GFCR FULL PROGRAMME DOCUMENT

I. Full Programme Summary Information

Programme Title: KORALESTARI: Sustaining Indonesia's Coral Reefs through Bankable Conservation and Restoration Initiatives	**Recipient Organisation(s):** Yayasan Konservasi Alam Nusantara (YKAN), TNC's Indonesian partner)
Convening Agent: Yayasan Konservasi Alam Nusantara (YKAN), The Nature Conservancy's (TNC) Indonesian partner **Programme Focal Point Contact:** Ilman Muhammad Director of Oceans Program muhammad.ilman@tnc.org +62 811-167 027	**Programme Location** Country/Region: Indonesia Priority Coral Reef Site(s): 1) Berau, East Kalimantan 2) Savu Sea, East Nusa Tenggara 3) Natuna Sea, Riau Island and West of Borneo
18-month Programme Cost (USD)[1]: **TNC YKAN**: USD 2,006,615.00 **Co-recipient 1**: Hatch Blue (TBC) **Co-recipient 2**: Blue Forests (TBC) **Co-recipient 3**: Planet Partnership / Pact as Fund Manager (TBC) **Co-recipient 4**: National & Local Universities, Local NGOs, and Local Women Associations (TBC)	**Proposed Start Date[2]:** July 2023 **Proposed End Date:** **June 2029**

[1] As per GFCR Executive Board decision, disbursements will be determined based on fiduciary assessment, expenditures and GFCR Secretariat's performance review.

[2] Programme start date will be triggered by the initial fund transfer of the GFCR Trustee

Programme Description:
The KORALESTARI Programme aims to address the decline of coral reef health in Indonesia, due to unsustainable fishing and aquaculture, uncontrolled coastal development, land and marine pollution, climate change impacts, and invasive species. The programme will operate between 2023 and 2029 in three priority areas: Berau in East Kalimantan, Savu Sea in East Nusa Tengarra, and Natuna Sea, west of Borneo. To tackle the drivers of coral reef degradation, KORALESTARI will pursue the following outcomes: 1) Improved coral reef conservation through developing innovative finance mechanisms; 2) Supporting bankable reef-positive projects that advance the livelihoods of reef-dependent communities; and 3) Coral reefs are restored and recovered after major shocks, maintaining climate resilience. TNC/YKAN will be the convening agent for the GFCR Grant Fund resources and will coordinate closely with the government, private sector, NGOs, GFCR Investment Fund, other GFCR partners, and communities for the KORALESTARI programme.

Signature of Convening Agent:	**Signature of Co-recipient Organisation (if relevant):**
Print: Organisation: Yayasan Konservasi Alam Nusantara Name: Herlina Hartanto, PhD Title: Executive D[redacted] Signature [redacted] Date __7/21/2023_	Print: Organisation _____ Name _____ Title _____ Signature _____ Date _____

Signature of GFCR Executive Board UN Partner:

Print:
Organisation: UNEP
Name: Leticia Carvalho
Title: Head, Marine and Freshwater Branch

Signature [redacted] Date 09 August 2023

II. Budget Request Summary by UNDG Categories

Total Programme Costs Budget Breakdown	Convening Agent	Co-Recipient (TBC)	Total
1. Staff and other personnel	$414,513	$0	$414,513
2. Supplies, Commodities, Materials	$86,600	$0	$86,600
3. Equipment, Vehicles, and Furniture (including Depreciation)	$27,000	$0	$27,000
4. Contractual services	$778,228	$0	$778,228
5. Travel	$208,500	$0	$208,500
6. Transfers and Grants to Counterparts	$135,000	$0	$135,000
7. General Operating and other Direct Costs	$225,500	$0	$225,500
Total Direct Costs	**$1,875,341**	**$0**	**$1,875,341**
8. Indirect Support Costs (Max. 7%)	$131,274	$0	$131,274
TOTAL Budget	**$2,006,615**	**$0**	**$2,006,615**

III. Acronyms and Definitions

Acronym	Definition
ADB	Asian Development Bank
ASEAN ENMAPS	Effectively Managing Networks of MPAs in Large Marine Ecosystems in the ASEAN Region (program by UNDP)
ATSEA	The Arafura and Timor Sea Project (by UNDP)
Bappeda	Provincial Development Planning Agency
Bappenas	Indonesia's Development Planning Agency
Ber-IKAN	USAID Collaborative Fisheries Management Program
BIG	Geospatial Information Agency
BKKPN	Balai Kawasan Konservasi Perairan Nasional Kupang, Technical Unit of MMAF, National Marine Protected Area Agency
BKPM	Ministry of Investment
BLU	National Agency for General Service
BLUD	Provincial Agency for General Service
BPDLH	Indonesia Environment Fund
BPS	Central Statistics Agency
BPSPL	MMAF's technical unit at sub-national level
BRIN	Indonesia's Research and Innovation Agency
BUMDes	Village-owned Enterprises
CI	Conservation International
CoC	Chamber of Commerce
CTSP	Coral Triangle Support Partnership (by USAID)
COTS	Crown-of-Thorns Starfish
CRFF	Coral Reef Funding Facility
CSO	Civil Society Organisation
CT	Coral Triangle
CTI	Coral Triangle Initiative
DPM	Provincial Investment Agency
EEZ	Exclusive Economic Zone
ETP	Endangered, Threatened and Protected
EVIKA	Scorecard metric used to evaluate MPA Management Effectiveness
FM	Financial Mechanism
FPIC	Free, Prior, and Informed Consent
FTZ	Free Trade Zone
GEF	Global Environment Facility
GHG	Greenhouse Gas
GOI	Government of Indonesia
Ha	Hectare
ICCTF	Indonesia Climate Change Trust Fund
IPLC	Indigenous Peoples and Local Communities
ISLME	Towards Sustainable and Conversion-Free Aquaculture in Indonesian Seas Large Marine Ecosystem (by ADB)
ITF	Indonesia Through Flow
LAUTRA	World Bank Oceans for Prosperity Program
LKKPN	National Marine Protected Area Office
Kemendes	Ministry of Villages, Development, and Disadvantages Regions, and Transmigration
KKP3K	Aquatic, coasts, and small island conservation areas
KKP3K-KDPS	○ KKP3K Derawan Archipelago and Berau Regency
KKPD	○ Regional Marine Protected Areas
KfW	Kreditanstalt für Wiederaufbau, German state-owned investment and development bank
MMAF	Ministry of Marine Affairs and Fisheries

MPA	Marine Protected Area
MOEF	Ministry of Environment and Forestry
MOF	Ministry of Finance
MOI	Ministry of Investment
MOT	Ministry of Trade
MSME	Micro, Small, and Medium Enterprises
NDC	Nationally-Determined Contribution
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
NTT	East Nusa Tenggara Province
OJK	The Indonesia Financial Services Authority
PES	Payment of Ecosystem Services
PMA	Fully/partially foreigner owned company in Indonesia
PT	Limited Liability Company
ROI	Return on Investment
RPJMN	Medium-Term National Development Plan
RZWP3K	Marine Spatial Plan
SDG	Sustainable Development Goal
SEA	Sustainable Ecosystems Advanced (USAID program)
SEGAR	USAID Sustainable Environmental Governance Across Regions program
SLM-MDTF	Indonesia Sustainable Landscape Management Multi-Donor Trust Fund (by WB)
SLMP	Sustainable Landscape Management Program
SINAR	Sustainable Energy for Indonesia's Advancing Resilience (USAID programme
SOP	Standard Operating Procedures
TEV	Total Economic Value
TNC	The Nature Conservancy
TNP	Taman Nasional Perairan - Marine National Park
ToC	Theory of Change
TWP	Tourist Park
UKAID	United Kingdom Aid programme
UMRAH	Raja Ali Haji Maritime University
UNDP	United Nations Development Programme
UPTD	A Regional Technical Implementation Unit under the Provincial Marine and Fisheries Agency.
USAID	United States Agency for International Development
YKAN	Yayasan Konservasi Alam Nusantara
YPI	Yayasan Planet Indonesia
VAT	Value Added Tax
WB	World Bank
WRI	World Resourcce Institute
WWF	World Wild Fund for Nature

IV. Executive Summary

Indonesia is the world's largest archipelago[3] which holds the world's highest marine biodiversity and is located in the heart of the Coral Triangle (CT) region. The country's important marine and coastal ecosystems include the largest area of coral reefs in South-East Asia, an estimated 39,500 km^2, which accounts for 16% of the world's coral habitat. The KORALESTARI programme will focus on three priority sites in Indonesia: Savu Sea, Berau, and Natuna Sea. Savu Sea was selected as a priority site given its important ecological status, levels of climate resilience shown, and potential to scale sustainable fisheries businesses with community benefits. Berau was selected a priority site because of its important ecological status as part of the CT, and potential to build on existing work by TNC YKAN and partners to implement a blue carbon project that benefits coral reefs. Finally, Natuna Sea was selected as a priority site as there is growing evidence that Natuna Sea is an important area for conservation efforts as it may serve as climate refugia, yet there is a large need to strengthen effective management in Natuna Sea MPAs by leveraging more finance. Across all sites, there is good potential to enhance the capacity of MPAs to more effectively protect coral reefs and support reef-positive businesses with community benefits.

Across the priority sites, there are various **drivers of coral reef degradation** that the KORALESTARI Programme aims to address. These include unsustainable fishing and aquaculture, uncontrolled coastal development, land and marine pollution, climate change impacts, and invasive species. Current initiatives in the three priority sites are not effectively addressing these local drivers of reef degradation; MPAs do not have sufficient resources to fund their restoration and protection activities; Commercial entities are not sufficiently incentivised to protect and restore coral reefs; and Coastal communities do not have the sufficient financial and technical capacity to adopt reef-positive, resilient livelihoods that generate sustainable revenue streams.

The KORALESTARI programme will run between 2023 and 2029. The **strategic vision** (desired change) of the programme is to enable a transformative change in the way coral reefs are protected and restored through establishing sustainable management systems of MPAs and stimulating a reef-positive blue economy that improves local livelihoods, is inclusive, and enhances coastal resilience to climate change impacts. The programme aims to achieve this by expanding the availability of sustainable funding that supports actions to protect and restore coral reefs (Impact), through the following Outcomes and Intermediate States:

- **Outcome 1:** Innovative finance mechanisms (FM) - using blended finance approaches - are implemented and generate additional resources for coral reef restoration and conservation. This is expected to lead to the Intermediate State where the FMs generate additional and sustainable resources that support concrete coral reef conservation and restoration results.
- **Outcome 2:** Bankable reef-positive projects are implemented and support the livelihoods of reef-dependent communities. This is expected to lead to the Intermediate State where reef-positive projects receive additional private financing and lead to long-term improvements in the livelihoods of reef-dependent communities.
- **Outcome 3:** Local capacity to protect, restore, and recover coral reefs, including after major shocks, is improved. This is expected to lead to the Intermediate State where restoration and recovery of coral reefs are enhanced in the long term, improving climate resilience.

Outcome 1 includes policy activities (output 1.1.) to support the development of an enabling environment for investment in the blue economy, and specifically improve the legal framework and

[3] ADB. (2014). State of the Coral Triangle: Indonesia.

regulations to allow for the blue carbon market, set-up of a reef insurance product, and the self-financing model for MPAs, namely UPTD-BLUD. Output 1.2, focuses on the set-up of this self-financing model for MPAs (**finance solution 3)** by replicating the UPTD-BLUD MPA Management model as implemented in Raja Ampat in Berau, where the MPA has growing tourism activities and potential blue carbon finance from the mangrove ecosystems inside the MPA. It is expected that KORALESTARI can generate an additional USD 120,000 for the MPA in Berau on an annual basis, continuing beyond the programme lifetime. Output 1.3. will build on TNC YKAN's existing work to pilot a blue carbon project (**finance solution 4)** in Berau, by working with local communities within the Derawan Islands MPA to expand this project and serve as a demonstration project for policy activities. The Blue carbon project is expected to generate carbon credits with a value up to USD 2,250,000, of which it is expected that around a third can directly be spent by the MPA Management Unit on coral reef protection. Output 1.4 will aim to promote the financing solutions across the KORALESTARI programme, to attract co-financing and support scaling and replication.

Outcome 2 focuses on setting up a Coral Reef Funding Facility (CRFF) **(finance solution 1)**. The CRFF is structured as a (returnable) grants and technical assistance (TA) facility to support early-stage projects and businesses, as this was highlighted as a gap in the current range of support and financing initiatives in the sectors. The CRFF will support businesses in sustainable fisheries, aquaculture, ecotourism, waste management, and bioprospecting. The CRFF will be managed by a fund manager (TBC, in conversation with potential partners) that will be able to continue the fund beyond GFCR Grant Funding. The CRFF will also be designed to collaborate closely with other funds, concessional finance providers and accelerators, ensuring that reef-positive businesses and projects supported under the CRFF will be able to leverage other sources of (concessional) financing once they graduate from the CRFF. It is expected that with GFCR Grant Funding up to 43 Micro-, Small-, and Medium-enterprises can be supported across the project priority sites, which are expected to generate revenue up to USD 4.6 million across the programme lifetime. Besides, co-financing is expected to be directed through the CRFF.

To support pipeline building, TNC YKAN will directly support aquaculture farmers, micro-business groups, and fisheries (**finance solution 2).** Restorative aquaculture will be a major focus (Output 2.2.), as it can be expanded following environment-friendly practices and it can promote women's economic empowerment. Women and other groups leading micro businesses in different sectors (such as ecotourism and waste management) will also receive economic incentives and TA to set up reef-positive projects and businesses and improve their access to financial markets (Output 2.3). Finally, sustainable coral reef fisheries (Output 2.4) will be researched and set up and will receive support to participate in ecolabel-certified supply lines, in a way they can become an investment opportunity.

Outcome 3 is important to ensure that the finance leveraged and projects and businesses supported under Outcome 1 and 2 lead to improved coral reef protection. Output 3.1 and 3.2. focus on identifying resilient coral reefs and supporting MPAs with developing and implementing effective MPA management plans. Further, once the necessary regulations are in place, a reef insurance finance product (**finance solution 5)** will be developed (output 3.3.). TNC YKAN assumes that this FM can support reef restoration and recovery if priority sites are identified (output 3.1.) and local communities have the capacity to provide timely and responsive coral reef restoration services to support rapid recovery through the establishment of Reef Brigades (output 3.4.). These efforts are possible when agreed upon with communities through the development of climate adaptation and disaster risk reduction plans (output 3.5.). The insurance mechanism includes a pillar which has a dedicated budget (grants) for the maintenance and continuous improvement of reefs (including the set-up and maintenance of nurseries managed by the Reef Brigades).

The programme has **three implementation phases**. The inception phase (July 2023 – December 2024, 18 months) has as a key aim to conduct policy, research, and preparation work to start implementing the financial mechanisms and technical assistance activities by the end of the inception phase. KORALESTARI will also further consolidate co-financing commitments and formalise partnerships for the programme implementation. The Growth Phase (January 2025 – June 2029, 36 months) aims to implement the FMs and deliver technical assistance activities, including having a fully operational CRFF that funds businesses and sources investment capital to scale and replicate them. Communication and engagement activities will be included to promote the scaling and replicating of successful reef-positive businesses and FMs. The Consolidation and Sustainable Exit Phase (July 2029 – December 2030, 18 months) will focus on consolidating the FMs; conducting communication activities to incentivise their replication and scaling; matching the support provided to businesses with (private) financing (e.g. from other funds, companies, integrating into sustainable supply lines); and assessing KORALESTARI's impact.

By setting up the sustainable finance solutions as mentioned above, the KORALESTARI programme will contribute to unlocking additional financing and catalysing sustainable revenue streams. The overall expected GFCR grants to investment capital is 1:1.81.

TNC YKAN will be the **convening agent** for the GFCR grant window resources. In implementing this programme, TNC YKAN will ensure efficient delivery by building on their existing work, government relations and existing MoUs, and community and partner network in the priority areas. TNC YKAN will be supported by four TNC global teams - Global Reefs, Global Wetlands, Aquaculture, and Coastal Risk and Resilience, as well as NatureVest, TNC's impact investment arm. Through setting up financial mechanisms and collaborating with **locally established partners** for their implementation (including a Coral Reef Fund Manager, Accelerators, local universities across the priority locations, and technical experts such as IRGSC, Yayasan Hutan Biru (Blue Forests), and Women's Association ASPPUK), the work of the programme can be continued beyond the programme's lifetime. During the inception phase baseline data on total hectares of coral reefs and number of beneficiaries will be further defined by collaborating with local universities to collect baseline data.

Engagement with communities and providing gender benefits is a crucial aspect of the KORALESTARI project. The projects will consult, engage, and promote benefits for Indigenous Peoples and Local Communities (IPLCs), including women, who live near the coral reefs, by involving them in decision-making processes on any programme activities that affect their communities. Women-owned businesses will be prioritised in TA provision and Call for Proposals run under the CRFF.

V. Full Programme Narrative

Contents

1 Coral Reef Situation Analysis

To provide context to the reader, Figure 1 and Table 1 summarise KORALESTARI's priority implementation areas and specific sites within these areas. Figure 1 also provides an overview of the coral reef conditions across Indonesia and in these areas.

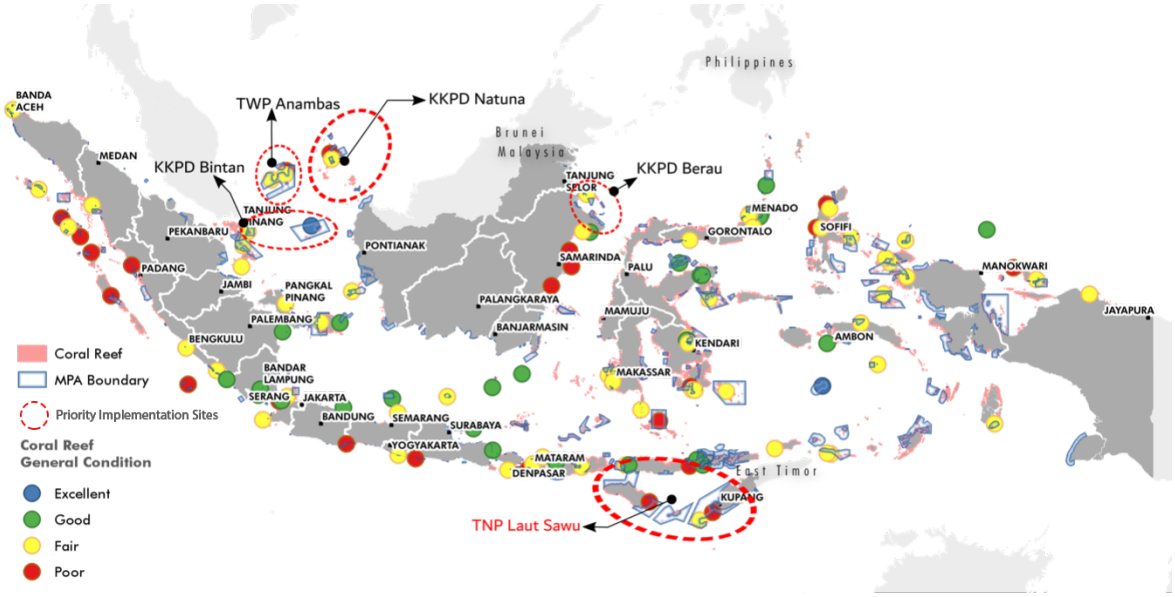

Figure 1 - National overview of coral reefs. Source: Tri Aryona Hadi et al. (2019).[4]

Table 1. Summary of KORALESTARI's priority implementation areas, and specific sites within these areas.

Priority Implementation Area	**Specific sites**
Natuna Sea	One site to be selected during the inception phase: KKPD Natuna TWP Anambas KKPD Bintan
Berau	KKP3K Derawan Archipelago and Berau Regency
Savu Sea	TNP Laut Sawu

[4] Tri Aryona Hadi et al. (2019). The Status of Indonesian Coral Reefs 2019.

1.1 National context and global significance

Overview of coral reefs and their ecological characteristics

Indonesia is the world's largest archipelago[5] with important marine and coastal ecosystems. It includes the largest area of coral reefs in South-East Asia, an estimated 39,500 km^2, and accounts for 16% of the world's coral habitat. Indonesia is located in the heart of the Coral Triangle (CT) region and holds the world's highest marine biodiversity. About 569 species and 83 genera of stony corals are recorded, representing approximately 69% and 76% of stony coral species and genera respectively globally.[6] There are four endemic species recorded, namely *Acropora suharsonoi* (Lombok), *Euphyllia baliensis* (Bali), *Indophyllia macassarensis* (Makassar), and *Isopora togianensis* (Togean).[7] At the southern end of the Coral Triangle, the Lesser Sundas stretches from Bali to Timor Leste, and includes the Savu Sea. It is located at the exit of the Indonesian Throughflow and has around 60 genera, or more than 60% of all known corals. The Savu Sea MPA covers only two per cent of the world's oceans but has about 76% of the world's coral reef species and 37% of the world's coral fish species. It also has 532 species of coral reefs (out of 569 in Indonesia) and 11 endemic and sub-endemic species.[8] Finally, the country is also home to 3.4 million hectares of mangrove—or about 23% of the world's cover with 92 species.[9] Seagrasses are also an important ecosystem covering an estimated 1.8 million hectares.[10] Annex 1.1.1. provides more information on the state of mangrove and seagrass areas in the priority areas.

Overall, based on data from Hadi et al. (2019),[11] only 6.4% of coral reefs in Indonesia (from a total of 1,153 surveyed sites) are in an excellent state (>75% healthy hard coral), and the majority (71.2%) in poor to fair conditions (<50%). The conditions of some reefs in Indonesia have been declining, especially since the 2000s, likely due to major exploitations in the area (see more information under local threats below). Overfishing and destructive fishing are the greatest threats to Indonesian coral reefs, which affect more than 90% of the reefs.[12]

In general, data is lacking on the impacts of climate change (through increased seawater temperature and coral bleaching) in Indonesia, especially coral bleaching is under-reported. The most comprehensive report assessing the impacts of coral bleaching[13] showed that bleaching does not affect all of Indonesia's coral reefs, as hydrodynamic regimes and bleaching susceptibility differ across sites. Overall, however, data indicates that coral reefs in Indonesia tend to have relatively good chances of surviving climate change impacts.[14] Beyer et al. (2018) conducted a study to assess which coral reef locations globally have a higher chance of surviving the projected climate change impacts, constituting priority locations for

[5] ADB. (2014). State of the Coral Triangle: Indonesia.

