvey E (2018) Management strategies to minimize the dredging impacts of coastal development on fish and fisheries. *Conservation Letters*:e12572
- World Bank (2017) *The sunken billions revisited: Progress and challenges in global marine fisheries*. World Bank, Washington DC

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):**  
(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter).

<b>NAME</b>	<b>POSITION</b>	<b>MINISTRY</b>	<b>DATE (MM/dd/yyyy)</b>

**PROGRAM/PROJECT MAP AND GEOGRAPHIC COORDINATES**

**(when possible)**

**GEF 7 Core Indicator Worksheet**

Use this Worksheet to compute those indicator values as required in Part I, item F to the extent applicable to your proposed project. Progress in programming against these targets for the project will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

**Project Taxonomy Worksheet**

Use this Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/ topics/themes that best describe this project.