[6] Tri Aryona Hadi et al. (2019). The Status of Indonesian Coral Reefs 2019.

[7] Burke & Selig. (2002). Reefs at Risk in Southeast Asia.

[8] Tri Aryona Hadi et al. (2019). The Status of Indonesian Coral Reefs 2019.

[9] KKP. (n.a.). Kondisi Mangrove Di Indonesia.

[10] Indonesia.Go.Id. (2019). Berburu Kredit Ke Padang Lamun.

[11] Tri Aryona Hadi et al. (2019). The Status of Indonesian Coral Reefs 2019.

[12] Burke et al. (2012). Reefs at Risk Reviseted in the Coral Triangle.

[13] Maynard, J., Wilson, J., Campbell, S., Mangubhai, S., Setiasih, N., Sartin, J., ... & Goldberg, J. (2012). Assessing coral resilience and bleaching impacts in the Indonesian archipelago. Technical Report to The Nature Conservancy with contributions from Wildlife Conservation Society and Reef Check Foundation Indonesia.

[14] Beyer et al. (2018). Risk-sensitive planning for conserving coral reefs under rapid climate change.

protection and repopulation of degraded areas. Of the 50 identified reefs globally, 17 are located in Indonesia. This includes coral reefs in Natuna Sea and Savu Sea, which are among this programme's priority sites.

The condition of MPAs in the focus areas

Indonesia has made considerable progress in creating a network of MPAs, yet challenges remain for MPAs to be managed effectively. The most optimistic studies[15] estimate that 15% of the MPAs are effectively managed, while more conservative studies[16] estimate only 0.08% of the MPAs have effective management. In 2020, the Ministry of Maritime Affairs and Fisheries (MMAF) launched a revised scorecard known as EVIKA, which is a locally adapted metric for evaluating MPA management effectiveness. EVIKA scorecard assessments (see Annex 1.1.1) are expected to be undertaken annually and give the status of bronze, silver, and gold for minimum, optimum, and sustainable management respectively. There is only one MPA with gold standard, the Raja Ampat Marine Protected Area in West Papua. There are 41 MPAs with bronze status and 20 MPAs with silver status. The focus areas Anambas (within Natuna Sea), Savu Sea, and Berau hold silver status. Bintan and Natuna - within the Riau Islands in Natuna Sea, do not have a known status.[17]

The main MPA management challenges include the lack of effective policies and regulations, management objectives, human capacity, and funding. The lack of funding, particularly, has made MPA management challenging. Partnerships with other stakeholders, especially the private sector, that support co-management can help to generate more financing. Most MPAs in Indonesia are financed by the state budget or provincial government budget. Raja Ampat MPA has implemented a new MPA financing model, by setting up an MPA Management Unit that is a quasi-business entity (also known as the UPTD-BLUD model[18]) that can leverage and generate more public funding and private financing for MPA management.[19]

Socio-economic contribution of coral reefs

Indonesia is the world's second-largest fishing nation. Marine resources contribute to over USD 280 billion in economic activities, more than a quarter of Indonesia's GDP, with fisheries and aquaculture accounting for around 3% of GDP.[20] The total value of export from fisheries is around USD 4 billion annually. Indonesia's biodiverse coastal ecosystems like mangroves, coral reefs, and seagrass beds are critical in supporting fish habitats to support the economy. Furthermore, Indonesia has 40% of all reef fish species

[15] MMAF. (2018). Our MPAs: Sharing Plans, Investments, And Responsibilities.

[16] UNEP-WCMC and IUCN. (2021). Protected Planet: The World Database on Protected Areas (WDPA).

[17] Sidako. (n.a.). Summary EVIKA.

[18] The UPTD-BLUD model consists of the UPTD, which is a Regional Technical Implementation Unit under the Provincial Marine and Fisheries Agency. This UPTD needs to be formed first through a Governor Decree. After this, the UPTD-BLUD MPA management unit can be established. The BLUD is also known as the Provincial Agency for General Service, which is a semi-public business unit.

[19] Through the UPTD-BLUD model, the MPA is able to use tourism fees directly for MPA management, rather than the fees being transferred into a government account which is how MPAs are normally managed. This model can be complex to set up due to regulatory challenges (explained in Section 2), yet has the potential to be replicated to address the barrier of a lack of financing for effective MPA Management.

[20] Fishery and Aquaculture Country Profiles: The Republic of Indonesia (FAO, 2014). Available online: https://www.fao.org/fishery/facp/idn/en#CountrySector-Overview

in the world[21] and tourism activities around reef areas contribute to an estimated USD 3 billion annually.[22] Indonesia's aquaculture sector was valued at USD 4.3 b illion in 2009 and the industry grew by more than 20% annually between 2009 and 2014. Marine aquaculture accounts for around 60% of total production and seaweed (2.96m tons), shrimp (0.34m tons), and milk fish (0.33m tons) were the top three species groups in 2009.[23] Seaweed aquaculture can lead to coral reef degradation through the overuse of resources, shading of sunlight needed by corals for photosynthesis, the introduction of non-native species, and pollution. Investment in innovation and new farming models can reduce impacts to the reefs and increase farming productivity. Although there are no specific ecosystem services evaluation studies for the three priority areas available, valuation in West Buleleng Conservation Zone in Bali estimated the valuation to be around US$ 12,114,408/year for the total reef area, which is the equivalent of US$ 18,602/ha/year[24].

Indonesia has a population of over 270 million people with an estimated 50% (130 million) of people living in the coastal areas and reliant on marine and coastal resources. Coastal villages in Indonesia are among the poorest and most vulnerable, with a poverty rate of 1.27% higher than non-coastal villages.[25] Healthy coral reefs, mangroves, and seagrass provide resources that help to alleviate poverty. Besides fisheries, aquaculture, and tourism that provide jobs and income, well-managed ecosystems can be a source of supply of various products including drugs, biochemical products[26], and other industrial products that can contribute to the income of the community.[27] Hundreds of millions of people in the country also rely on fish and seafood as important sources of protein. In addition, reefs and the associated ecosystems help cushion the constant threats from natural hazards and climate change to vulnerable coastal communities. Coastal communities are heavily reliant on coastal resources and thus at risk from the degradation of these resources. However, they face significant barriers to benefitting further from coastal and marine resources due to their lack of skills and capacity, financing, market access, lack of awareness of sustainability, and limited basic infrastructure and facilities to support their livelihoods.

Local threats, root causes, and impacts

Drivers of coral reef degradation include (see Annex 1.1.1. for threats in each priority area):

- Unsustainable fishing: over-exploitation by commercial fisheries – both legal and illegal, including destructive fishing methods such as bomb fishing, cyanide, and compressor fishing. Illegal small-scale fishing practices such as blast fishing, beach seine netting, and poison fishing are also present in all priority areas. The over-exploited western part of Indonesia has encouraged fishers to fish in eastern Indonesia, where the Coral Triangle area is located.

[21] Spalding, M., Ravilious, C., and Green, E.P. (2001). World Atlas of Coral Reefs.

[22] Spalding, M., Burke, L., Wood, S. A., Ashpole, J., Hutchison, J., & Zu Ermgassen, P. (2017). Mapping the global value and distribution of coral reef tourism.

[23] ADB. (2014). State of the Coral Triangle: Indonesia.

[24] Windayati, R., Mutaqin, B. W., Marfai, M. A., Pangaribowo, E. H., Helmi, M., & Rindarjono, M. G. (2022). Assessment of coral-reef ecosystem services in West Buleleng Conservation Zone, Bali, Indonesia. Journal of Coastal Conservation, 26(5), 43.

[25] Cahagi, D and Gurning, R. (2018). A review on Indonesian fishermen prosperity in coastal areas.

[26] Dev Karan, Seema Dubey, Lucia Pirisi, Alexis Nagel, Ivett Pina, Yeun-Mun Choo, and Mark T Hamann Journal of Natural Products 2020 83 (2), 286-295. DOI: 10.1021/acs.jnatprod.9b00577

[27] Valuation studies of coral/coastal ecosystems services in Indonesia include this study for Savu Sea, and this study for Natuna Sea. In Berau, WWF has an unpublished study that the proposal team had access to.

- Poorly planned coastal development: impacts on coral reefs by run-off of sediment due to poor land-use practices, loss of mangroves due to conversion to shrimp ponds, road construction, and logging, beach modification and coastal vegetation removal, direct loss of coral reefs through reclamation, unsustainable aquaculture, and unsustainable tourism.
- Land-based and marine pollution: another negative impact of development is waste, including untreated domestic sewage discharged into the ocean, leading to excessive phytoplankton growth in the water and coral disease and mortality, and plastic pollution. Unsustainable aquaculture and tourism are sectors that contribute to both land-based and marine pollution.
- Invasive species, especially the Crown-of-Thorns Starfish (COTS); outbreaks of COTS and their effects on Indonesia's reefs have been largely overlooked.[28] Despite limited data, research suggests that COTS activity in Indonesia's reefs has been present in almost every province since the 1980s and has rapidly increased since 2000.[29]

In addition, increasing climate change effects are observed. While warmer temperatures have triggered coral bleaching events in Indonesia's seas (and globally), reefs in Indonesia have shown the capacity to recover.[30] Warming of Indonesia's seas will also affect the biological productivity of fish stocks, and will result in shifts in geographical distribution and unpredictable effects on Indonesia's capture fisheries. In addition, sea level rise will increase the erosion and inundation of low-lying lands and islands, which will increase sedimentation that can smother reefs.

Finally, COVID-19 has intensified threats to coral reef ecosystems. Many coastal communities face large economic threats, leading to enhanced fishing and aquaculture activities which put greater pressure on the reefs. Further, the lack of monitoring during the pandemic provided more opportunities for poaching and other harmful activities. The rates of degradation of coral reefs have increased rapidly since the pandemic. For example, Berau and Derawan's management status changed from "excellent" to "poor" and "fair" respectively.

1.2 Policy and Legislative Context

Relevant policy measures and initiatives: The most relevant policy measures are the ones established by the Ministry of Marine Affairs and Fisheries (MMAF) (see Table 3 in Annex 1.1.1. for the full list). There are at least 22 MMAF regulations and ministerial decrees relevant to fisheries and marine conservation. There are also at least two Laws that mandate MMAF to be the lead implementer; Law No. 31/2004 on Fisheries and Law No. 27/2007 on Coastal Zones and Small Islands Management. Yet, to implement MMAF's regulations, there are regulations on business development, investment, and coastal development that fall within the mandates of other ministries that also need to be adhered to. This complex regulatory environment may hinder the achievement of marine conservation and protected areas goals, as cross-sectoral coordination can be difficult.[31]

[28] Baird, A. H., Pratchett, M. S., Hoey, A. S., Herdiana, Y., & Campbell, S. J. (2013). Acanthaster planci is a major cause of coral mortality in Indonesia. *Coral reefs*, *32*(3), 803-812.

[29] While scientists do not know exactly what triggers COTS outbreaks, research indicates they are linked to increased nutrient concentrations and overfishing of predatory fishes.

[30] Tri Aryona Hadi et al. (2019). The Status of Indonesian Coral Reefs 2019.

[31] For example, although MMAF has the authority of coastal and marine protected areas, the provincial governance falls under the Ministry of Home Affairs, while infrastructure falls under the Ministry of Public Works

Policy gaps, barriers, and uncertainties: The complex regulatory and institutional arrangement complexities create barriers for coral reef conservation initiatives. NGOs typically implement projects focused on fisheries, coral reef protection, and local alternative livelihoods. While this simplifies coordination as the work is primarily with MMAF and provincial or regency government agencies, it limits larger opportunities such as carbon projects or business investments. In addition, many policy and regulatory frameworks do not fully accommodate the characteristics of marine-based Micro- Small- and Medium-Enterprises (MSMEs). For example, Indonesia's Green Taxonomy, published by the Financial Services Authority (OJK), contains limited information on how MPAs are considered as natural assets. As an example of work that this programme will undertake to facilitate the enabling environment, this programme will work to help define 'blue carbon' projects that can generate funding for MPAs. This will include providing information and lessons learned from a blue caron pilot project to support the formulation of regulations for a blue carbon market, and national and provincial action plans for blue carbon.

There are also several bills and draft regulations that are being discussed on sustainable financing and the establishment of tourism authoritative bodies that may impact MPA and coral reef management effectiveness. The new Omnibus Law creates uncertainty for MPA management, as the areas surrounding an MPA can be reassigned and used for other purposes (most likely business or industry). This can cause uncertainty for conservation and reef-positive businesses in areas that also have the potential for other economic activities such as large fleet fishing, mining, infrastructure, or industry.

Policies & regulations that support investment in reef-positive businesses:

- Indonesia's Development Planning Agency (Bappenas) is developing a blue economy roadmap and blue finance guidelines.
- The Coordinating Ministry of Maritime and Investments is working on policy documents on blue finance accelerators.
- The Ministry of Finance (MOF) has created a blue finance working group which KORALESTARI will engage under the policy activities..
- The Indonesia Financial Services Authority (OJK) published the green taxonomy that includes investment and business guidance for blue sector activities.
- The Ministry of Environment and Forestry has just published Ministerial Regulation No. 21/2022 on Carbon Pricing, which opens up the possibility of gaining economic value from coastal resources through blue carbon projects. However, a more complete set of supporting regulations from other ministries, such as MOF, is required before actual monetary value can be gained.

and Housing. Investment and trade regulations that concern marine-based business and commodities are subject to the authorities of the Ministry of Trade (MOT) and Ministry of Industry (MOI).
Some notable regulations outside of MMAF's mandate that influence the effectiveness of MPA management are Law No. 23/2014 on Regional Government (or decentralization), Law No. 11/2020 on Job Creation (Cipta Kerja omnibus law), Law No. 10/2009 on Tourism, Law No. 20/2008 on Micro, Small and Medium Enterprise, Law No. 6/2014 on Village Governance, and Ministry of Finance decrees (more than one) that regulate BLU# and BLUD#, non-tax state revenue, and financial arrangements between central and regional governments.

1.3 Institutional Context

Table 2 presents an overview of all organisations responsible for and engaging on the different topics KORALESTARI will work on, highlighting the complexity of the institutional context, both across ministries and between jurisdictional levels. The table also shows the key gaps and barriers for these institutions.

Table 2. Mandates and jurisdictions of ministry or agency, as well as CSOs.

National level institutions	Sub-national level institutions	Key gaps/barrier in finance and capacity of institutions
Topic: Coral reefs; MPA management; Conservation.		For government institutions and agencies, the main gaps or barriers are: 1. Overlapping mandates and jurisdictions of national and sub-national agencies, which increases the complexities of MPA management. 2. Unaligned development planning between national agencies, and between national and sub-national agencies. 3. Lack of capacity and resources for local organisations. Many local civil society organisations (CSOs) have limited funding, staff, or capacity and knowledge, which hinders their effectiveness.
Ministry of Marine Affairs and Fisheries (MMAF) Indonesia's Research and Innovation Agency (BRIN) Indonesia's Development Planning Agency (Bappenas) Development partners (ADB, WB, NGOs) Ministry of Villages, Development of Disadvantages Regions, and Transmigration (Kemendes) Geospatial Information Agency (BIG)	BPSPL: MMAF's technical unit at sub-national level for marine resource control BKKPN: MMAF's sub-national technical unit for national marine conservation areas management Provincial Fisheries Agency NGOs Formal community-based institutions (village government, cooperatives, customary boards)	
Topic: Sustainable finance		
Ministry of Finance (MoF) Financial Services Authority (OJK) Coordinating Ministry of Maritime and Investment (Kemenkomarves) Ministry of Investment (BKPM) Development partners (ADB, WB, NGOs)	Provincial Development Planning Agency (Bappeda) Provincial Investment Agency (Dinas Penanaman Modal). Provincial Investment Boards	
Topic: Support to MSMEs		
Ministry of Trade (MOT) Ministry of Industry (MOI) Ministry of Tourism and Creative Economy Ministry of Cooperatives and SMEs National Chamber of Commerce (KADIN)	Provincial Development Planning Agency (Bappeda) Provincial Investment Agency (Dinas Penanaman Modal). Provincial Chamber of Commerce (CoC) Provincial Investment Boards	
Topic: Blue economy		
Ministry of Marine Affairs and Fisheries (MMAF) Indonesia's Research and Innovation Agency (BRIN) Indonesia's Development Planning Agency (Bappenas) Ministry of Home Affairs Development partners (ADB, WB, NGOs)	• Provincial Development Planning Agency (Bappeda) • Provincial Fishery Agency • Provincial Forestry Agency • Provincial Agriculture Agency	

Table 4 in Annex 1.1.1 expands on the gaps and barriers related to investment and business development of the blue economy and reef-positive MSMEs. These include: 1) Inadequate frameworks and taxonomies to guide investment in the blue economy; 2) Gaps and mismatches in information, awareness, capacity and scale of reef-positive SMEs and financing requirements; 3) Weak investment pipeline of reef-positive businesses/MSMEs; 4) Perceived high-risk investment environment with a limited enabling regulatory environment; and 5) Gender-based restrictions to access the blue economy, such as limited access to capital, education, and training opportunities for female entrepreneurs in the sector.

1.4 Ongoing / proposed projects and initiatives

The Government of Indonesia (GOI) has committed to ambitious marine conservation targets, implicitly and explicitly, through the implementation of various policy imperatives. In 2018, the MMAFs set a target to ensure 20 million hectares are effectively and equitably managed and to expand the area coverage to 32.5 million hectares by 2030, representing approximately 5.27% of its total marine territory.

TNC YKAN has been implementing various initiatives in the last 5 years upon which this programme will build. With regards to sustainable fisheries, YKAN has been working with seven fishing companies as the lead of an A-rated Fisheries Improvement Project (FIP) for deepwater demersal fisheries ("groundfish) since 2014. The work included support for nation-wide stock assessments and support to government for the development of management plans. Furthermore, YKAN has been an implementing partner in the Walton-funded tuna consortium, which focuses on three of Indonesia's eleven fishery management areas (WPPs). Recently, TNC YKAN started trialling a management concept for nearshore coastal fisheries in Raja Ampat, West Papua.[32] TNC YKAN will build on this work in supporting sustainable fisheries to gain ecolabel certification and connecting fisheries to sustainable supply chains.

In sustainable aquaculture, TNC YKAN has developed, tested, and refined Best Management Practices (BMP) for sustainable seaweed aquaculture in Savu Sea, working with seaweed farmer groups across six villages to set up a seeds demo plot and improve sustainable practices, aquaculture techniques, and post-harvest handling, which improved seaweed quality as confirmed by buyers from a seaweed plant. Currently, TNC YKAN is working to strengthen the organisational capacity of farmer groups, develop plans to link them to new off-takers and actors along the supply chain, and is exploring opportunities to develop seaweed value-added products (intermediary products). TNC YKAN will build on this work in support aquaculture farmers to improve the sustainability of their practices and in setting up micro-business groups to develop seaweed value-added products.

In addition, TNC YKAN has initiated the Shrimp-Carbon Aquaculture (SECURE) in Berau. The project works with shrimp farmers to improve sustainable aquaculture practices. The method for this shrimp-carbon aquaculture is to reduce the size of active shrimp ponds to 20% while sustaining similar shrimp productivity levels. This will allow for mangrove restoration on the remaining 80% of the ponds. This method is expected to prevent loss of mangrove, hydrology system driven and pond embankment and watergate improvement. TNC YKAN will build on this work when developing a blue carbon project, where sustainable aquaculture can be integrated in mangrove conservation for the blue carbon project.

In terms of effective MPA Management, TNC YKAN and Conservation International (CI) co-facilitated the establishment of UPTD-BLUD Kawasan Konservasi Perairan Daerah (KKPD) in Raja Ampat. The process

[32] This is a TURF reserve, a combination of protected areas with areas where local fishers have exclusive fishing rights.

took around two years, and in 2015 this UPTD-BLUD KKPD Raja Ampat (MPA Management Unit) was formally established by the government. TNC YKAN, CI, and Starling Resources (SR) continue to facilitate organisational and business capacity strengthening of the UPTD-BLUD KKPD Raja Ampat. Additionally, TNC YKAN is part of the evaluation team of the EVIKA scores. They have facilitated the assessment of EVIKA scores for various MPAs, including in Savu Sea. TNC YKAN will build on this work when supporting the MPA in Berau with creating the UPTD-BLUD MPA Management Model and strenghten their capacity in effectively managing the MPA.

Finally, experts from TNC, Woods Hole Oceanographic Institution (WHOI) and Stanford University are leading a collaborative effort to discover the secrets of these aptly named "super reefs" and help coral reefs persist in a warming world. Current areas of interest for super reefs work include Indonesia. . TNC YKAN's role in Super Reefs in Raja Ampat is collecting scientific data related to coral reef health (i.e. percentage of live coral cover) and conducting regular monitoring since 2010. . TNC YKAN will build on their work when identifying priority reefs and locations for the KORALESTARI programme, conducting baseline and monitoring studies, and selecting reef-positive businesses to support.

Table 5 in Annex 1.1.1. presents an overview of all relevant external ongoing and proposed projects aiming to restore coral reef conservation and promote the blue economy at the national and local levels. Some of these are working in similar priority locations as this proposed programme or are aiming for similar goals (e.g., improving MPA management, improving livelihoods, and creating business opportunities). During the proposal development the team has consulted with 28 stakeholders.

Table 3 below summarises the most relevant projects for KORALESTARI and identified areas for collaboration, to avoid overlap and create synergies. Importantly, the programme will closely collaborate with Conservation International (CI) as co-convening agent for the GFCR in Indonesia. CI and TNC YKAN will build on existing collaboration (for example in Bird's Head Seascape) and during the proposal development initial coordination meetings have been held. For this programme, TNC YKAN and CI have geographic overlap in the Savu Sea and have planned joint engagement with the National MPA Body in Kupang and the NTT Provincial Conservation Board. There has also been a discussion of joint work in Sumba, building on CI's aquaculture roadmap and work, and ensuring coordination in UPTD-BLUD replication. Finally, the Coral Reef Funding Facility (CRFF) Financial Solution of KORALESTARI will closely coordinate with CI and CI Ventures, drawing on their expertise and work on seaweed investment and impact assessment frameworks and tools, and ensuring supported reef-positive businesses will be able to enter the CI Ventures pipeline after CRFF graduation. In addition, TNC YKAN has been engaged for the design and launch of the Blue Halo programme, and collaboration and coordination will be sought going forward. Overall, CI and TNC YKAN will closely collaborate in engaging with the GOI and the GFCR, which will include quarterly coordination meetings.

Another important programme is the World Bank's USD 400m Ocean for Prosperity programme (Lautra), which focuses on coral reef and MPA conservation and includes the Savu Sea as primary site. During proposal development initial coordination calls have been held with the Lautra team where it has been identified that the LAUTRA programme can support MPA management work of KORALESTARI and potentially provide grant funding to support female-led businesses and/or invest in social infrastructure in the communities KORALESTARI will work.

Table 3. Current and proposed marine projects relevant to KORALESTARI

No.	Relevant key/major projects	Status	Overview and collaboration potential
1	Conservation International GFCR Programme	Ongoing	• Collaboration on seaweed assessments and investment roadmaps in NTT, and CRFF to align with Conservation International Ventures fund including pipeline discussions. • Cross-cutting collaboration across GFCR programmes, including on policy work (e.g. BLUD replication).
2	Conservation International Blue Halo	In preparation (projected to start in 2024)	• Blue Halo S is CI's national initiative for ocean and fisheries activities, will be initially implemented in Fisheries Management Area (FMA) 572 in West Coast of Sumatra. • Blue Halo S focuses on the dual objectives of oceans conservation and sustainable development where the science, policy and financing support needed to achieve these objectives. • TNC YKAN is planning to replicate its existing cross-cutting collaboration for conservation which supported by science, financing, and policy works (e.g. BLUD replication) • Ongoing conversations between CI Blue Halo S and TNC YKAN team to collaborate on science (ecosystem baseline studies, fish stock status, coral refugia), financing (co-financing, grant and technical assistance for reef positive business) for oceans conservation; and specific cooperation in FMA 572 for sustainable fisheries management model which can be replicate in TNC YKAN project sites.
	World Bank Oceans for Prosperity Program (LAUTRA) (World Bank loan implemented by MMAF)	Proposed (for 2023)	• LAUTRA works with MMAF to improve effective MPA Management. • YKAN can be implementing partner if LAUTRA selects MPAs YKAN works with. • LAUTRA also supports village-level organisations including BUMDes by investing in social infrastructure. This investment can be aligned with CRFF investment and BUMDes support of KORALESTARI to be complementary. • LAUTRA has some grant funding to support female-led businesses (USD 1-2 million), which could potentially be disbursed through the CRFF of KORALESTARI.
4	USAID - Ber-IKAN	Ongoing (since 2022)	• Location overlaps in WPP 711 (Anambas, Natuna, Bintan) and overlapping activities include promotion of sustainable fisheries (snapper; grouper) • They are looking to support supply chain companies investing in sustainable snapper and grouper. KORALESTARI could support fishers with getting eco-label certification and linking them to the buyers Ber-IKAN supports.
5	ADB - Partnership for Coral Reef Finance and Insurance in Asia and the Pacific	Ongoing (2020 – 2024)	• Similar topic of coral reef financing, opportunities for co-strengthening national blue finance policy, and developing insurance mechanisms. • Potential overlap of pilot locations.
6	USAID-SEGAR	Ongoing (2020 – 2025)	• Learning of mangrove and delta ecosystem conservation, both technical and for policies • Overlapping location in East and North Kalimantan • Potential to collaborate for blue carbon projects
7	WB – Indonesia Sustainable Landscape Management Program (SLMP)	Ongoing (2016 – 2025)	• Learning of mangrove and delta ecosystem conservation, both technical and for policy and regulations • Overlapping location in East and North Kalimantan • Potential to collaborate for blue carbon projects
8	MMAF's technical unit (BPSPL and BKKPN) work programs	Ongoing	• These agencies can be close partners as they oversee the MPA management in the three priority locations.
9	BRIN[33] and UMRAH[34]	Ongoing	• BRIN and LIPI's work including policy recommendations for improving fisheries and MPA management.
10	WWF Indonesia's Ocean Governance Project	Ongoing (until 2023)	• Overlapping location in Derawan, with a similar approach to our project. • Sharing best practices and lessons learned in community engagement approaches in Derawan.
11	ICCTF's Blue Carbon project	Ongoing (since 2022)	• ICCTF focus on blue carbon in mangrove, seagrass, and coral reef management and conservation, which are similar to KORALESTARI's approach.

[33] The National Research And Innovation Agency (BRIN) This institution was established by President Joko Widodo by virtue of Presidential Regulation Number 74 of 2019 concerning the National Research and Innovation Agency. Under this Presidential Regulation, BRIN has the tasks to conduct integrated research, development, studies, application, as well as invention and innovation.

[34] Raja Ali Haji Maritime University, The First Maritime University in Indonesia, the nation flag carrier in the entrance of Mellaca Strait.

			• Possible overlapping locations • Potential to collaborate for blue carbon projects
12	YKAN's projects	Ongoing	• YKAN has marine conservation and livelihood projects in Derawan, Berau, and Savu. These can provide internal cross-site learning to benefit the GFCR program.
13	BlueYou	Ongoing	• Location overlaps with our program (in Kalimantan). • Learning and further scaling their sustainable shrimp and mangrove pilot in Kalimantan.

Value add of the KORALESTARI programme

There are few existing programmes in Indonesia that support reef-positive businesses, connecting them to sustainable supply chains, and provide early-stage (returnable) grant funding. This is a key gap the GFCR programme can address, and can complement Conservation International's GFCR grant programme by providing earlier-stage funding that complements CI Ventures focus on more established businesses. Based on TNC's experience in the region, there is a need to help shape policy and design a more optimal BLUD MPA self-financing model to enhance funding for MPAs.[35] In addition, more policy work is needed to formulate regulations for carbon credits resulting from reef-positive projects.[36] Finally, reef insurance programmes have not yet been developed in Indonesia. Doing so will require enhanced resources and collaboration with other planned programmes such as a planned ADB GEF-funded programme that will focus on insurance mechanisms.

2 Programme Strategy

2.1 Problem Statement

KORALESTARI aims to address the decline of coral reef health in Indonesia, due to unsustainable fishing and aquaculture, uncontrolled coastal development, land and marine pollution, and invasive species. Current initiatives s in the three priority sites are not effectively addressing these local drivers of reef degradation. MPAs do not have sufficient resources to fund their restoration and protection activities. Commercial entities are not sufficiently incentivised to protect and restore coral reefs. . Coastal communities do not have the sufficient financial and technical capacity to adopt reef-positive, resilient livelihoods that generate sustainable revenue streams.

[35] TNC YKAN has engaged with the Indonesian government on the revision of the legal framework to ensure that public revenue generated from MPAs is reinvested in these areas. One of the outputs from this effort was the establishment of the MPA Management Unit (also known as the Provincial Agency for General Service, or BLUD - Badan Layanan Umum Daerah), a quasi-business entity, to manage the MPAs. This model was possible because Indonesia went through a decentralization process in 2004, enacting regional autonomy. A new political reform from November 2020, known as the Omnibus Law, is now reverting this process, limiting provincial governments decision powers. A key policy gap identified by TNC YKAN with this new legislation is to develop a regulatory framework with criteria through which the national government transfers resources and the mandate to provinces to establish and manage BLUDs. This will be an important contribution from this programme to maintain the successful experience in Raja Ampat and enable replication in other areas.

[36] Indonesia lacks the required regulations for a blue carbon market, but TNC YKAN has been working in collaboration with the Indonesian Government to establish the legal framework over the next two years. In 2021, the Government launched Presidential Regulation Number 98 of 2021 on Implementation of Carbon Economic Values to Achieve Nationally Determined Contribution Target and Control of Greenhouse Gas Emission in National Development. The Regulation stipulates the implementation of carbon trading, levies on carbon emission, and performance-based payment for reducing carbon emission (https://setkab.go.id/en/carbon-tax-reflects-indonesias-commitment-to-tackling-climate-change-minister/). This regulation is an important step to further develop specific national regulations for a blue carbon policy.

2.2 Strategic vision and Theory of Change

Figure 2 depicts the Theory of Change (ToC) of the KORALESTARI Programme. The strategic vision (Desired Change) of the KORALESTARI programme is that it will enable a transformative change in the way coral reefs are protected and restored through establishing sustainable management systems of MPAs and stimulating a reef-positive blue economy that improves local livelihoods, is inclusive, and enhances coastal resilience to climate change impacts.

The programme aims to achieve this by expanding the availability of sustainable funding that supports actions to protect and restore coral reefs (Impact), through 1) implementing blended finance mechanisms, that; 2) catalyse sustainable revenue streams that are used to address the local drivers of degradation and improve the livelihoods of reef-dependent communities; and 3) build local capacity to restore and recover coral reefs after major shocks.

This impact is expected to be achieved through the following Outcomes and Intermediate States:

- **Outcome 1:** Innovative finance mechanisms (FM) - using blended finance approaches - are implemented and generate additional resources for coral reef restoration and conservation. This is expected to lead to the Intermediate State where the FMs generate additional and sustainable resources that support concrete coral reef conservation and restoration results.
- **Outcome 2:** Bankable reef-positive projects are implemented and support the livelihoods of reef-dependent communities. This is expected to lead to the Intermediate State where reef-positive projects receive additional private financing and lead to long-term improvements in the livelihoods of reef-dependent communities.
- **Outcome 3:** Local capacity to protect, restore, and recover coral reefs, including after major shocks, is improved. This is expected to lead to the Intermediate State where restoration and recovery of coral reefs are enhanced in the long term, improving climate resilience.

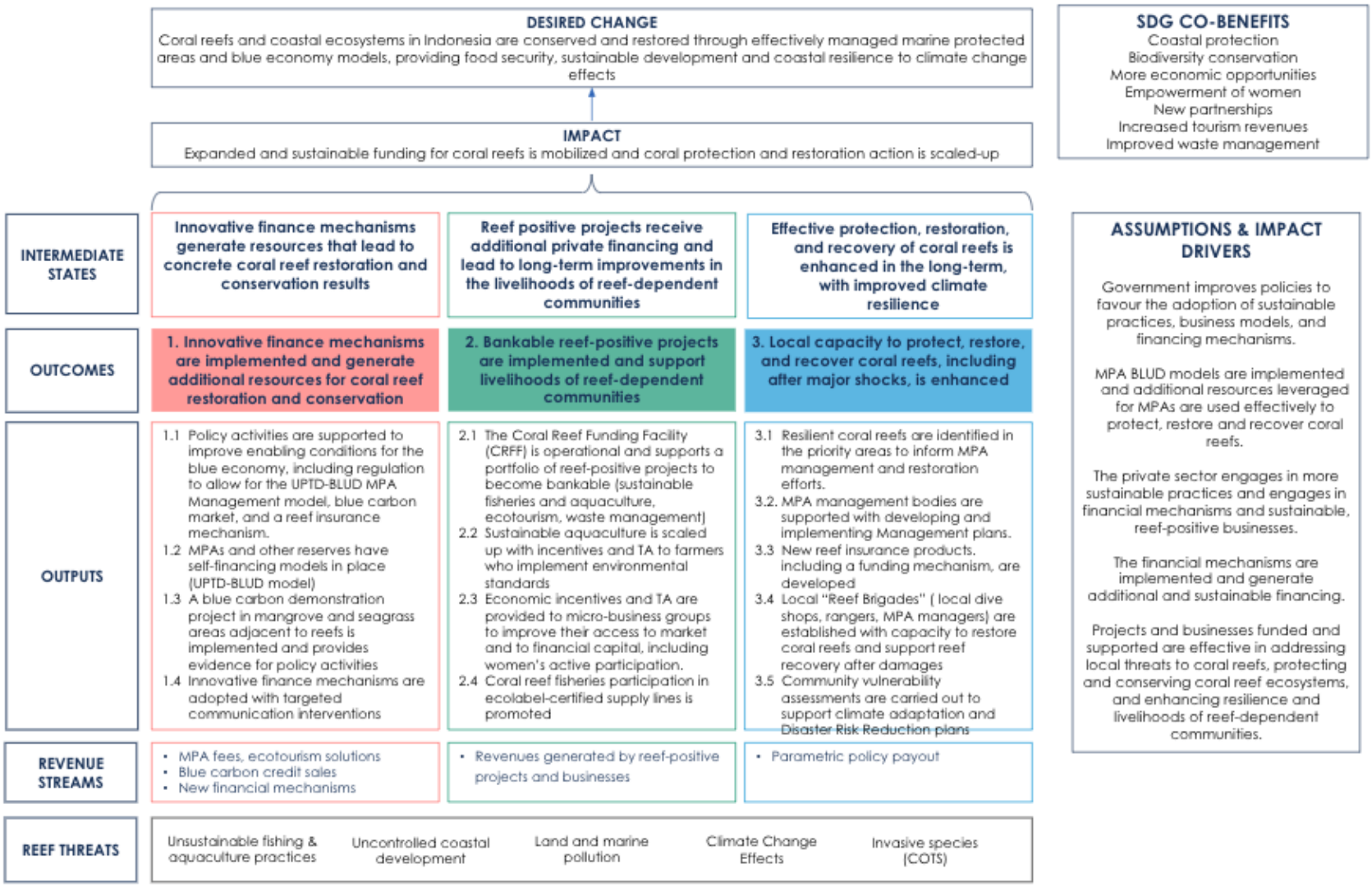

Figure 2. *Theory of Change*

Under **Outcome 1**, KORALESTARI will implement the following outputs:

- 1.1. Policy activities are supported to improve enabling conditions for the blue economy, including regulation to allow for the UPTD-BLUD MPA Management Model, the blue carbon market, and the set-up of a reef insurance product;
- 1.2. Marine protected areas and other reserves have self-financing models in place (UPTD-BLUD Management Model);
- 1.3. A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities; and
- 1.4. Learnings on innovative finance mechanisms are shared externally with targeted communication interventions.

Outcome 1 includes policy activities (output 1.1.) to support the development of an enabling environment for investment in the blue economy, and specifically improve the legal framework and regulations to allow for the blue carbon market, set-up of a reef insurance product, and the self-financing model for MPAs that TNC YKAN has established in Raja Ampat, namely UPTD-BLUD.[37] This policy work will be important to ensure that these financial mechanisms (FMs) can be implemented in the first place and sustained in the long term. Output 1.2, focuses on the set-up of this self-financing model for MPAs by replicating the UPTD-BLUD Raja Ampat model. To be successful, the creation of UPTD-BLUD requires the availability of a potential income stream like tourism in Raja Ampat. Therefore, the work will be prioritised in Berau where, similar with Raja Ampat, the MPA has growing tourism activities and potential blue carbon finance from the mangrove ecosystems inside the MPA. It is expected that if MPAs can be set up as UPTD-BLUD self-financing models, they can develop new revenue streams that strengthen their financial sustainability, which will help to reinforce their effective management. Output 1.3. will build on TNC YKAN's existing work to pilot a blue carbon project in Berau, by working with local communities within the Derawan Islands MPA to expand this project and serve as a demonstration project for policy activities. Once carbon regulation is in place, the project can register and sell carbon credits, which can create financing resources for the MPAs that are set up as UPTD-BLUD Management Units.[38] Output 1.4 will aim to promote the financing solutions across the KORALESTARI programme, to attract co-financing for the FMs (which includes the UPTD-BLUD Management Unit and blue carbon project, as well as the Coral Reef Funding Facility, support to fisheries, aquaculture, and micro-business project, and the reef insurance mechanism) and support scaling and replication. Overall, Outcome 1 is expected to primarily address the following drivers of degradation: unsustainable fishing and aquaculture, land and marine pollution, climate change effects, and invasive species through more effective MPA management (supported by Outcome 3) and blue carbon mangrove protection projects.[39]

[37] This approach has already shown some success in Raja Ampat, where the Management Unit collects fees from visitors and uses these funds to conduct patrols, campaigns, and support village infrastructure improvements. The visitor fees covered around 88% of the MPA budget in 2019, generating USD 1.5 million in that year. The success made Raja Ampat MPA as the only Indonesia MPA that was categorised as Gold MPA (the highest) in Indonesia's MPA management effectiveness category (EVIKA).

[38] It should be noted that the blue carbon pilot can only generate additional resources for coral reef protection if integrated in an MPA that has a UPTD-BLUD Management Unit in place, and therefore policy work and setting up the UPTD-BLUD Model are important first steps. Besides, The flood risk reduction service of mangrove and seagrass projects potentially allows the integration of resilience credits as an additional revenue stream in later stages of the programme, which TNC is currently developing a methodology for with Verra to be piloted in other areas.

[39] The blue carbon model will be one way to generate resources for MPAs, while stimulating sustainable aquaculture practices in mangrove ecosystems. It is expected that if priority sites for coral reef conservation - including climate refugia with a close connection to mangroves and seagrass areas - are identified, the conservation and restoration of these coastal ecosystems will directly benefit coral reefs by reducing run-off of topsoil, sediments, and pollutants to the sea, providing habitat to herbivorous fishes and contributing to water salinity balance.

Under **Outcome 2**, KORALESTARI will implement the following outputs:

- 2.1. The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, and bioprospecting);
- 2.2. Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards;
- 2.3. Economic incentives and technical assistance are provided to micro-business groups to improve their access to markets and to financial capital, including women's active participation; and
- 2.4. Coral reef fisheries participation in ecolabel-certified supply lines promoted.

Outcome 2 focuses on setting up the CRFF, a blended finance facility to provide recoverable grant funding and technical assistance (TA) to reef-positive projects in sectors that affect coral reefs (output 2.1). TNC YKAN assumes that with pipeline cultivation, TA, and aligned economic incentives, sustainable business models will be able to be incubated and upscaled, improving their access to sustainable markets and to financial capital (for example from Venture funds and the GFCR Investment Fund). Restorative aquaculture will be a major focus (Output 2.2.), as it can be expanded following environment-friendly practices and it can promote women's economic empowerment. Women and other groups leading micro businesses in different sectors (such as ecotourism and waste management) will also receive economic incentives and TA to set up reef-positive projects and businesses and improve their access to financial markets (Output 2.3). Finally, sustainable coral reef fisheries (Output 2.4) will be researched and set up and will receive support to participate in ecolabel-certified supply lines, in a way they can become an investment opportunity. Outcome 2 will address the following drivers of degradation: unsustainable fishing and aquaculture, uncontrolled coastal development (e.g. through promoting ecotourism), and land and marine pollution (e.g. through waste management). It is also expected to increase the resilience of local communities to climate change impacts, by improving their overall livelihoods through new opportunities and improved ecosystem services of coral reefs, including coastal protection and food security with increased fish stocks.

Under **Outcome 3**, KORALESTARI will implement the following outputs:

- 3.1. Resilient coral reefs are identified in the priority areas to inform MPA management and restoration efforts;
- 3.2. MPA management bodies are supported with developing and implementing management plans;
- 3.3. New reef insurance products, including a funding mechanism, are developed;
- 3.4. Local "Reef Brigades" (with local dive shops, rangers, and MPA managers) are established with the capacity to conduct monitoring, surveillance, and restore coral reefs and support reef recovery after damages; and
- 3.5. Community-based vulnerability assessments in the priority areas are carried out to support the development of climate adaptation and Disaster Risk Reduction plans

Outcome 3 is important to ensure that the finance leveraged and projects and businesses supported under Outcome 1 and 2 lead to improved coral reef protection. Output 3.1 and 3.2. focus on identifying resilient coral reefs and supporting MPAs with developing and implementing effective MPA management plans. Further, once the necessary regulations are in place, a reef insurance finance product will be developed (output 3.3.). TNC YKAN assumes that this FM can support reef restoration

and recovery if priority sites are identified (output 3.1.) and local communities have the capacity to provide timely and responsive coral reef restoration services to support rapid recovery (output 3.4.). These efforts are possible when agreed upon with communities through the development of climate adaptation and disaster risk reduction plans (output 3.5.). The insurance mechanism includes a pillar which has a dedicated budget (grants) for the maintenance and continuous improvement of reefs (including the set-up and maintenance of nurseries). This maintenance is pursued on a regular basis rather than only after a shock event and allows the reef brigades to have the required conditions to recover the reefs after a major event (recovery is funded through insurance pay-outs). In addition, the national and provincial level MPAs have dedicated rehabilitation zones for restoration, which already have some restoration initiatives that can benefit from the programme support. Through these activities, Outcome 3 will support primarily the invasive species drivers of degradation and climate change impacts on reefs and communities, although enhanced MPA management will also reduce unsustainable fishing threats by enforcing clear zoning regulations.

The ToC is based on various **key assumptions and impact drivers.** First, it is assumed that the national government has the capacity and is willing to improve policies to favour the adoption of sustainable practices, business models, and financing mechanisms. Second, it is assumed that MPA UPTD-BLUD models can be implemented and additional resources leveraged for MPAs are used effectively to protect, restore and recover coral reefs. Third, it is assumed that the private sector is sufficiently willing and able to engage in more sustainable practices, financial mechanisms and reef-positive businesses. Fourth, it is assumed that the financial mechanisms implemented by KORALESTARI are able to generate additional and sustainable financing. Finally, it is assumed that projects and businesses funded and supported are effective in addressing local threats to coral reefs, protecting and conserving coral reef ecosystems, and enhancing the resilience and livelihoods of reef-dependent communities.

The programme will be implemented according to three phases. The inception phase (July 2023 – December 2024, 18 months) has a key aim to conduct policy, research, and preparation work to start implementing the financial mechanisms and technical assistance activities by the end of the inception phase. Key activities will include policy activities to improve the legal framework for the UPTD-BLUD model, blue carbon projects, and assessing the feasibility of a reef insurance mechanisms. The programme will also conduct essential research activities, including scientific assessments to identify resilient coral reefs, aquaculture growth mapping, and fisheries stock studies to identify the best locations to implement MPA/restoration, blue carbon, aquaculture, and fisheries projects.

Based on the policy work and research activities, various strategies and plans will be created. This includes for example the preparation of management plans for the MPA Management Unit (UPTD-BLUD); conducting a (pre-)feasibility study for the blue carbon projects; conducting landscape assessments of investment needs and opportunities to start building the structure and pipeline of the CRFF; and conducting community-based vulnerability assessments in the target areas to support the development of climate adaptation and disaster risk reduction (DRR) plans.

To implement these plans, various capacity-building and TA activities will be planned and prepared. This includes preparing support packages for sustainable aquaculture sites, micro-business groups (including the set up of village-owned enterprises called BUMDes), and sustainable fisheries projects. TA to these projects is prioritised under Outcome 2.2-2.4 so that these projects are set up and will be able to enter the CRFF pipeline in a future phase. The programme will collaborate with Conservation International's pipeline building activities. The CRFF's first Call for Proposals (CfP) will be organised with the aim to support one to two high potential businesses.

Finally, KORALESTARI will also further consolidate co-financing commitments and formalise partnerships for the programme implementation, as well as fully design a communication and education plan for each FM to help create the enabling conditions, build local and political support, and secure further financing and collaboration with other initiatives.

The Growth Phase (January 2025 – June 2029, 36 months) aims to implement the FMs and deliver technical assistance activities, including continuing the implementation of the CRFF that funds businesses and sources investment capital to scale and replicate them. Key activities include: the full pipeline development and execution of investment opportunities in the CRFF; implementing the self-financing UPTD-BLUD MPA management model (once regulation is in place[40]); expanding a blue carbon project (once regulation is in place and the UPTD-BLUD MPA management models are implemented); operationalising the reef insurance mechanism (once regulation is in place and partners have been identified); and selecting and training reef brigades. The team will also work with the national government to develop an MPA effective management online tracking tool and to identify new MPAs. Communication and engagement activities will be included to promote the scaling and replicating of successful reef-positive businesses and FMs. Knowledge sharing on the FMs and projects supported will also start in this phase through meetings, roundtables and events.

The Consolidation and Sustainable Exit Phase (July 2029 – December 2030, 18 months) will focus on consolidating the FMs; conducting communication activities to incentivise their replication and scaling; matching the support provided to businesses with (private) financing (e.g. from other funds, companies, integrating into sustainable supply lines); and assessing KORALESTARI's impact. At this stage, the carbon credits from the blue carbon credit are also expected to be generated and have their proceeds channelled to finance relevant MPAs.

2.3 Programme outcomes, outputs and activities

Table 4 below shows an overview of the programme outcomes, outputs, and activities. [41]

Table 4. Overview of Outcomes, outputs and activities

Outcome 1 – Innovative finance mechanisms are implemented and generate additional resources for coral reef restoration and conservation.	***Geographic scope:***
Output 1.1 – Policy activities are supported to improve enabling conditions for the blue economy, including regulation to allow for the UPTD-BLUD MPA Management model, the blue carbon market, and a reef insurance mechanism.	

[40] The Government has recently approved a regulation that allows for new Management Units of MPAs. This was the most challenging aspect of changing the regulatory framework, and it is therefore an important accomplishment this has been approved. The work of KORALESTARI will now focus on creating an UPTD-BLUD model that can act as the management body. A remaining, much smaller, risk lies with ensuring government has sufficient capacity to create an UPTD-BLUD, and KORALESTARI's activities will support capacity building of government herewith mitigating this risk. This is expected to take place in the inception phase and will require working with the Ministry of Marine Affairs and the Ministry of Home Affairs.

[41] Given the number of activities and the page limit of this section we have not included a description of one paragraph per activity. Instead, the activity in the table includes details on the exact activity.

Activity 1.1.1: Update the policy landscape assessment to update and detail the policy activities in case of any regulatory changes since programme design phase.[42]	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 1.1.2: Support the government in the development of a regulatory framework that allows the devolution of power to provinces to locally administer the resources generated through tourism fees and other revenue models in MPAs (UPTD-BLUD MPA Management model).	Phase 1	
Activity 1.1.3: Support the formulation of an umbrella policy on coral reefs conservation and restoration, including national and provincial level funding mechanisms.	Phase 1 and 2	
Activity 1.1.4: Support policy activities to formulate regulations for a blue carbon market.	Phase 1	
Activity 1.1.5: Support the formulation of a national action plan and facilitation of provincial action plans for blue carbon.	Phase 1 and 2	
Output 1.2 – MPAs and other reserves have self-financing models in place (UPTD-BLUD MPA Management model)		
Activity 1.2.1: Prepare business model and implementation plan for MPA Management Units (using the UPTD-BLUD MPA Management model) in Berau, in collaboration with the government, MPA staff, and community partners.	Phase 1	**Berau:** KKP3K Derawan Archipelago and Berau Regency
Activity 1.2.2: Set up MPA Management Units in Berau, including visitor fee collection processes and tools for assessing management effectiveness.	Phase 2	
Activity 1.2.3: Implement fee collection and use funds for the activities in the MPAs management plans, including patrols, campaigns, improving reef management, and infrastructure development.	Phase 2	
Activity 1.2.4: Assess the replicability of MPA Management Units to other MPAs and reserves in Natuna Sea and Savu Sea.	Phase 3	
Output 1.3 - A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities		
Activity 1.3.1: Identify locations for expansion of TNC YKAN's pilot blue carbon project in Berau, based on scientific assessment under Output 3.1 and partner identification.	Phase 1	**Berau:** KKP3K Derawan Archipelago and Berau Regency
Activity 1.3.2: Conduct a (pre-)feasibility study and detail the project development document for the expanded blue carbon project.	Phase 1	
Activity 1.3.3: Implement the blue carbon project in collaboration with the MPAs, communities, and partners.	Phase 2	
Activity 1.3.4: Verify and register carbon credits from the blue carbon project, generating resources for relevant MPAs and communities.	Phase 3	
Output 1.4 - Learnings on Innovative finance mechanisms are shared externally with targeted communication interventions.		
Activity 1.4.1: Carry out a detailed communication and education plan for each FM to help create the enabling conditions for their implementation.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas
Activity 1.4.2: Organise targeted stakeholder meetings, roundtables, and knowledge-sharing events to introduce FMs and reef-positive projects under outcome 1, 2 and 3 to relevant stakeholders, aiming at successful implementation of the FMs and investment support for reef-positive businesses.	Phase 2	

[42] During proposal development TNC YKAN has conducted a policy assessment. However, given the time between drafting the policy assessment and the start of programme implementation there might be updates in regulatory frameworks. See for example the regulatory changes as mentioned under footnote 40. Therefore, it will be assessed whether any regulatory gaps to allow for the UPTD-BLUD or Blue Carbon Model has changed.

Activity 1.4.3: Share knowledge on successes, barriers, and opportunities for scale and replication of KORALESTARI's FMs, supported projects, and activities through publications and events.	Phase 3	KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Outcome 2 - Bankable reef-positive projects are implemented and support livelihoods of reef-dependent communities		
Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)		
Activity 2.1.1: Landscape assessment to identify investment needs, industry practices, investment opportunities, and optimal CRFF portfolio composition in collaboration with the GFCR Investment Fund. This will build on the scientific assessment of resilient coral reefs in Output 3.1 and the aquaculture investment roadmap in Output 2.2 , identifying target sectors and relevant organisations to support the design, implementation, and provide co-financing for the CRFF.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 2.1.2: Fully design and set up the CRFF together with co-implementers and secure co-financing.	Phase 1	
Activity 2.1.3: Build a pipeline of projects, including building on incubation and acceleration support for sustainable aquaculture and fisheries under output 2.2 and 2.3.) and launch various calls for proposals.	Phase 1 and Phase 2	
Activity 2.1.4: Provide grants and TA to selected projects.	Phase 1, 2 and 3	
Activity 2.1.5: Provide match-making and aggregation support to projects to access other (private) sources of finance.	Phase 2 and 3	
Output 2.2 - Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards		
Activity 2.2.1: Conduct national mapping of aquaculture growth projections and overlap with coral reef areas.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 2.2.2: Prepare investment roadmap for Indonesia's aquaculture sector (likely in collaboration with Hatch Blue). This includes the identification of locations for sustainable aquaculture projects, pipeline development, and priority investment opportunities.	Phase 1	
Activity 2.2.3: Prepare a support package for each sustainable aquaculture site (including stakeholder engagement and targeted TA).	Phase 1	
Activity 2.2.4: Provide technical assistance and incentives to set up aquaculture projects/businesses to implement environmental standards.	Phase 2	
Activity 2.2.5: Provide incubation and acceleration support for aquaculture projects to enter the CRFF pipeline and access other sources of finance.	Phase 2 and 3	
Output 2.3 - Economic incentives and technical assistance are provided to micro-business groups to improve their access to sustainable markets and to financial capital, including women's active participation.		
Activity 2.3.1: Identify locations for support to micro-business groups, based on scientific assessment under Output 3.1.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna
Activity 2.3.2: Support package preparation for each micro-business group (including stakeholder engagement, feasibility studies, incentive design, and engagement of consultants).	Phase 1	

Activity 2.3.3: Provide technical assistance and incentives to set up micro-business groups to improve access to market and financial capital and other sources of finance, including setting up BUMDes[43] entities.	Phase 1 and 2	TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 2.3.4: Provide incubation and acceleration support for micro-businesses (including BUMDes) to enter the CRFF pipeline and/or establish partnerships with private sector actors.	Phase 2 and 3	
Output 2.4 - Coral reef fisheries participation in ecolabel-certified supply lines promoted		
Activity 2.4.1: Identify locations for sustainable reef fisheries projects, based on scientific assessment under Output 3.1.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 2.4.2: In priority locations, conduct stock assessments and identify constraints and opportunities for business development informed by supply line assessment, fleet survey, and catch assessment survey among representative small-scale fishers.	Phase 1	
Activity 2.4.3: Develop management plans in collaboration with local governments to secure access to sustainable resources for small-scale fishers and ensure sustainability standards are in place.	Phase 1 and 2	
Activity 2.4.4: Provide technical assistance and incentives to selected fisheries to meet ecolabel certification requirements and get certified.	Phase 2	
Activity 2.4.5: Provide support to integrate sustainable reef fisheries in ecolabel-certified supply chains, focused on the engagement with private companies interested to invest.	Phase 2 and 3	
Activity 2.4.6: Provide incubation and acceleration support for sustainable fisheries projects to enter the CRFF pipeline and access other sources of finance.	Phase 2 and 3	
Outcome 3 - Local capacity to protect, restore, and recover coral reefs, including after major shocks, is enhanced		
Output 3.1 - Resilient coral reefs are identified in the priority areas to inform MPA management and restoration efforts		
Activity 3.1.1: Conduct scientific assessments and habitat mapping to identify resilient coral reef priority areas in the target regions, including identification of blue carbon and sustainable aquaculture and fisheries project locations.	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 3.1.2: Share resilient coral reef findings with relevant MPA management to inform the identification of new MPAs and to inform management efforts within existing MPAs	Phase 2	
Output 3.2 - MPA management bodies are supported with developing and implementing Management plans		
Activity 3.2.1: Support MPA management bodies in developing and implementing MPA management plans and provide TA to improve effective management practices.	Phase 1 and 2	**All sites:** **Natuna Sea (one of the**

[43] BUMDes are village-owned enterprises.

Activity 3.2.2: Work with the national government to develop an MPA protection/effective management online tracking tool for national MPAs to assess progress in management effectiveness.	Phase 2	**following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Output 3.3 - New reef insurance products, including a funding mechanism, are developed		
Activity 3.3.1: Conduct a feasibility study to identify suitable locations and partners involved in the reef insurance mechanism (e.g. insurance companies, buyers of policy, communities, and the ADB-GEF project)	Phase 1	Exact location TBD during inception phase. Likely location: **Berau:** KKP3K Derawan Archipelago and Berau Regency
Activity 3.3.2: Design the reef insurance business case, including securing buyers of the insurance policy and setting up a grant fund for maintenance activities	Phase 2	
Activity 3.3.3: Implement the reef insurance mechanism	Phase 2 and 3	
Output 3.4 - Local "Reef Brigades" (with local dive shops, rangers, and MPA managers) are established with the capacity to restore coral reefs and support reef recovery after damages		
Activity 3.4.1: Identify suitable partners to be trained as Reef Brigades in priority locations, including identification of coral reef nurseries and existing MPA restoration initiatives to collaborate with. This includes preparation of support packages for each reef brigade (including stakeholder engagement, training design, and engaging consultants)	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna, TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 3.4.2: Provide technical assistance and training to Reef Brigades, including the set-up of coral reef nurseries.	Phase 2	
Activity 3.4.3: Support the activities of the Reef Brigades: provide regular grant funding for reef maintenance (including coral reef nurseries and brigade training) to enable sufficient capacity is in place to use reef-insurance pay-outs in case of damage.	Phase 2 and 3	
Activity 3.4.4: Support the implementation of sustainable management plans for Reef Brigades beyond the programme lifetime.	Phase 3	
Output 3.5 - Community-based vulnerability assessment in the priority areas are carried out to support the development of climate adaptation and Disaster Risk Reduction plans		
Activity 3.5.1: Identify priority communities and partners based on assessments in Output 3.1 and prepare support package (including stakeholder engagement and engaging consultants).	Phase 1	**All sites:** **Natuna Sea (one of the following sites):** KKPD Natuna TWP Anambas KKPD Bintan **Berau:** KKP3K Derawan Archipelago and Berau Regency **Savu Sea:** TNP Laut Sawu
Activity 3.5.2: Carry out community-based vulnerability assessments in target areas.	Phase 1	
Activity 3.5.3: Develop climate adaptation and disaster risk reduction plans with partners and communities.	Phase 2	
Activity 3.5.4: Implement climate adaptation and disaster risk reduction plans, to strengthen long-term vision and ability of communities to engage in reef-positive activities KORALESTARI promotes.	Phase 2 and 3	

3 Priority Implementation Sites

Summary of KORALESTARI's priority implementation areas and specific sites within these areas

Priority Implementation Area	Specific sites
Natuna Sea	*One of the following, to be selected during Inception Phase:* KKPD Natuna TWP Anambas KKPD Bintan
Berau	KKP3K Derawan Archipelago and Berau Regency
Savu Sea	TNP Laut Sawu

3.1 Savu Sea: Taman Nasional Perairan Laut Sawu

About the MPA and ecological characteristics: Taman Nasional Perairan (TNP) Laut Sawu is located in East Nusa Tenggara (NTT) and covers 3.3 million hectares (ha), making it the largest MPA in Indonesia. The MPA was established in 2014 and constitutes 18% of total MPAs in Indonesia. TNP Laut Sawu has a high biodiversity, ecological abundance, and is home to cetaceans and marine mammals. Based on the Allen Coral Atlas data, TNP Sawu has 51,943.54 hectares of benthic ecosystem with 9,685.65 hectares of seagrass, 20,536 hectares of coral reef, and 21,721 hectares of other substrates. The region covers only two per cent of the world's oceans but has about 76% of the world's coral reef species and 37% of the world's coral fish species. It is part of *Lesser Sunda Ecoregion* (LSS), with 532 species of coral reefs (out of 569 in Indonesia), and 11 endemic and sub-endemic species. In 2019, monitoring conducted at 15 locations throughout the area show that in general the condition of its coral reefs varies from *very bad* (27%), *bad* (46%), to *moderate* (27%). Earlier studies (2007-2018) conducted in 81 reefs around Savu Seas (Alor, Rote Ndao, Lembata Island, Kupang and Manggarai Barat) reported 36% of the sites are in poor conditions (Hard Coral < 25%), 32% in bad condition (Hard Coral 25-50%), 27% is moderate condition (Hard Coral 50-75%), and only 5% of the reefs are in excellent condition (Hard Coral >75%). More information can be found in Annex 1.1.2.

MPA management: MMAF established the Management Plan of TNP Laut Sawu for the period 2024 – 2034. Officially, TNP Laut Sawu is managed by BKKPN (Balai Kawasan Konservasi Perairan Nasional Kupang) as a representative of MMAF. TNP Laut Sawu depends on finances from the state budget (APBN) with some additional funding from international programs as mapped in Annex 1.1.1. This means that having sufficient financial capacity for effective MPA management is a challenge. Based on MPA management effectiveness data (EVIKA), other challenges include a lack of human capacity, infrastructure, surveillance and monitoring activities, and community empowerment.

Economic and community benefits: There are ten regencies surrounding TNP Laut Sawu and 195 coastal villages, most of which rely on capture fisheries. Total capture fisheries production in Nusa Tenggara Timur (NTT) province in 2017 reached 138,268 tons and more than 65% was contributed by TNP Laut Sawu. The direct impact of coral reef ecosystem services on capture fisheries is estimated to be 102 trillion rupiah per year. The tourism sector has an estimated direct benefit of the reef's ecosystem services of IDR 65 trillion (approx. USD 4 billion) per year and mariculture (mostly seaweed) around IDR 50 billion (approx.

USD 3.2 million) per year.[44] Overall, according to data from 2018, there were 6,343 fishermen and 3,578 seaweed cultivators in the TNP Laut Sawu area who directly benefited from coral reef protection as local beneficiaries in the TNP Laut Sawu.[45] More data details are included in Annex 1.1.2. Currently, TNC YKAN is working with around 150 households engaged in seaweed farming and around 40 households engaged in BUMDes (village owned-enterprises). During the inception phase the exact number of potential beneficiaries for KORALESTARI's activities will be estimated.

Drivers of degradation: There are various causes for the degradation of hard coral reef cover in TNP Laut Sawu, including household waste, tourism activities, and unsustainable fishing patterns.[46] Besides, COTS is also an issue and there has been a mass coral bleaching event in TNP Laut Sawu in 2016, yet the coral reefs have shown recovery. Other natural threats are storm events, as Laut Sawu is prone to hurricanes and cyclones. More information is included in Annex 1.1.2. Aquaculture (seaweed) is an important commodity and the Province's ambition to expand its production may affect coral reefs if not properly managed.

Justification as priority site: TNP Laut Sawu was selected as a priority site given its important ecological status, levels of climate resilience shown, drivers of degradation that are relevant to the Programme's ToC, and potential to enhance financing and capacity of MPAs and fund reef-positive businesses that have clear community benefits, especially around sustainable fisheries. The Lesser Sunda Ecoregion, in which the TNP Laut Sawu is a major part of, has long been identified as potential coral refugia. This ecoregion is scientifically recognized as a larval sink[47] from other coral reefs areas surrounding it[48] due to unique waves and current patterns. It is important to note that further studies are needed specifically within the Laut Sawu area to confirm the broader regional projections, therefore a deeper analysis will be conducted by KORALESTARI.

3.2 KKP3K Derawan Archipelago and Berau Regency (KKP3K-KDPS)[49]

About the MPA and ecological characteristics: KKP3K-KDPS is located near Borneo Island with a total area of 285,548.95 ha. The MPA is located in the Sulu Sulawesi Ecoregion and is part of the Coral Triangle. Coral Allen data shows that the MPA includes around 71,519 hectares of benthic habitat, consisting of 14,664 hectares of coral reef, 1,860 hectares of seagrass, and 54,994 hectares of other substrates. The waters in Berau Regency are among the richest areas for soft coral species in Indonesia. The dominant type of coral reefs is reef flats, with some parts of lagoons. These coral reef flats are characterized by their gently sloping terrain and the presence of numerous coral species. They are considered to be one of the most diverse and productive ecosystems in the marine environment. In

[44] Rahman et al. (2020). Valuasi Ekonomi Terumbu Karang Pasca Penetapan Kawasan Konservasi Laut Sawu Di Kabupaten Kupang.

[45] Hidayat, Rahmat (2020). TNP Laut Sawu: Home of the Cetacean. Indonesia. KKP. Direktorat Jenderal Pengelolaan Ruang Laut

[46] Rodney et al. (2016). The Status of Reef Health Condition and Coral Disease in the Savu Sea National Park of Indonesia.

[47] In the context of climate refugia, a larval sink may refer to an area that serves as a safe haven for the larvae of certain species during times of environmental stress or change, such as during periods of extreme weather or as a result of climate change.

[48] Wilson, J., Darmawan, A., Subijanto. J., Green, A., and S. Sheppard. 2011. Scientific design of a resilient network of marine protected areas. Lesser Sunda Ecoregion, Coral Triangle. Asia Pacific Marine Program. Report 2/11. 96 pp.

[49] This is a Coastal Conservation Area and Small Islands of the Derawan Archipelago and the surrounding waters.

2016, surveyed coral reefs in 2 sites around Maratua Island showed hard coral cover ranges between 43 and 48%.[50] The lagoons, on the other hand, are typically found in the more protected areas of the MPA and are characterized by their calm waters and high concentrations of plankton, making them an important feeding ground for many marine species.[51] According to the results of the analysis of the One Map Mangrove National from MoEF, 2021, there are 300 hectares of mangrove cover inside the MPA.

MPA management: KKP3K-KDPS is a sub-national MPA and is thus managed by the provincial government (DKP) with the provision of a provincial state budget. An MPA Management Plan was established in 2019, with a top priority to strengthen the Standard Operating Procedure-based utilisation and registration service system.[52] A key challenge for the MPA is having sufficient funding to manage the Berau MPA, and especially to protect its coral ecosystems. To address this issue, the MPA Management Plan also considers strengthening partnership networks and encourages the establishment of regional financial management agencies. The programme plans to developed a UPTD-BLUD MPA Management model with this MPA, as it currently has an MPA Management Unit (UPTD, that still needs to be transformed into a UPTD-BLUD model) and has good potential for revenues from tourism .

Economic and community benefits: Tourism is the main economic activity in the region, especially in the Derawan Archipelago. Derawan has attracted 301,015 visitors in 2019 and brought in an estimated IDR 12 billion (approx. USD 700,000) of income for the local community.[53] Most of the tourism industry relies on community-based ecotourism that depends on healthy coral reefs. The national government has appointed Berau as one of the priority tourism destinations to develop as stated in the Medium-Term National Development Plan (RPJMN). This is expected to add pressure on the environment, including coral reefs. In Berau, communities are also active in seaweed cultivation[54] and natural farming of Asian tiger shrimp. The seaweed market value in 2021 was USD 10 billion and is projected to increase by 23% per year. Currently, TNC YKAN is working with around 100 households engaged in shrim-carbon farming, around 50 households engaged in women-owned microbusinesses, and around 20 households engaged in BUMDes (village-owned enterprises. During the inception phase the exact number of potential beneficiaries for KORALESTARI's activities will be estimated.

Drivers of degradation: Between 2018 and 2021 the coral reefs in Derawan and Berau degraded from 'excellent status' (>75% hard coral cover) to 'poor' and 'moderate' status (<50% hard coral cover).[55] The main causes of degradation include destructive fishing, increased tourism, and pollution. The Berau river outlet is a major threat to coral reefs around Derawan. Local threats to the mangrove forest and seagrass beds are increasing as well, especially from land conversion from mangrove and *nypa* palm to

[50] Idris, Prastowo Sw, M., Rahmat, B., 2019. Kondisi Ekosistem Terumbu Karang Di Lokasi dan Bukan Lokasi Penyelaman Pulau Maratua. Jurnal Kelautan Nasional, 14(1), 59-69.

[51] Ofwegen et al. (2005). A new genus of nephtheid soft corals from the Indo-Pacific.

[52] The KKP3K-KDPS provides guidelines on the good governance and operationalizations of MPAs. Thus, it focuses on the importance of developing SOPs and administration system as measure of management effectiveness. Such system, for example, are used to monitor resource utilization and vessel or business registration.

[53] East Kalimantan Provincial Government. (2020). A tourism development plan for the Derawan Archipelago and surrounding areas -

[54] Seaweed farming helps coral reefs by increasing the number of rabbitfish in the area which in turn will eat the algae that compete with reefs. Seaweed farming also provides alternative and supplemental livelihood to impoverished artisanal fishers–driving them away from destructive fishing like explosives. From: Desa Lestari. (2017). Bangung BUMK, Kampung Sumber Agung Berau Manfaatkan Rumput Laut.

[55] LIPI P20 monitoring data, 2018 and 2021

unsustainable fisheries and aquaculture practices, coastal development, pollution, sedimentation or siltation. Aquaculture (shrimp farming) activities in Berau and Derawan can also contribute to coral reef degradation. Unsustainable aquaculture practices such as over-crowding of fish farms, use of chemicals and antibiotics, and construction of fish pens or cages can cause physical damage to the coral reefs, alter the natural balance of the ecosystem, and increase competition for resources and the spread of disease. It is important for the aquaculture activities in Berau and Derawan to be done sustainably, with proper management and monitoring to minimize the negative impacts on coral reef ecosystems.

Justification as priority site: Derawan/Berau were selected as priority sites given their important ecological status as part of the CT, drivers of degradation that are relevant to the Programme's ToC and the potential to reduce the drivers, and potential to enhance financing and capacity of MPAs, fund reef-positive businesses, and collaborate to implement blue carbon projects building on BlueYou's existing work (see section 1.4.).

Recent studies suggest that the Coral Triangle, where Berau and Derawan are located, has high species diversity, coupled with bathymetric complexity, cooling driven by internal waves, and high temperature variability supporting its potential to serve as refugia for corals under increasing sea surface temperatures.[56] However, further research should be conducted by KORALESTARI to validate these regional projections within the GFCR priority areas.

3.3 MPAs in Natuna Sea (TWP Anambas, KKPD Natuna and KKPD Bintan)

About the MPA and ecological characteristics: There are three priority MPAs in Natuna Seascape recommended for this project; TWP Anambas in Anambas Sea, KKPD Natuna in Natuna Regency, and KKPD East Bintan in Bintan Island. , in the inception phase one area will be selected. All areas are part of Riau Archipelago Province, located between Malayan Peninsula and Borneo Island and are classified as shallow sea (with an average bathymetry depth of around 60-100 meters). Natuna Seascape is a crucial spawning area, especially for pelagic fish. The seascape is connected to the South China Sea, and provides large fishing grounds for several countries including Vietnam, China, the Philippines, Taiwan, and Hong Kong. In TWP Anambas and KKPD East Bintan, most of the surveyed reefs (64% and 61%, respectively) showed less than 50% hard coral cover, whilst reefs at KKPD Natuna (53%) are in a better condition with hard coral cover ranging between 50 and 75%. Annex 1.1.4 provides more information on the ecological characteristics of the areas, the species, and reef resilience.

MPA management: TWP Anambas is managed by the national government (KKP) with the provision of a state budget. Generally, TWP Anambas has a management plan in place, designed to support sustainable tourism and ecosystem protection. KKPD Natuna and Bintan are part of the provincial conservation areas. KKPD Natuna and KKPD Bintan were established in 2011 yet are still in the process of formulating management plans. These are planned to be finalised in 2022. Similar to the other publicly-financed MPAs, barriers to effective management include a lack of human capacity, finances and other resources.

Economic and community benefits: Capture fisheries directly benefit from the coral habitats in the Natuna Sea. Around 20,571 people in Natuna regency depend on capture fisheries activities for their

[56] Storlazzi, C.D., Cheriton, O.M., Van Hooidonk, R., Zhao, Z. and Brainard, R., 2020. Internal tides can provide thermal refugia that will buffer some coral reefs from future global warming. Scientific reports, 10(1), pp.1-9.

income.[57] In 2016, the national government also launched a Strategy that will support the fisheries industry in Natuna, which includes building port facilities, cold storage and financial support. Tourism activity is important in KKPD Bintan and TWP Anambas. Especially in Bintan tourism is highly developed, with developed infrastructure and increasing numbers. In TWP Anambas, tourism primarily consists of community-based tourism. MMAF is further aiming to develop tourism infrastructure on three islands in TWP Anambas, Mengkian, Penjalin Besar and Mandariau Darat. See Annex 1.1.4. for further details. During the inception phase the exact number of potential beneficiaries for KORALESTARI's activities will be estimated.

Drivers of degradation: Coral reef ecosystems in the Natuna Sea face several local and external factors. Destructive fishing significantly damages coral reefs in areas of low government supervision, where damage is further exacerbated by COTS outbreaks and predation by *Drupella* sp.. Some destructive fishing practices include blast and poison fishing. Illegal fishing by international fish vessels is also a large issue in the Natuna Sea, contributing to overfishing and affecting local fishermen. Land-based pollutants affecting coral reefs include sedimentation, especially on Bintan Island where bauxite mining is used intensively. Mining also disturbs the coastal ecosystem by changing the abundance and diversity of plankton, benthos, and nekton, decreasing the primary productivity and growth of coral reefs. Besides, the Natuna Sea is also threatened by sea pollution from ballast water excreted by vessels and oil sludge, mostly those coming and leaving Singapore. The latter is especially a problem in Bintan. Finally, between 2000 and 2010, severe bleaching events also took place across the Natuna Sea. Napoleon wrasse ranching in Natuna is an aquaculture industry that has the potential to negatively impact coral reefs. The wrasse feed on coral and can damage or destroy reefs while they are being raised in captivity. Additionally, the practice of collecting wild wrasse for ranching can also harm reefs. The construction of pens or enclosures can also damage reefs and the release of farmed fish into the wild can negatively impact wild populations.

Justification as a priority site: There is a large need to strengthen effective management in Natuna Sea MPAs by leveraging more finance. Additional support to develop sustainable fisheries and tourism is needed. A long term monitoring data (2014-2019) published by the Indonesian Science Institute[58] on coral reefs conditions in Natuna and Bintan in Natuna Sea[59] showed that there was a significant increase in hard coral cover in Bintan, whilst no changes (meaning no degradation) occurred in Natuna Sea (see Annex 1 for graphs showing the changes). Despite the possibility that these areas were impacted by heat stress in 2016, the significant increase (or no change) in hard coral cover over a long period of time (5 years data) indicates that coral reefs in this area may be highly resilient and have the ability to withstand or recover from thermal stress and that the sea environments are favourable to support recovery after disturbances. This data showed that Natuna Sea is an important area for conservation efforts that may serve as climate refugia, in order to help ensure the long-term survival of the region's biodiversity.

[57] BPS Natuna. (2017). Kabupaten Natuna Dalam Angka.

[58] Which was renamed to National Research and Innovation Agency (or BRIN) in 2019. Data available here: http://crmis.oseanografi.lipi.go.id/.

[59] There is only long-term data available for the sites in Natuna Sea out of all KORALESTARI priority sites.

4 Programme Solutions

4.1 Summary Table of Proposed GFCR Interventions

Table 5. Summary of Programme Solutions

Number and name of Solution	Sector	Location Implemented	Coral Reef Driver of Degradation Addressed	Linked Programme Outputs	GFCR Grant Request (USD)	Readiness stage	Implementing Partners
1. **Coral Reef Funding Facility (CRFF) for sustainable aquaculture, fisheries, waste management, ecotourism, and bioprospecting projects.**	3.7. Investment Funds/Incubator Funds 3.6. Incubator or Technical Assistance Facility 2.2. Sustainable mariculture/aquaculture 2.3. Ecotourism 2.4. Plastic waste management 2.6. Sewage and waste-water treatment	The CRFF will support a portfolio of reef-positive projects in all three priority sites: The Savu Sea, Derawan Archipelago and Berau Regency, and the selected MPA in Natuna Sea	Poorly planned coastal development: through supporting eco-tourism businesses and sustainable aquaculture projects this driver will be addressed. Land-based and marine pollution: through supporting waste management businesses and projects this driver will be addressed. Unsustainable fishing: through supporting sustainable fisheries businesses and projects this driver will be addressed.	Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)	**TOTAL: USD 4,800,000** Phase 1: USD 236,617.00 **Grant co-financing:** Ambition: USD 5.1 million (from grant programmes; (e.g. WB Lautra Programme has up to USD2,000,000 available to support women-led businesses) **Ambition:** USD 5.1 million in concessional loans from micro-finance institutions, impact investors, and development banks (e.g CI Ventures)	Design stage	**Potential implementing partner (discussions to be concluded in Inception phase):** Fund manager partner (potentially Planet Partnership or Pact) Expert selection committee (potentially including experts from NatureVest, BlueYou, HatchBlue, and CI Ventures).
2. **Support to coral reef fisheries, sustainable aquaculture**	2.1. Sustainable Fisheries 2.2. Sustainable mariculture/aquaculture	This solution will be implemented in all three priority sites.	Poorly planned coastal development: through supporting eco-tourism businesses and sustainable	Output 2.2 - Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards	**TOTAL:** USD 1,000,000 **Phase I:** USD $614,389.00	Incubation	**Potential implementing partner (discussions to be concluded in Inception phase):**

farmers, and local micro-business groups to implement environmental standards and improve access to markets	3.8. Sustainable livelihoods mechanisms		aquaculture projects this driver will be addressed. <u>Land-based and marine pollution:</u> through supporting waste management businesses and projects this driver will be addressed. <u>Unsustainable fishing:</u> through supporting sustainable fisheries businesses and projects this driver will be addressed.	Output 2.3 - Economic incentives and technical assistance are provided to micro-business groups to improve their access to sustainable markets and to financial capital, including women's active participation Output 2.4 - Coral reef fisheries participation in ecolabel-certified supply lines promoted	**Grant co-financing:** Confirmed: USD 25,000 from anonymous donor USD 25,000 from Tiffany Ambition: USD 50,000 from Blue economy expert (e.g. BlueYou) USD 25,000 from Aquaculture accelerator expert (e.g. HatchBlue) USD 1,000,000 from WB Lautra to make social investment relevant for micro-business groups USD 1,150,000 USAID Ber-ikan USD 500,000 Blue Halo		BlueYou for the shrimp aquaculture and fisheries work, HatchBlue for the seaweed aquaculture work, Planet Partnership to provide support to micro-business groups.
3. Self-financing models for MPAs	1.1. Marine Protected Areas	The self-financing UPTD-BLUD MPA Management model will initially be implemented in Berau. If successful, it will be assessed whether it can also be implemented in the Savu Sea and the MPAs in Natuna Sea	This solution can cover the funding gap for MPA's operations, thus increasing its effectiveness in protecting and restoring the coral reefs. This will help reduce the following drivers:	Output 1.1: Improving enabling conditions for the blue economy including to allow for the UPTD-BLUD MPA Management Model. Output 1.2: MPAs and other reserves have an additional self-finance	**TOTAL:** USD 750,000 **Phase I:** USD 186, 718. 46 **Grant co-financing:** USD 50,000 Anticipated from USAID Kolektif	Design phase	Potential implementing partner (discussions to be concluded in Inception phase): World Bank Lautra Programme

			• Land-based and marine pollution • Unsustainable fishing • COTS	model (UPTD-BLUD) in Berau. Output 3.1: Resilient coral reefs are identified in the priority areas to inform MPA management and restoration efforts Output 3.2: MPA management bodies are supported with developing and implementing Management Plans.			
4. Blue carbon project in and around MPAs	3.3. Blue Carbon	The first feasibility study for a pilot will focus on Berau. If successful, it will be assessed whether it can be replicated in the other priority areas.	This pilot will directly address the issue of coastal land conversion (such as mangrove conversion) and unsustainable aquaculture surrounding mangrove areas. Besides, through generating carbon credits, MPAs can receive additional financial resources to protect MPAs, addressing barriers of unsustainable fishing as well. Therefore it addresses the following drivers of degradation: • Poorly-planned coastal	Output 1.1: Policy activities are supported to improve enabling conditions for the blue economy, including regulation to allow for the UPTD-BLUD MPA Management model, the blue carbon market, and a reef insurance mechanism. Output 1.3: A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities	TOTAL: USD 600,000 Phase I: USD 123, 514. 21 Grant co-financing: Ambition: USD 25,000 from blue carbon experts (e.g. blue forests) Ambition: USD 25,000 from blue carbon experts (e.g. BlueYou)	Design phase	Potential implementing partner (discussions to be concluded in Inception phase): Blue Forests regarding mangrove/shrimp farmer schools and/or BlueYou regarding mangrove/shrimp carbon project.

			development • Unsustainable fishing • Unsustainable aquaculture				
5. Reef insurance mechanism, including the composition of Reef Brigades	3.4. Insurance Products 1.1. Marine Protected Areas	During inception, it will be assessed which priority site will be selected for the development of the reef insurance mechanism (most likely in Berau).	This solution helps improve regular reef maintenance and provides funding to restore reefs after damage events. As such, it directly helps to protect the coral reefs. Additionally, it works with reef beneficiaries (such as the tourism sector, communities) to raise awareness on the importance of protecting reefs aiming to change behaviour, herewith addressing various indirect drivers of degradation such as: Poorly planned coastal development Land-based and marine pollution Unsustainable fishing:	Output 1.1: Policy activities are supported to improve enabling conditions for the blue economy, including regulation to allow for the UPTD-BLUD MPA Management model, the blue carbon market, and a reef insurance mechanism. Output 3.3 - New reef insurance products, including a funding mechanism, are developed Output 3.4 - Local "Reef Brigades" (with local dive shops, rangers, and MPA managers) are established with the capacity to restore coral reefs and support reef recovery after damages.	**TOTAL:** USD 740,000 **Phase I:** USD 185, 581.78 **Grant co-financing:** Ambition: USD 950,000 from ADB - Partnership for Coral Reef Finance and Insurance in Asia and the Pacific	Design	**Potential implementing partner (discussions to be concluded in Inception phase):** Zurich NA to design reef insurance mechanism. Pokmaswas Perikanan as Reef Brigades (community-based group for fisheries surveillance), formed under the provincial government.

4.2.3 Solution #1 Coral Reef Funding Facility (CRFF)

The Coral Reef Funding Facility (CRFF) is a blended finance mechanism that supports reef-positive businesses and projects in the sustainable fisheries, sustainable aquaculture, ecotourism, waste management, and bioprospecting sectors. It is the key facility to provide support to reef-positive businesses under Outcome 2 of the programme's ToC. The CRFF will be able to support businesses and projects which directly address the drivers of poorly-planned coastal development (through sustainable aquaculture and eco-tourism projects), land-based and marine pollution (waste management projects), unsustainable fishing (sustainable fisheries), and enhance the value of reef ecosystems through bioprospecting projects.[60]

The CRFF is structured as a (returnable) grants and technical assistance (TA) facility (see Figure 3 with the business model below) to support early-stage projects and businesses, as this was highlighted as a gap in the current range of support and financing initiatives in the sectors. Although there are funders providing equity and venture capital to businesses and SMEs in the relevant sectors (such as the NatureVest TNC-Hatch Blue Revolution Fund, Aquaspark, CI Ventures, and ADM Capital), stakeholder consultation highlighted that there is a need to provide early-stage grant funding and TA to projects and micro-, small-, and medium-sized businesses (MSMEs). This is especially the case for businesses in more remote areas, such as the three priority areas of this programme. The CRFF is designed to collaborate closely with other funds, concessional finance providers and accelerators, ensuring that reef-positive businesses and projects supported under the CRFF will be able to leverage other sources of (concessional) financing once they graduate from the CRFF. This includes concessional finance by NatureVest TNC-Hatch Blue Revolution Fund, Aquaspark, CI Ventures, and ADM Capital.

For the CRFF to be able to address the underlying drivers of coral reef degradation in the priority areas, it will be important to provide incubation and origination services to potential projects and businesses, given the relatively limited availability of proven bankable reef-positive businesses in these areas. This will require the grants (returnable and non-returnable) and TA provision to scope and support communities and projects with creating reef-positive businesses. Besides, for the CRFF to enhance its impact and be sustainable over time, it will be important to leverage co-financing from donors, impact investors, and other funds, as well as provide match-making services. As such, the CRFF will work closely

[60] Examples of potential opportunities are: community-based waste management enterprises in Berau and in the Savu Sea, replicating models already implemented by the tourism sector in Raja Ampat; small-scale sustainable fisheries with fish intermediaries providing equipment and capital when conservation standards are followed (following a model already implemented by TNC YKAN in Berau); following Indonesia's Snapper Grouper Fishery Improvement Project (FIP), work with larger seafood companies, to reduce by-catch and improve practices, such as securing a minimum trading size for certain species. Annex 3 provides a list of potential investment opportunities, which will be further built out during the Inception Phase of the programme. The Mulloy Fund, Hatch Blue and CI Ventures have indicated they are willing to share pipelines.

with private sector partners such as Planet Partnership to design the CRFF to be able to channel additional financing to the businesses and projects it supports.

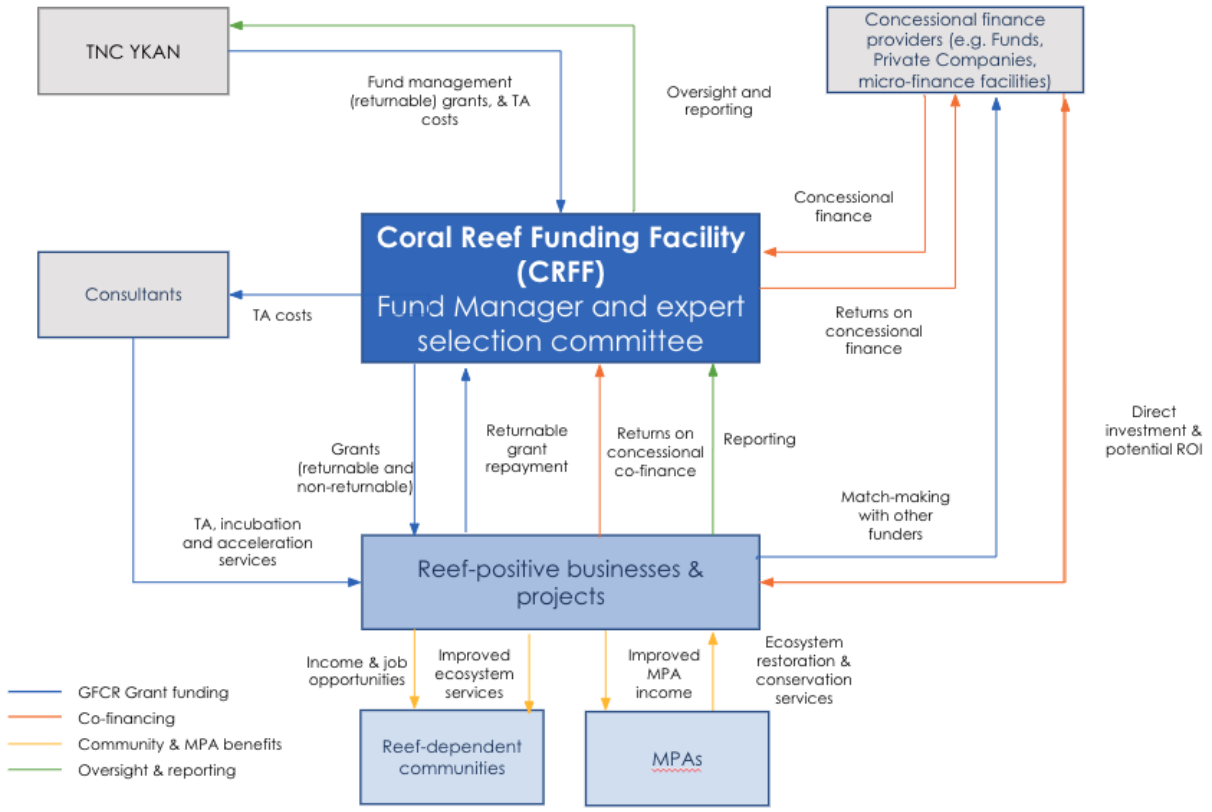

Figure 3. Coral Reef Funding Facility business model overview.

In the Inception Phase of the programme, the CRFF will be set up using GFCR grant funding. TNC YKAN will work with consultants to conduct a finance landscape assessment and a fund manager (TBD, potential partners include Planet Partnership and Pact) to fully design the CRFF based on this assessment. It is also aimed to leverage concessional finance from other partners that can be channelled through the CRFF, and the fund manager is expected to administer the CRFF beyond the programme's lifetime. An expert committee will be installed, which will include stakeholders that are currently active in incubating, developing, and funding sustainable businesses and projects in the priority sectors. Besides TNC YKAN, potential experts to be invited in the committee include representatives from Planet Partnership (incubation and grant services in sustainable fisheries, aquaculture, and ecotourism), BlueYou (project development and sustainable market access services for sustainable fisheries and shrimp aquaculture), Hatch Blue (incubator and accelerator services in sustainable aquaculture especially in seaweed), Systemiq (project development in waste management), ISWA (an Indonesian NGO part of the Clean Oceans through Clean Communities Initiative; project development in waste management). The committee will help build up the pipeline and select CRFF-supported businesses and projects once calls for proposals (CfPs) have been launched. The committee will also ensure the scope

and growth potential of selected businesses and projects are aligned with the pipeline criteria of other funds, to ensure CRFF-supported businesses are able to graduate into these funds.

It is envisaged that the CRFF will launch at least three CfPs during the programme's lifetime, with the first call being launched at the end of the inception phase. Based on the finance landscape assessment conducted during the inception phase, the scope of each call for proposals will be detailed (in terms of grants vs returnable grants, priority sectors in each of the priority areas, and type of businesses/projects to support). Potential pipeline criteria are presented in Annex 3. In the inception phase, the CRFF is expected to fund one to two businesses (using GFCR grant funding, potential to support more using co-financing sources) through an open CfP. The first CfP will target high potential reef-positive businesses at the incubation and growth stage. Overall, it is envisaged that the CRFF funds reef-positive businesses and projects at different stages of development, including:

- Concept stage: initial business ideas, often led by Micro, Small and Medium Enterprises (MSMEs), community-based organisations, or NGOs. Usually, these initiatives need support with increasing positive impacts for coral reefs, setting up business entities, developing solid business plans, or to increase their capacities and skills in management, marketing, or strategic and financial planning.
- Incubation stage: support can consist of further developing business plans and increase capacities to scale-up revenues and achieve break-event points.
- Growth/investment-ready/revenue generating stages: Initiatives with proven business plans could need support for scaling up and becoming ready to access impact investment or credit from the private or financial sector.

The CRFF will aim to cater for businesses across these stages, and can support them throughout the successive steps, in a development pathway. The selected initiatives may receive initial grants (non-returnable) focused on business development, as well as TA to be delivered by co-implementers and consultants. This will help de-risk future investments in these enterprises, which can be done through the CRFF (using returnable grants) and by other funding mechanisms, including venture funds, the GFCR Investment Fund, impact investors, commercial banks, public programmes (such as microcredit), and individual investors.

The CRFF will build on TNC YKAN's existing work with the productive sector stakeholders and collaborate closely with existing funds and programmes, such as CI Ventures , Blue Halo, and Hatch Blue, to build a project pipeline that will be eligible for other funds. The programme will use the GFCR Investment Principles to assess businesses and projects' suitability . In cases where enterprises do not adhere to certain principles, the feasibility of adapting their business model to meet those criteria will be assessed.

The **beneficiaries** of the CRFF include reef-positive businesses and supported projects . The CRFF will focus on supporting locally-owned organisations, primarily MSMEs, as a way to create alternative and sustainable livelihoods for the reef-dependent communities. This will include for example working with communities active in fisheries, shrimp farming, and seaweed production (primarily farmed by local women). It is expected that for waste management, bioprospecting and ecotourism projects, the CRFF

will provide (returnable) grants to MSMEs and NGO-led projects, that directly engage with local communities. Indirect beneficiaries include reef-dependent communities that can benefit from improved job and livelihood opportunities, as well as from improved ecosystem services. Besides, it will be assessed whether projects, especially ecotourism, can provide additional income streams for MPAs, which can enhance funding for coral reef protection and restoration. In terms of gender approach, the CRFF will aim to run a women-specific accelerator and incubator events, for example by partnering with Hatch Blue's work on incubating female-led seaweed businesses. Besides, the CRFF aims the partner with the WB Lautra programme to channel some of their funding earmarked to support women-led reef-positive businesses through the CRFF.

The CRFF will be the largest finance solution of this programme in terms of GFCR funding distributed. It is expected that USD 4.8 million will be allocated for the set-up of the CRFF funding facility, fund management expenses, and the provision of grants, returnable grants, and technical assistance. It is expected that USD 500,000 will be distributed as traditional grants and TA, and USD 2,9 00,000 as returnable grants. Yet this will depend on the needs of businesses applying for the CRFF. The CRFF will aim to leverage other sources of concessional finance to support the businesses and projects through the CRFF as well. Examples of partners that have indicated openness for collaboration include the CI Ventures fund and the WB Lautra programme that has specific investment windows to support women-owned businesses, with the potential to channel this financing through the CRFF. Finally, the programme will provide match-making support to businesses that graduate from the CRFF to access other sources of funding, for example from the GFCR Investment Fund, as well as the NatureVest TNC-Hatch Blue Revolution Fund, Aquaspark, CI Ventures, and ADM Capital.

The solution is currently in design phase. Milestones include:

- Phase 1: Inception
    - Landscape assessment conducted to identify investment needs, industry practices, investment opportunities, and optimal CRFF portfolio composition in collaboration with the GFCR Investment Fund.
    - CRFF Fund Manager and Expert Selection Committee partners identified
    - CRFF is designed
    - CRFF fund manager and expert committee installed
    - Co-financing sought
    - CRFF pipeline is built through a first call for proposals, identifying and supporting one to two high-potential businesses
- Phase 2: Growth Phase (expected)
    - At least 2 more CfPs are launched, in total expecting to support around 40 reef-positive SMSEs and larger businesses.
    - Co-financing is leveraged, including returnable grants/concessional finance that allows for the CRFF to be designed as a revolving fund in the long-term.
    - CRFF graduates are linked to other (concessional) finance providers
- Phase 3: Consolidation and Sustainable Exit Phase (expected)
    - CRFF graduates are linked to other (concessional) finance providers

- CRFF manager is ready to manage CRFF beyond GFCR support

It is expected that the CRFF will be able to leverage commercial investment from concessional loan providers from year 1 to 2 of the programme. It is expected that the CRFF businesses start generating revenue from year 2 of the programme. Expected impacts, it is expected that through the implementation of the reef-positive business the reefs will experience impacts from year 3 onwards.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
USD 236,617.00	USD 4,800,000	USD 5.1 million (from grant programmes and concessional loans from micro-finance institutions, impact investors, and development banks (e.g CI Ventures)	USD 9,900,000 million

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
Expected revenue generation of businesses supported over CRFF lifetime: USD 4,600,000	USD 5,100,000	Debt & Equity	Concessional loans from micro-finance institutions, impact investors, and development banks	(1:1.06)

The relevant indicators from the GFCR Fund-level indicators include (targets are included in the M&E chapter)):

- Number of jobs created for Indigenous Peoples and local communities
- Number of direct and indirect local beneficiaries of Fund investments
- Investments into reef-positive businesses
- Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.
- Number of sustainable finance mechanisms directly supported
- Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses
-

o Solution #2 Sustainability standards and aggregation support to coral reef fisheries, sustainable aquaculture farmers, and local micro-business groups

Stakeholder consultations highlighted the potential challenge to generate sufficient pipeline opportunities for the CRFF in the priority locations. To support pipeline building for the CRFF and ensure local communities can benefit from reef-positive business opportunities, this solution provides aggregation support to coral reef fisheries, sustainable aquaculture farmers, and local micro-business groups. Whereas the CRFF will be managed by a Fund Manager and primarily focus on providing business development support, which can also include applying sustainability standards, this solution is more focused on technical support to individual fishermen, aquaculture farmers and households to: 1) improve their technical (sustainable) practices, and 2) aggregate them into formal groups and organisations, who can then apply for CRFF support to develop business plans, strengthen their business and organisational capacity, or further enhance their positive impacts on coral reefs as a group.

As such, t he solution is distinct from the CRFF as it focuses on supporting individual fishermen, aquaculture farmers and households to form formal groups/business entities. Fishermen will also be supported to adopt more sustainable practices and ecolabel certification under this solution, as the complexity of providing such assistance makes it more suitable for long-term TA support. TNC YKAN has extensive experience in support fishermen to do so. The beneficiaries of this solution will be able to graduate from this solution into the CRFF pipeline to request further support as described as 'concept stage' under the CRFF. This solution will therefore be closely aligned with the CRFF, ensuring the type of fishermen, aquaculture farmers, and micro-businesses supported align with the CRFF priority sectors (e.g. supporting female seaweed farmers).

The solution relates to Outputs 2.2, 2.3, and 2.4, and addresses the drivers of poorly-planned coastal development (through sustainable aquaculture and eco-tourism projects), land-based and marine pollution (waste management projects at the community level), and unsustainable fishing (sustainable fisheries).S eaweed and shrimp-carbon aquaculture have been identified for Savu Sea and Berau sites. As for other micro-businesses, currently TNC YKAN has identified several informal community groups who have ideas to develop business in ecotourism sector (Berau) and women group in producing post-harvest products from fish (Berau). Other example micro-businesses include processing or value add of aquaculture products such as seaweed, ecotourism and waste management projects at the community level that are led by women and youth groups). Further background information on the importance of improving the sustainability of fisheries and aquaculture can be found in Annex 3

TNC YKAN will collaborate with implementing partners that specialise in the relevant sectors and business support services throughout the activities shown. Discussions with specific partners will be concluded during the Inception phase, but various co-implementers have been identified. For example, BlueYou is willing to support sustainable fisheries and **shrimp** aquaculture activities, Hatch Blue is willing to support **seaweed** sustainable aquaculture activities, and Planet Partnership could provide more general support to Micro-business groups. Besides, there are opportunities for the WB Lautra Programme to support public infrastructure investments identified by micro-business groups. Potential

engagement of these partners is specified below and these partnerships will be further explored and consolidated during the inception phase.

Figure 4 below shows an **overview of the business model** including revenue streams. This paragraph presents a high-level overview of the steps in this solution, more detail on each specific sector is provided below. TNC YKAN will use GFCR grant funding to conduct feasibility and landscape assessment studies to identify the exact locations withins the programme's priority locations for sustainable fisheries, aquaculture, and micro-business group locations and the potential for these projects to get organised in businesses and receive further investments. Based on these studies, baseline assessments will be conducted in selected priority locations. Based on these assessments, specific TA packages will be prepared for each sector to support individual fishermen, aquaculture farmers, and micro-business groups to enhance technical skills and form groups/business entities. In sustainable fisheries and aquaculture, the aim is to support fishermen and aquaculture farmers to enhance skills to improve sustainable practices, and if there is market demand be able to get certified according to ecolabels. After fishermen and aquaculture farmers are organised in groups and are certified, engagement with off-takers, private companies willing to invest in the projects, and other finance providers will be facilitated through using TNC's partners (e.g. Hatch Blue and BlueYou) and match-making events and/or through the CRFF. Once aggregated, he fisheries and aquaculture projects can enter the CRFF pipeline to receive further GFCR (returnable) grant funding and/or concessional finance that is leveraged through the CRFF.

The support to **coral reef fisheries (output 2.4)** will build on TNC YKAN's track record of sustainable fisheries work, through for example the Sustainable Fisheries Programme and the Fish Improvement Project (FIP) where private sector engagement through eco-labelling is promoted (see Annex 3 for more information). It is expected that TNC YKAN will work closely together with BlueYou which is experienced in developing sustainable fisheries and is connected to large off-takers of certified supply. In the inception phase, one or two locations for sustainable reef fisheries projects (activity 2.4.1) in the priority areas will be identified based on the scientific assessments conducted under outcome 3.1. In these priority areas, the team will conduct stock assessments and identify constraints and opportunities for business development informed by supply line assessment, fleet survey, and catch assessment survey among representative small-scale fishers (activity 2.4.2). TNC YKAN will develop management plans in collaboration with local governments to secure access to sustainable resources for small-scale fishers and ensure sustainability standards are in place (activity 2.4.3). The team will build on TNC YKAN's existing work of supporting MMAF to implement the Fishery Management Plan by collecting data on fishing vessels and catch. After the inception phase (Y1 onwards), TNC and partners will start providing technical assistance and use grants to provide initial incentives to fisheries to meet ecolabel certification requirements and reach certification (Activity 2.4.4.). Once fisheries are certified, business support will be provided through the CRFF, for example through incubation, acceleration, and match-making support programmes and direct TA provision, will be provided to ensure the fisheries are able to engage with off-takers and private companies that are interested to invest (Activity 2.4.5). For example, TNC YKAN will bring together a group of Indonesian fishing companies and their clients (both Indonesian and international) interested in sustainable coral reef fisheries. The fisheries will also be supported with

match-making services to access other sources of finance (e.g. concessional funds) (Activity 2.4.6). The latter two activities will ensure fisheries can be sustainable beyond grant support, which is a crucial precondition to protect coral reefs in the long term.

The support to **sustainable aquaculture projects (output 2.2.)** will be implemented likely in close collaboration with Hatch Blue, that has incubated and accelerated various sustainable seaweed businesses, and BlueYou which works with shrimp businesses. TNC YKAN has conducted assessments of mangrove and shrimp aquaculture potential on the Derawan Islands in Berau (see Annex 3 for more information). In the inception phase, a national mapping of aquaculture growth projections and overlap with coral reef areas will be conducted (Activity 2.2.1). Besides, investment roadmaps for Indonesia's aquaculture sector will be developed in close collaboration with Hatch Blue and the CI-GFCR programme that is working on seaweed in the Savu Sea. This includes the identification of locations for sustainable aquaculture projects, pipeline development, and priority investment opportunities (Activity 2.2.2). For each priority site, a support package will be prepared in the inception phase, which includes relevant engagement with the government, communities, and TA providers (Activity 2.2.3). From Phase 2 (implementation) onwards, TNC YKAN can provide support to sustainable aquaculture projects to implement environmental standards (Activity 2.2.4). Once these are implemented, TNC YKAN will work closely with partners such as NatureVest, Hatch Blue and BlueYou to provide acceleration support to the project to either access the CRFF pipeline and/or access other sources of finance (Activity 2.2.5). We will build on Hatch Blue's aquaculture accelerator events. The objective would be to create viable investment opportunities for the CRFF, GFCR Investment Fund and aligned partners seeking deals in this space, including the TNC-Hatch Blue Revolution Fund, Aquaspark, CI Ventures, and ADM Capital.

The support to **micro-business groups (output 2.3)** aims to improve communities' access to sustainable markets and financial markets, including for women. Supporting communities in setting up micro-business groups can help with generating pipelines for the CRFF. For example, BUMDes are village-owned enterprises that are recognised by the Indonesian Government and are able to access subsidies to set up micro-businesses. By promoting the set up of BUMDes entities, TNC YKAN and Partners can incubate reef-positive business opportunities in communities, such as ecotourism and waste management businesses.[61] TNC YKAN will build on their work in Berau, on the Maratue Island, where they identified women-group micro businesses. TNC YKAN will also build on their programme called Kios Konservasi[62], which provides economic incentives and technical assistance to micro-business groups to improve their access to markets and financial capital, including women's active participation. Besides,

[61] TNC YKAN has supported one pilot experience in Wakatobi, where local communities run a recycling enterprise, collecting plastic from resorts and transforming into fuel for boats through pyrolysis equipment. This is possible through the establishment of village-owned enterprises called BUMDes, a mechanism possible since 2014 (through the Village Law). Through the establishment of BUMDes in villages near resort areas, the CRFF will then be able to further support local waste management companies.

[62] This is a community-based blue economy development approach, that involves setting up micro-finance schemes at the village level, with the leadership of women, to help seaweed farmers to acquire high-quality equipment and adopt best management practices. TNC YKAN can also build on TNC's global pilot in Indonesia called Indigenous Peoples and Local Communities Finance Icubator where YKAN partnered with bank BRI to provide collateral for SMEs to access loans. It will be assessed whether this scheme can be extended to shrimp and seaweed farmers and the work with micro-business groups.

TNC YKAN has worked with Women Association ASPPUK and a local NGO INDECON support local ecotourism businesses before and will explore partnerships to implement this work. The WB Lautra programme has indicated openness to assess whether micro-business groups supported by KORALESTARI can receive investment in public infrastructure to support their businesses (e.g. waste management facilities). Besides, Planet Partnership and BlueYou have experience in originating micro-businesses and it will be explored how they can support the activities during the Inception Phase. In Phase 1, priority locations will be identified based on the scientific assessments carried out under Output 3.1 (Activity 2.3.1). Based on this, support packages will be prepared to set up micro-business groups. TA and incubation services will be provided from Phase 2 (implementation) onwards to support the set-up of micro-business groups. . Incubation and acceleration support will be provided where possible with partners (e.g. Planet Partnership, BlueYou, Systemiq, and ISWA) to establish partnerships with other initiatives such as Clean Oceans through Clean Communities (CLOCC) for waste management, the CRFF, and other private investors.

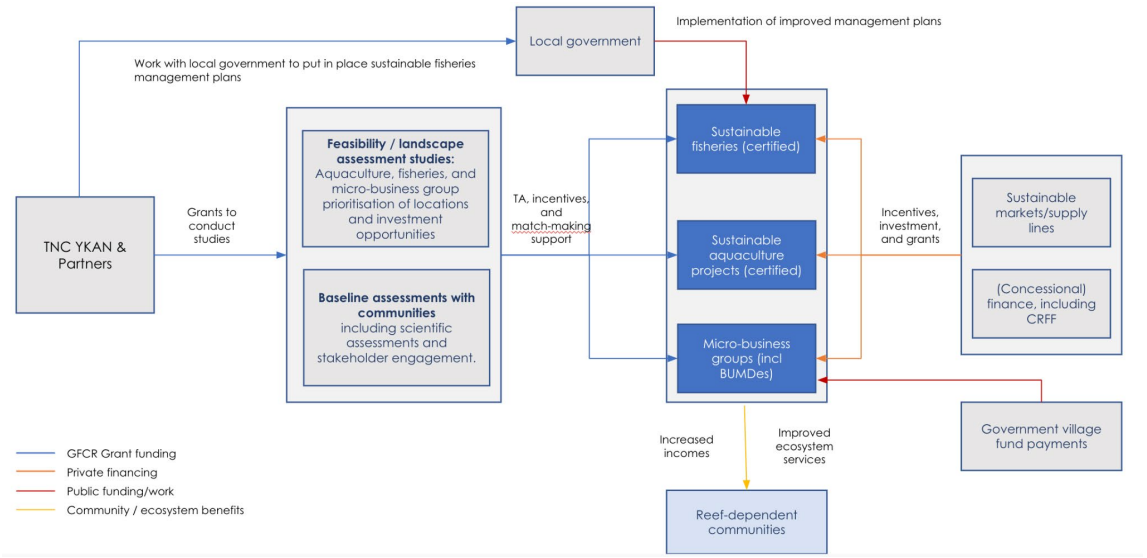

Figure 4. Overview of support to sustainable fisheries, aquaculture, and micro-business groups.

This finance solution aims to target reef-dependent communities active in coral reef fisheries, aquaculture, and micro-businesses across the CRFF target sectors more generally. It aims to ensure **communities** are able to benefit from reef-positive business opportunities, by supporting fisheries and aquaculture projects to reach sustainability standards and develop communities more broadly by setting up micro-business groups. As such, it aims to create alternative, sustainable livelihoods for communities. In terms of gender approach, the interventions will ensure women are equally represented among the beneficiaries that receive technical assistance and will ensure support channels are appropriate for women (including consideration of their responsibilities). Seaweed projects are especially expected to benefit women, as there is a relatively high number of women working in the sector compared to fisheries.

The GFCR grant funding will be used to finance studies and provide TA and incentives to individual farmers, fishers, and communities to set up reef-positive businesses . TNC YKAN and partners will aim to leverage other sources of concessional finance to support the businesses and projects.

The solution is currently in incubation phase. Milestones include:

- Phase 1: Inception
    - National mapping of aquaculture growth projections and overlap with coral reefs conducted
    - Investment roadmap for Indonesia's aquaculture sector prepared
    - Stakeholder engagement with priority aquaculture sites concluded
    - Stakeholder engagement with priority communities to set up micro-business groups concluded
    - TA support package prepared for priority sites
    - Priority locations for sustainable fisheries projects identified
    - Start of stock assessments, supply line assessments, fleet survey, and catch assessment survey conducted with representative small-scale fisheries in one or two priority locations
    - Reach out to local governments to start developing sustainable management plans (e.g. secure access to sustainable resources for small-scale fisheries and sustainability standards in place).
- Phase 2: Growth Phase (expected)
    - TA support package is continued to fisheries, aquaculture farmers, and micro-businesses groups, for each site, to implement environmental standards, improve technical skills and set up organisations and business groups. .
    - Micro-business groups are established
    - Aquaculture farmers, and micro-business groups are linked to supply chains and market actors (can be done through the CRFF).
    - Supported aquaculture farmers, and micro-business group enter CRFF and other concessional finance providers' pipelines.
- Phase 3: Consolidation and Sustainable Exit Phase (expected)
    - Fisheries are linked to supply chains and market actors (can be done through the CRFF).
    - Supported fisheries, aquaculture farmers, and micro-business group enter CRFF and other concessional finance providers' pipelines

The projects supported are expected to generate additional revenue from ecolabel certification from year 2 or 3 onwards, depending on the feasibility studies that determine the exact support packages. Expected impacts, it is expected that through the implementation of the reef-positive projects will experience impacts from year 3 onwards.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
USD $614,389.00	USD 1,000,000	Confirmed:	USD 3,775,000

		USD 25,000 from anonymous donor USD 25,000 from Tiffany Ambition: USD 50,000 from Blue economy expert (e.g. BlueYou) USD 25,000 from Aquaculture accelerator expert (e.g. HatchBlue) USD 1,000,000 from WB Lautra to make social investment relevant for micro-business groups USD 1,150,000 USAID Ber-ikan USD 500,000 Blue Halo	

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
TBC during programme inception	na	na	Fisheries off-takers Seaweed and shrimp off-takers	TBC

The relevant indicators from the GFCR Fund-level indicators include (targets are included in the M&E chapter):

- Number of jobs created for Indigenous Peoples and local communities
- Number of direct and indirect local beneficiaries of Fund investments
- Investments into reef-positive businesses
- Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.
- Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses
-

○ Solution #3 Self-financing models for MPAs and other reserves

This solution aims to replicate a self-finance model (UPTD-BLUD[63]) for the MPAs in Berau, as well as other reserves (such as TURF[64] reserves). This activity is related to Output 1.2 (MPAs and other reserves have self-finance models in place - UPTD-BLUD) and builds on policy activities under Output 1.1 (Improving enabling conditions for the blue economy including allowing for the UPTD-BLUD MPA Management Model). Through installing self-financing models, MPAs and other reserves can have access to enhanced resources to support effective management. It, therefore, also supports activities under Output 3.1 and 3.2. By leveraging more finance for effective MPA management, it is expected that this will directly contribute to coral reef protection and restoration. Through enhanced patrolling and having in place effective management plans, the drivers of coral reef degradation addressed include unsustainable fishing, land-based and marine pollution, and COTS.

For several years, TNC YKAN has engaged with the government on the revision of the legal framework to ensure that revenue generated from MPAs is reinvested in these areas. One of the outputs of this effort was the establishment of the MPA Management Unit (also known as the Regional Technical Implementation Unit - Provincial Agency for General Service, for Marine Protected Area, or UPTD-BLUD for MPA), a quasi-business entity, to manage the MPAs. This approach has already shown some success in Raja Ampat[65], where the Management Unit collects fees from visitors and uses these funds to conduct patrols, campaigns, and support village infrastructure improvements. The visitor fees covered around 88% of the MPA budget in 2019, generating USD 1.5 million in that year. During the COVID-19 pandemic this funding was significantly reduced but still provided around USD 630,000 to the MPA (which represented 60% of the area budget in 2020).

This model was possible because Indonesia went through a decentralisation process in 2004, enacting regional autonomy. A new political reform from November 2020, known as the Omnibus Law, is now reverting this process, limiting provincial governments' decision-making powers. A key policy gap identified by TNC YKAN with this new legislation is to develop a regulatory framework with criteria through which the national government transfers resources and the mandate to provinces to establish and manage UPTD-BLUDs. However, a recent update to the regulation has approved the ability of provincial to establish new Regional Technical Implementation Unit (UPTD) for MPAs, which is an important enabler of the UPTD-BLUD MPA Model. The work of KORALESTARI will now focus on creating a UPTD-BLUD MPA Model that can act as the management body. A remaining, much smaller, risk lies with ensuring government has sufficient capacity to create an UPTD-BLUD MPA Model, and KORALESTARI's activities will support capacity building of government herewith mitigating this risk. The

[63] The UPTD-BLUD model consists of the UPTD, which is a Regional Technical Implementation Unit under the Provincial Marine and Fisheries Agency. This UPTD needs to be formed first through a Governor Decree. After this, the UPTD-BLUD MPA management unit can be established, which constitutes the business unit of the UPTD which allows for private income generation. The BLUD is also known as the Provincial Agency for General Service, which is a semi-public business unit.

[64] TURF stands for Territorial Use Rights for Fishing and are area-based fishing rights that provide exclusive privileges to a specific group/individual to fish in an area.

[65] https://rajaampatmarinepark.com/mpa-managment-unit/

activities under Output 1.1 will be a key contribution from this programme to maintain the successful experience in Raja Ampat and enable replication of the UPTD-BLUD self-financing model in other areas. These policy activities are expected to take place in the inception phase. The key government bodies to engage with are the Ministry of Marine Affairs and Ministry of Home Affairs. In terms of the entity that will take on the role of UPTD-BLUD MPA Model, this will be the MPA Management Unit (UPTD for MPAs) which is already established . The BLUD will be a new unit under this UPTD for MPA, therefore called the UPTD-BLUD MPA.

Once the regulatory framework is in place, the GFCR programme will replicate the UPTD-BLUD MPA Model to the MPA in Berau. Berau was selected given the enabling environment for the UPTD is already in place, the tourism sector is growing and has potential to generate revenues by charging visitor fees. Although preparatory work will start in Phase 1 (Inception Phase), most work will start in Phase 2 (Growth Phase) of the programme. Berau was selected as a priority site for this intervention as tourism has grown continuously. The Derawan Islands, on the coast of Berau, are a popular tourist destination with a well-known diving site. There is the political will to replicate the UPTD-BLUD MPA Model in Berau and establish a fee-based income system for the MPAs in the area. The focus of KORALESTARI will be on facilitating the formalisation of the UPTD and then help the UPTD establish BLUD MPA Model, creating the UPTD-BLUD MPA Management Unit which can leverage private fees for MPA use.

As a next step, in the inception phase, implementation and business model for MPA management units will be prepared in collaboration with the East Kalimantan Provincial Government, MPA staff, and community partners (Activity 1.2.1). This work will include the forming of an UPTD-BLUD through a Governor Decree under the Provincial Marine and Fisheries Agency and reviewing potential business activities and income projection for the UPTD-BLUD. Then, from Phase 2 (Growth phase) the MPA Management Units will be established, which includes creating a full UPTD-BLUD business and work plan. This involves providing assistance on organisational strengthening, financial literacy, designing the visitor fee collection processes, and developing tools for assessing MPA management effectiveness to ensure increased revenue is effectively used to protect and restore corals (Activity 1.2.2; Activity 3.2.1 and 3.2.2). Once the fee collection starts, the funds are used to implement the MPA management plan, which includes patrols, campaigning, improving coral reef management, and infrastructure development[66] to reduce drivers of degradation (Activity 1.2.3). It will be assessed whether the UPTD-BLUD can appoint Reef Brigades (Pokmaswas) to conduct monitoring and surveillance activities. In Phase 3 of the programme, it will be assessed whether the model can be replicated in other MPAs and reserves in Natuna Sea and Savu Sea (Activity 1.2.4). In the Savu Sea, tourism potential is lower but other revenue streams can be studied. Identification of other revenue streams will build on the work by the CI GFCR-funded grant programme that is currently identifying revenue streams beyond tourism for the Bomberai UPTD-BLUD in West Papua. This would allow more areas to be effectively managed and conserved, contributing to Outcome 1.

[66] This includes surveillance stations/posts, surveillance boats, solar cells, searchlights, monitoring and surveillance equipment, and an information/awareness centre.

Figure 5 shows an overview of the business model. The UPTD-BLUD MPA model contributes to the financial sustainability of the MPA by managing the resources from the tourism fee in combination with government contributions. As a public service agency with financial autonomy, it favours multi-stakeholder partnerships and co-management systems. As such, the UPTD-BLUD MPA model allows other funders to provide grants to the UPTD-BLUD. Overall, the UPTD-BLUD MPA model has proved to strengthen local governance.

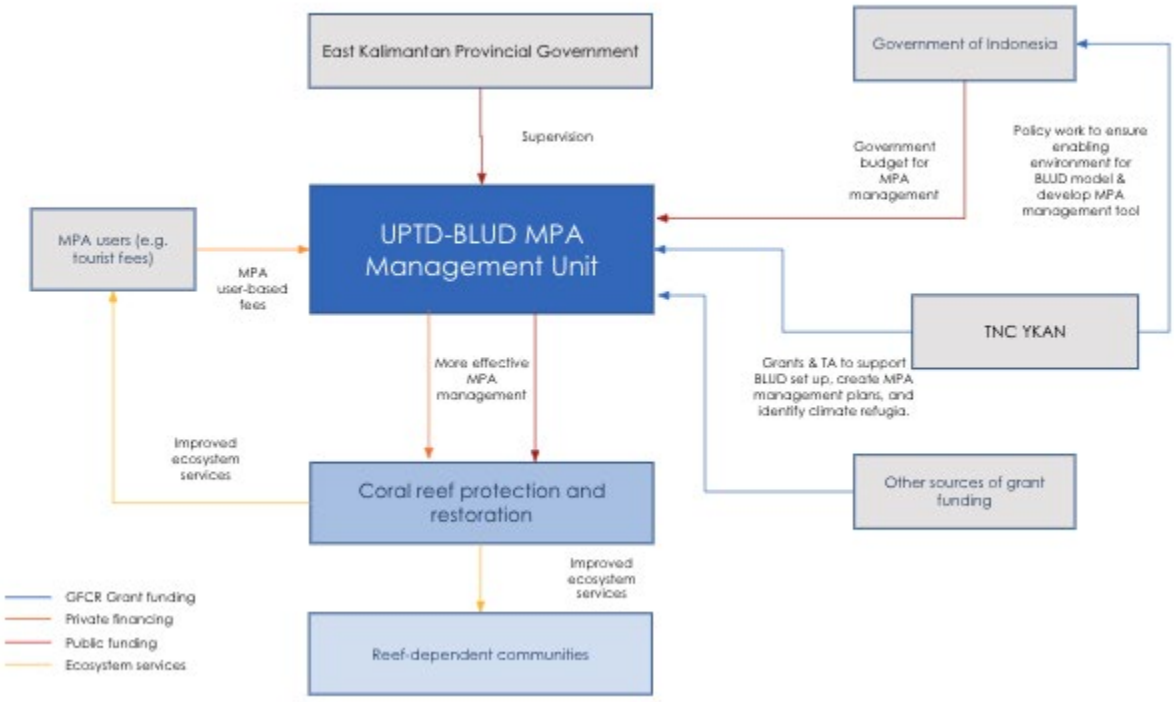

Figure 5. UPTD-BLUD MPA self-financing business model overview.

TNC YKAN will build on its previous work in Raja Ampat and its strong relationship with the Provincial Marine and Fisheries Agency, East Kalimantan Provincial Government, the District Government in Berau, and MPAs in Berau to implement this work. TNC YKAN will closely collaborate with local community groups, local tourism operators and resorts, and with consultants who have close relationships with the Ministry of Internal Affairs and experience in building UPTD-BLUD capacity (such as Starling Consulting). TNC YKAN will also coordinate with CI who is supporting the UPTD-BLUD replication in the Bird's Head Seascape to learn from any important lessons. Besides, the World Bank (WB) Lautra project is working with the Indonesian Government to support MPAs to enhance their effective management and has indicated an initial willingness to collaborate on this activity.

The **beneficiaries** of the UPTD-BLUD self-financing models are MPA Management bodies, who will have improved financial resources and capacity to effectively manage the MPAs and reserves. This will provide ecosystem service benefits to MPA users such as the tourism sector, but also to reef-dependent communities, as they can be engaged in MPA-related activities, especially tourism, and can benefit from

improved ecosystem services, such as increased fish stock. Although this model will unlikely lead to direct investment opportunities by the GFCR Investment Fund or other impact investment funds, it will help contribute to effective MPA management which will have a positive impact on MPA users, including businesses supported by such funds. The project will aim to stimulate the creation of employment opportunities for women as part of the UPTD-BLUD management body.

The solution is currently in design phase. Milestones include:

- Phase 1: Inception
    - Support to government to develop regulatory frameworks to enable UPTD-BLUD MPA model and blue carbon have started, covering study on potential revenues and establish taskforce to develop BLUD.
    - Support formalisations of UPTD for theMPA
    - Support UPTD[67] for MPA in Berau with conducting a study on the potential revenues for a BLUD MPA Management Unit.
    - Support the UPTD for MPA in Berau to establish a task force to develop UPTD-BLUD MPA Management Unit in Berau, including evaluating the business model.
- Phase 2: Growth Phase (36 months)
    - UPTD-BLUD MPA Management Unit formally established
    - Increased capacity of UPTD-BLUD in developing workplans, budget, business model, and organisational management
    - UPTD-BLUD started implementation of business plan, including collaboration with tourism industry and enhanced monitoring capacity through working with the Pokmaswas Reef Brigades.
- Phase 3: Consolidation and Sustainable Exit Phase
    - At least 1 business plan is successfully implemented and started to gain revenue for MPA Management.

It is expected that the UPTD-BLUD model will start **generating revenue** for the MPA from year 4 of the programme. In terms of **expected impacts**, it is expected that through the capacity building and revenue generating MPAs will be more effectively managed from year 3 onwards. The UPTD-BLUD model will not take on **commercial investments**.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
USD 186,718	750,000	USD 50,000 Anticipated from USAID Kolektif	800,000

[67] The UPTD is a generic Regional Technical Implementation Unit that can operate in various sectors, such as UPTD for port services, UPTD for tax services, and many more, as well as UPTD that is specific for MPA management. UPTD conventionally relies on public funding. The programme will support UPTD that is specific for MPA to develop a BLUD Business Model, which allows the UPTD to access private funding through for example charging tourist access fees to enter the MPA. In this case, the BLUD is the business management unit which enables accessing private funding next to public funding.

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
MPA User Fees estimated to USD 120,000/year. In total USD 480,000 over the programme lifetime after UPTD BLUD model is established.	na	na	na	1:0.64

The relevant indicators from the GFCR Fund-level indicators include (targets are included in the M&E chapter):

- Extent (ha) of coral reefs where drivers of degradation are reduced so that climate resilient reefs are effectively conserved and managed (GBF)
- Ecological integrity of coral reefs: change in hard coral cover (%) and coral reef fish biomass (kg/ha) (GBF)
- Number of direct and indirect local beneficiaries of Fund investments
- Extent (ha) of coral reefs that are under effective coral restoration (GBF)
- Number of sustainable finance mechanisms directly supported
- Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses
-

Solution #4 Blue carbon pilot project

This financing solution will assess the feasibility of an expanded blue carbon pilot (building on the pilot initiated by TNC YKAN called the Nature Climate Solution Prototype as explained further below) project in Berau in order to restore and protect coastal and marine ecosystems and generate additional funding for MPA management and reef-dependent communities. This is due to the fact that the MPA management units cover both the coral reefs located offshore on the Derawan Islands and the mangrove areas which are found on the mainland of East Kalimantan. An expanded blue carbon project could generate carbon credits through mangrove restoration activities, possibly combined with restorative aquaculture. Once carbon credits are generated, the proceeds could support coral reef protection on the Derawan Islands.

The feasibility of voluntary blue carbon projects to generate carbon credits is dependent on blue carbon regulations. Although the Government of Indonesia is currently working on a carbon policy, regulations for voluntary blue carbon projects still need to be designed. This programme will contribute to this policy development by providing information and lessons learned from TNC YKAN blue carbon pilot project in Berau as detailed in Output 1.1. Once these regulations on voluntary blue carbon projects, as well as a national and provincial action plan which KORALESTARI will aim to support/facilitate the implementation of (activity 1.1.4 and 1.1.5), are in place, an expanded blue carbon project could help generate revenue to address various drivers of coral reef degradation, including unsustainable aquaculture (when mangrove restoration projects are integrated with sustainable shrimp farming) and poorly-planned coastal development (avoiding and reducing mangrove conversion). Carbon revenues can flow directly to MPAs when the UPTD-BLUD self-finance model has been replicated, which the programme aims to do in Berau.

Overall, this financing solution is related to Output 1.3 (A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities). It is expected that if a blue carbon pilot project can be implemented in one priority location, this can serve as an evidence base for further policy work to enhance the enabling environment for other blue carbon projects. In the inception phase, KORALESTARI will conduct the policy work as outlined above, conduct initial stakeholder consultations and leverage co-finance.

TNC YKAN is currently developing a Nature Climate Solution (NCS) prototype project in Berau to lay the foundation for a blue carbon project (mangrove and seagrass areas of Berau Delta). Through the NCS project, TNC YKAN introduced a new mangrove restoration approach called Shrimp Carbon Aquaculture (SECURE), where mangrove restoration is carried out by improving aquaculture practices. The target is to reduce active traditional shrimp ponds to 20% of the area, freeing up 80% for mangrove restoration. Besides, activities are carried out to prevent the loss of mangroves, implement hydrology systems and pond embankment, as well as water gate improvement. The approach will help protect existing mangroves, restore the degraded areas, while improving the income of the communities. SECURE is currently working on 200 ha of shrimp ponds as the pilot sites and aims at transforming 10,000 ha of shrimp farms to adopt the SECURE approach by 2030. Building on this 200 ha shrimp pond's work, the

exact location for an expanded blue carbon pilot with economic scale (~5,000 ha) will be identified in the inception phase (Activity 1.3.1). After this, a full (pre-)feasibility study will be conducted (Activity 1.3.2). In the Second Phase (Growth Phase), the programme will work to implement the blue carbon project with partners, communities, and the MPA staff (Activity 1.3.3). It is expected that carbon credits can be verified and registered in the final phase of the programme (Activity 1.3.4.).

The feasibility studies is expected to be conducted in close collaboration with Blue Forests, BlueYou and other partners that will be identified in the inception phase. Blue Forests has experience in implementing mangrove restoration and sustainable shrimp projects and has conducted a feasibility study in the area close to the Berau MPA. Similarly, Blue You is working in North Kalimantan on a mangrove-restorative aquaculture project and linking the sustainably-harvested shrimp to the European markets, and synergies and lessons learned will be sought. In addition, the Indonesia Government is working with the World Bank to carry out large scale mangrove restoration in East and North Kalimantan, but has not decided the exact location yet. Besides, KORALESTARI will engage with the TNC's NCS Prototyping Network, which will support assessing mitigation potential, evaluating impacts of conservation projects, building science capacity, and connecting projects across the globe to share information and support peer learning.

As seen in Figure 6 below, the GFCR grant funding will be used to conduct both the policy work, develop a feasibility study, link the mangrove-restorative aquaculture products to the market, and capacity development for the communities to be involved in the blue carbon project. It is envisaged that partners such as Blue Forests and the World Bank are able to provide (in-kind) co-financing. This possibility will be further explored in the inception phase. Additionally, the feasibility study will identify potential buyers of the blue carbon credits (who can also help finance the project development costs), community and MPA management capacity needs and restorative mangrove-aquaculture gaps. Once a blue carbon pilot project is implemented and carbon credits are generated, the CRFF could take on management responsibilities in liaising between the carbon project, the carbon off-takers, the management unit at the community level, and the MPA. This would mean that the revenue from the carbon credits will flow into the CRFF account, which will be responsible for the benefit sharing with the communities engaged in the blue carbon project and the MPA.

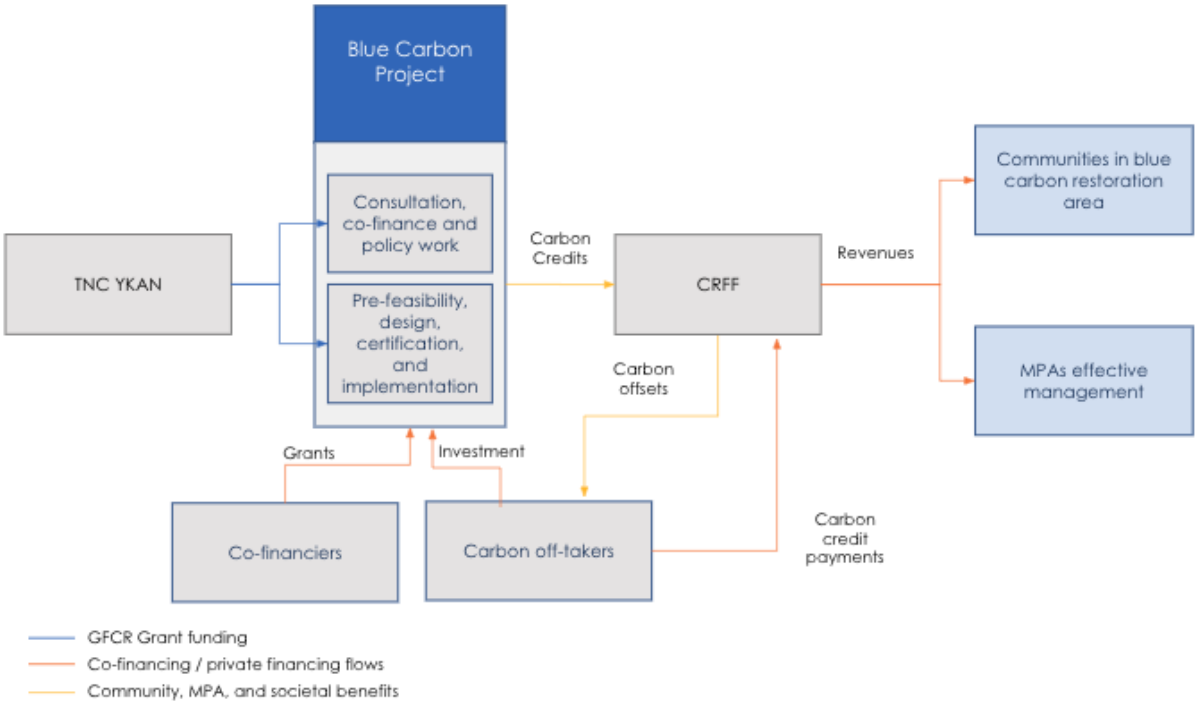

Figure 6. An overview of the blue carbon pilot project.

TNC YKAN will closely collaborate with relevant government stakeholders to ensure buy-in to the blue carbon project and with communities to ensure they are involved in restoration activities and can equally benefit from the blue carbon credit revenues and restorative aquaculture opportunities. The stakeholder consultation process will be a participatory process, involving communities living close to the mangrove and seagrass ecosystems and/or directly depending on them, as well as other institutional and local stakeholders.

The **beneficiaries** of the blue carbon project include communities that will be involved in mangrove restoration and/or sustainable shrimp production and the MPAs, who are able to receive additional income for coral reef protection. Currently, TNC YKAN engages with around 100 households engaged in shrimp carbon farming in Berau. The number of potential beneficiaries of the blue carbon project will be determined during the feasibility study that will be conducted in Phase 1 of the programme. Overall, local communities will have livelihood opportunities by engaging in conservation and restoration activities and will benefit from improved ecosystem services, including coastal protection and food security with increased fish stocks. When mangrove protection is integrated with restorative aquaculture, local communities can benefit from enhanced income from aquaculture as well as from revenue sharing of the carbon credits. In terms of gender approach, the project will seek to encourage women's participation in blue carbon projects through participatory design, ensuring equal income opportunities from restorative aquaculture and mangrove restoration for women, and ensuring fair benefit-sharing processes of blue carbon proceeds for women and men.

The GFCR grant funding in the inception phase will be used to finance a feasibility study and policy development. TNC YKAN and partners will aim to leverage other sources of research and financial support.

The solution is currently in design phase. Milestones include:

- Phase 1: Inception
    - Location identified for first blue carbon project in Berau
    - Pre-feasibility study is conducted for the blue carbon project in Berau
- Phase 2: Growth Phase (expected)
    - Full feasibility study is conducted for the blue carbon project in Berau
    - Identify key partners and funders, and potential carbon off-takers
    - Develop and implement the carbon project.
    - Project registration and credits verification
- Phase 3: Consolidation and Sustainable Exit Phase (expected)
    - Benefit-sharing with communities
    - Potential scaling/replication of carbon project

It is expected that the blue carbon project will be able to leverage **commercial investment** from carbon off-takers after the feasibility study is completed, which is expected to be after 4 years. The project can start **generating revenue** from the carbon credits from year 3 or 4 of the programme (depending on progress with the feasibility study). In terms of **expected impacts**, it is expected that through the implementation of blue carbon/shrimp models reefs will experience impacts from year 3 onwards.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
USD 123,514.21	USD 600,000	Confirmed: Ambition: USD 25,000 from blue carbon experts (e.g. blue forests) Ambition: USD 25,000 from blue carbon experts (e.g. BlueYou)	USD 650,000

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
Carbon off-taker payments are estimated to reach up to USD 2,250,000 before the end of the programme	n.a.	n.a.	private	(1:3.75)

The relevant indicators from the GFCR Fund-level indicators include (targets are included in the M&E chapter):

- Extent (ha) of coral reefs where drivers of degradation are reduced so that climate resilient reefs are effectively conserved and managed (GBF)
- Number of direct and indirect local beneficiaries of Fund investments
- Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.
- Number of sustainable finance mechanisms directly supported
- Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses
-

Solution #5 Reef insurance mechanism, including the composition of Reef Brigades

The KORALESTARI programme aims to develop a reef insurance funding mechanism that works with local 'Reef Brigades' to provide ongoing reef maintenance and restore coral reefs after damages. A reef insurance mechanism can directly help protect and restore coral reefs, and also can help address underlying drivers of coral reef degradation such as poorly-planned coastal development through working with reef-dependent businesses and communities that will help raise awareness on the importance of the reefs. TNC has been supporting the set up of reef insurance mechanisms globally, yet there are no current examples available in Indonesia. The solution is currently in the concept phase. The solution relates to Output 3.3 (New Reef Insurance Productions are developed) and Output 3.4. (Local Reef Brigades are established to restore coral reefs and support reef recovery after damages).

In Indonesia, the relevant body to constitute 'reef brigades' are the existing Pokmaswas Perikanan (community-based groups for fisheries surveillance), which are formed under the Provincial Governments. The role of Pokmaswas Perikanan include assisting local government in MPA surveillance, reporting for any misconduct/violation within the MPA, and assisting in dissemination of management rules and regulations within the MPA.

The insurance product will be based on a Parametric Index Insurance mechanism. Parametric insurance offers pre-specified payouts based upon a trigger event, such as extreme weather events. Insurance mechanisms can help de-risk investments in coral reef protection and restoration, hedging against the risk of damage from weather events. TNC supported the development of the world's first coral reef insurance mechanism in Mexico, in partnership with the state government, hotels, a regional conservation trust fund, National Parks, and reef brigades. Reef brigades consist of community members and/or organisations such as local dive shops, rangers, and MPA staff, who are trained to repair the reef after shock, such as storms. In the case of Mexico, the regional government established a Coastal Zone Management Trust which collects and manages local taxes and fees (from businesses operating in the coastal zone) for reef maintenance and repair. In this case, the Trust purchased a coral reef and beach parametric insurance policy. The insurance payouts are dependent on wind speeds.

In Indonesia, this financing solution will build upon work by TNC YKAN in developing reef insurance mechanisms in partnership with the government and the Asian Development Bank (ADB). A medium-sized Global Environment Facility (GEF) project had its concept approved and is in the full proposal preparation phase. It will direct funding to establish the insurance mechanism in one site in the country. Initial baseline studies have been completed and potential sites have been identified in Indonesia for the GEF proposal, which include sites in Savu Sea and Berau. The GFCR support will be directed to complement and accelerate the efforts of the GEF project. The KORALESTARI programme will closely coordinate with the GEF project. If the GEF project also focuses on Berau, the GFCR funding will be usef to strengthen their feasibility study by focusing on creating a network of partners that could potentially contribute to the Reef Insurance . Besides, Annex III provides information on three other international programmes that are assessing the feasibility of reef insurance in Indonesia.

Figure 7 provides an overview of the reef insurance business model. In the inception phase, TNC YKAN will engage with government, private sector, and community partners to identify suitable locations for a first mechanism to be developed (Activity 3.3.1). The location will be dependent on the availability of potential private sector partners to pay for the reef insurance policy and the presence of extreme weather events that are likely to damage the reefs, as well as the decision of the GEF project on priority locations as explained above. This will likely be in Berau, where the tourism sector is further developed an insurance against coral bleaching might have potential. The studies will consider such factors and determine the most suitable location. In the Implementation Phase, the reef insurance business case will be further developed, including securing buyers of the insurance policy, working with insurance providers to design the product - including parametrics for insurance pay-outs, and setting up an insurance fund that can take out the parametric policy and provide regular grant payments to reef brigades for ongoing maintenance work (Activity 3.3.2). It is expected that the reef insurance can be operational in the final phase of the programme (Activity 3.3.3).

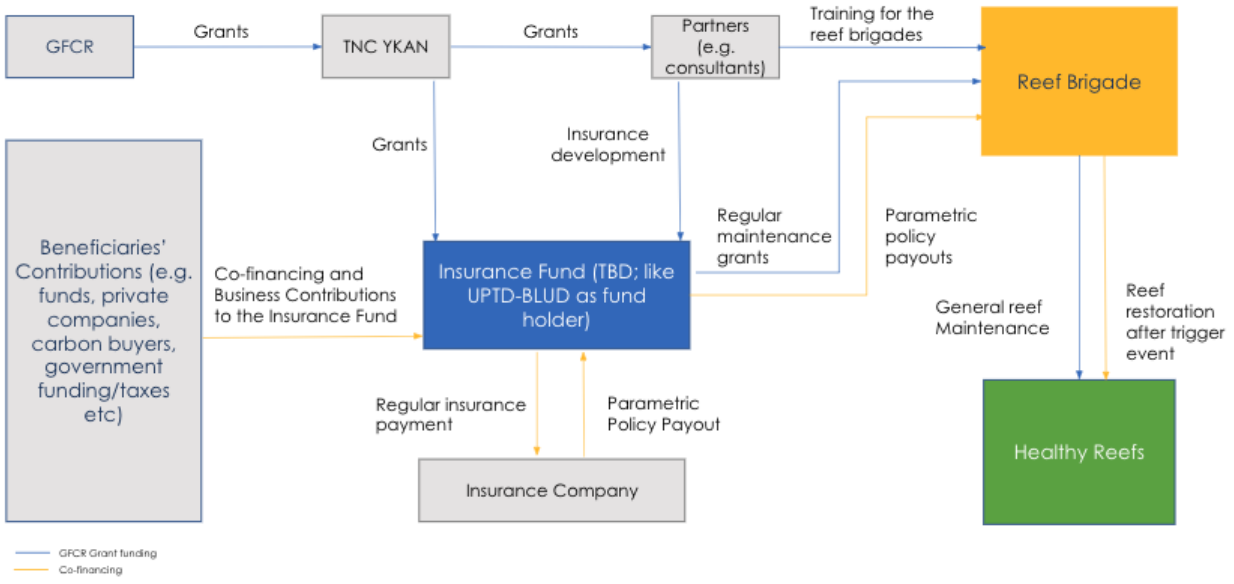

Figure 7. Overview of support to a Reef Insurance Mechanism and its financial flows.

Setting up and training reef brigades will be essential to ensure reef insurance payments are used effectively for coral reef restoration, which is the focus of Output 3.4. Local reef brigades will be identified in the inception phase. This will include the identification of existing coral reef nurseries and MPA restoration initiatives to collaborate with, and the preparation of support packages for each reef brigade (including stakeholder engagement, training design, and engaging consultants) (Activity 3.4.1). In the implementation phase, training will be provided to the reef brigades on regular coral reef maintenance and restoration activities, which will include the set up of additional coral reef nurseries if needed (Activity 3.4.2). To support ongoing maintenance work, regular GFCR grants will be channelled through the insurance fund to the reef brigades (Activity 3.4.3). This will help ensure sufficient capacity

is in place to use reef insurance pay-outs in case of damage to the reefs. In the inception phase of the programme, it will be assessed how regular payments for reef maintenance can be provided to the reef brigades beyond the GFCR programme, which could include collaborating with local private actors such as tourism operators to provide regular payments.

TNC YKAN is envisaged to work with potential partners such as the ADB programme and the insurance company Zurich NA, who can help to conduct the initial feasibility studies to inform the reef insurance product design and support the identification of partners and buyers of the reef insurance. Additionally, TNC is working globally in partnership with insurance companies, such as Swiss Re, Willis Towers Watson and AXA-XL, and potential collaborations will be scoped during the inception phase.

Funding is necessary for the annual insurance policy payment and also for ongoing conservation and restoration works in the targeted reefs. Funding may come from direct beneficiaries, such as hotels and restaurants with coastal properties or municipalities and tourism outfits that utilise the coastal regions. In the inception phase, TNC YKAN will closely engage with local government and private sector entities to identify how to best engage with beneficiaries of the insurance product.

Besides, TNC YKAN will work in partnership with a fund holder (TBD as seen in Figure 7; in Berau this will likely be the UPTD-BLUD MPA Management Unit). This Fund Holder will collect regular payments from the insurance contributors, take-out and pay for the parametric insurance policy, and channel pay-outs to the reef brigades. In other examples globally, the local government was the fund holder. It will be assessed during the inception phase which entity is best placed to play this role in the priority locations.

TNC YKAN will closely engage with the provincial government during the design and implementation of the reef insurance mechanism. It will be assessed whether provincial government can play a role in collecting insurance payments from beneficiaries. It is likely that the UPTD-BLUD entity will be the insurance fund holder.

The **beneficiaries** of this solution are the insurance holders (e.g. local businesses benefit from coral reef protection) and communities that can benefit from improved ecosystem services that result from enhanced coral reef protection and restoration. In terms of gender approach, KORALESTARI will ensure women have opportunities and are equally represented in the Reef Brigades.

For the pilot phase, the required grants will be used to identify priority locations and partners, and conduct the first feasibility study. During the implementation phase, GFCR grants will be used to further build out the business case. Co-financing will be sought from the GEF-funded ADB project, which will dedicate around USD 950,000 to developing the reef insurance mechanism in one site in Indonesia.

The solution is currently in design phase. Milestones include:

- Phase 1: Inception

    - Feasibility study to identify suitable locations and partners involved in the reef insurance mechanism conducted (if overlap with ADB-GEF project, this study will focus on identifying suitable partners)
    - Suitable partners to be trained as Pokmaswas Perikanan (Reef Brigades) in priority locations identified.
    - Support package for each reef brigade prepared, including stakeholder engagement and training design)
- Phase 2: Growth Phase (expected)
    - Reef insurance is set up (e.g. governance arrangements) and capacity building is provided to the fund holder
    - Partnerships with organisations contributing to the insurance fund are established
    - Reef brigades are trained and regular reef brigade maintenance work is carried out
- Phase 3: Consolidation and Sustainable Exit Phase (expected)
    - Regular reef brigade maintenance work is carried out
    - Potential scaling/replication of reef insurance mechanism

It is expected that the reef insurance will be able to leverage commercial investment after the feasibility study is completed, which is expected to be after 1 to 2 years. Expected impacts, it is expected that the reef brigades will positively impact coral reefs from year 3 onwards.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
USD $185.581,78	USD 750,000	Ambition: USD 950,000 from ADB - Partnership for Coral Reef Finance and Insurance in Asia and the Pacific	USD 1,700,000

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
n.a	Tbd in the feasibility study	NA	Private companies contributing to the insurance fund Amount	tbd

The relevant indicators from the GFCR Fund-level indicators include (targets are included in the M&E chapter):

- Ecological integrity of coral reefs: change in hard coral cover (%) and coral reef fish biomass (kg/ha) (GBF)
- Number of jobs created for Indigenous Peoples and local communities
- Number of direct and indirect local beneficiaries of Fund investments
- Extent (ha) of coral reefs that are under effective coral restoration (GBF)

- Improved crisis response to support the recovery of coastal communities and coral reefs ecosystems after major shocks
- Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.
- Number of sustainable finance mechanisms directly supported
- Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses

5 Replicability and Sustainability

The financial solutions KORALESTARI has selected are designed and will be developed to be replicable, scalable, and sustainable beyond the programme lifetime. This section summarises how each financial solution will pursue replicability and sustainability. It also describes the programme's overarching sustainable exit strategy and how it will aim to enhance local capacity, including that of communities, to protect and restore reefs and aim to contribute to the development of enabling conditions for the reef-positive business models supported.

Self-financing models (UPTD-BLUD) for MPAs. It is expected that if MPAs can adopt UPTD-BLUD self-financing models, they can develop new revenue streams that strengthen their financial sustainability, which will help to reinforce effective management. The UPTD-BLUD model for MPAs has financial sustainability at its core, not only establishing a new funding source with the fee-based system, but also creating a management structure that can attract additional resources from grants and public budgets. To ensure additional revenue is spent effectively on coral reef restoration and protection, KORALESTARI will closely work with the MPAs to design and implement effective MPA management plans. Besides, policy work will aim to enhance the enabling policy environment that allows for the UPTD-BLUD model. Once the UPTD-BLUD model has been developed in Berau, clear lessons will be shared with the wider community so that both KORALESTARI and other initiatives can replicate this model in other MPAs.

Blue carbon projects in and around MPAs. The KORALESTARI programme will aim to implement an expanded blue carbon demonstration project in mangroves and other marine ecosystem areas in Berau, which can generate additional revenues for communities active in restorative aquaculture and MPA management. By working closely with the MPA, local community and blue carbon developer partners (such as Blue Forests and BlueYou), valuable lessons can be generated for the replication of other blue carbon models. These lessons will be disseminated and will aim to serve as evidence for policy development activities. In this sense, KORALESTARI will contribute to the development of regulations that allow for a blue carbon voluntary market, which will further support replication and upscaling nationally. The sales of blue carbon credits is envisaged to provide additional revenues for the UPTD-BLUD MPA Management Unit, beyond public funding and visitor fees, to support MPAs with effective MPA management.

Coral Reef Funding Facility (CRFF). The Coral Reef Funding Facility (CRFF) is a blended finance mechanism that supports reef-positive businesses and projects. The CRFF will be designed to be managed by a partner that has existing (returnable) grants and accelerator programmes, and it is expected that this partner is able to leverage additional sources of (private) funding beyond KORALESTARI's lifetime to continue the CRFF after the programme ends. In the inception phase, the CRFF management partner will be chosen and the CRFF exact funding processes will be defined to consider the capacity to grow and maintain the CRFF operation after the GFCR exit. Continuity strategies

may include remuneration mechanisms for pipeline development and additional fundraising with international cooperation sources. In addition, the CRFF is designed to have an expert panel that helps build its pipeline and select reef-positive businesses that have clear potential to either generate revenue within KORALESTARI's lifetime or access other sources of funding through the partners' networks. The CRFF and its expert partners will provide match-making support with potential funders, for example the GFCR Investment Fund, the NatureVest TNC-Hatch Blue Revolution Fund, Aquaspark, CI Ventures, and ADM Capital.

Sustainability standards and aggregation support provision to coral reef fisheries, sustainable aquaculture farmers, and local micro-business groups. To support pipeline building for the CRFF and ensure local communities can benefit from reef-positive business opportunities, this solution provides aggregation support to coral reef fisheries, sustainable aquaculture farmers, and local micro-business groups. The support aims to improve communities' access to sustainable markets and financial markets, including for women. In fisheries and aquaculture, the grant resources will be used to group individual fisher and aquaculture farmers, create capacity, implement best management practices, give access to high-quality equipment and provide coaching support in a way that the businesses are ready to receive investments and be scaled up, becoming self-sustained in the long term. After projects are certified, engagement with off-takers, private companies willing to invest in the projects, and other finance providers will be facilitated through using TNC's partners (e.g. Hatch Blue and BlueYou) and match-making events. If more support is needed, the fisheries and aquaculture projects can enter the CRFF pipeline to receive further GFCR (returnable) grant funding and/or concessional finance that is leveraged through the CRFF.

Similarly, once micro-business groups are set up, incubation and acceleration support will be provided through partners (e.g. Planet Partnership, BlueYou, Systemiq, and ISWA) to establish partnerships with other initiatives, such as Clean Oceans through Clean Communities (CLOCC) for waste management, the CRFF, and other private investors. The WB Lautra programme has indicated openness to assess whether micro-business groups supported by KORALESTARI can receive investment in public infrastructure to support their businesses (e.g. waste management facilities).

Reef insurance mechanism. KORALESTARI will aim to set up a reef insurance mechanism in the programme's lifetime. This reef insurance mechanism is envisaged to leverage private and public contributions to coral reef protection and restoration after damage beyond the programme's lifetime, by working with an independent reef insurance fund holder (like the MPA Management body). Training and support to reef brigades (Pokmaswas Perikanan; existing community-based groups for fisheries surveillance) will ensure local community organisations have sufficient capacity to maintain and restore the reefs after the programme ends. In the final phase of the programme, it will be assessed how regular payments for reef maintenance can be provided to the reef brigades beyond the GFCR programme, which could include collaborating with local private actors such as tourism operators to provide regular payments. The programme will generate and disseminate learnings and work with local partners to promote replication in other localities.

The programme's Sustainability Exit Strategy

The KORALESTARI programme's operational structures are designed to build on TNC YKAN and partners' work, track record and capacity. As such, at programme end, work can be continued by these organisations using other sources of funding. This includes for example policy and research activities as outlined below, collaboration with MPAs (management plans and UPTD-BLUD model), government, and communities, and support to fisheries, aquaculture, and micro-business groups.

KORALESTARI's policy and research activities are essential to advance the overall enabling environment for coral reef protection and restoration, and to enable the replication, upscaling and sustaining of the finance solutions. Policy work that aims to continue the enabling framework for the UPTD-BLUD MPA Management model is important to enhance MPA's management effectiveness. The viability of blue carbon credits is dependent on national regulations, which KORALESTARI aims to help develop. Besides, research activities to identify resilient coral reefs, the work with MPAs to develop effective management plans, the development of national coral-reef fisheries and aquaculture plans, and putting in place local adaptation and disaster risk reduction plans will be crucial to enable that the coral reef protection finance generated is spent effectively in the long-term.

The programme's finance solutions are designed to generate long-term revenue for reef-positive businesses, communities, and MPAs. The CRFF will be an important platform that can be managed beyond the programme's lifetime as outlined above, primarily through working with a strong local partner that can leverage other sources of finance beyond the programme's lifetime. Ultimately, the CRFF can integrate the replication of blue carbon pilots and incubation support to sustainable fisheries, aquaculture and micro-business groups. Besides, by working with an expert panel of partners that provide ongoing acceleration and investment support to reef-positive businesses, replication and upscaling of approaches by the CRFF can be promoted.

Overall, the programme has a strong community focus, aiming for the empowerment of local communities to responsibly manage and monitor their coastal resources in the long term. Especially the work with micro-business groups, local fisheries and aquaculture projects, and the reef brigades aims for enhanced community capacity.

During the Consolidation and Sustainable exit phase, KORALESTARI will seek to scale-up and replicate the programme's financial solutions approach through the development of knowledge products and working with a range of stakeholders in the region through working groups, roundtables and stakeholder meetings. Overall, the activities under Output 1.4. (Learnings on Innovative finance mechanisms are shared externally with targeted communication interventions.) are designed to incentivise upscaling, replication, and sustainability of all finance solutions.

6 Governance and Management Arrangements

6.1 Programme implementation arrangements

6.1.1 Convening Agent (1 page max)

With nearly 70 years of experience, TNC is a global leader in protecting and restoring coral reefs and developing innovative financing for conservation. TNC's ocean projects span the globe—from the Asia-Pacific to the Caribbean, to the Western Indian Ocean, to the United States. With nearly 4,000 staff worldwide covering multiple disciplines and with work underway in 79 countries, TNC has the capacity to test, demonstrate, and scale up new and innovative approaches to coral reef conservation and restoration.

Coral reef conservation and restoration have been a focus of TNC's work globally. TNC is implementing the GFCR programme in The Bahamas – the BahamaReefs, and developing a full proposal for a GFCR programme in Micronesia. Besides, for more than 17 years, TNC leads the Reef Resilience Network, which has built the capacity of MPA managers to effectively manage, protect, and restore coral reefs and reef fisheries around the world. TNC's Reef Resilience Network has been training marine practitioners globally on how to build resilience into reef conservation and has been a global leader in reef restoration guidance by disseminating restoration planning guidance and online courses on wastewater pollution, coral reef resilience, coral restoration, and more. Additionally, TNC Global is leading the first-of-its-kind stacking of climate mitigation and adaptation benefits through blue carbon market pilot projects and developing resilience credit methodology, combining carbon sequestration with flood risk reduction. TNC is also working globally in partnership with insurance companies, such as Swiss Re, Willis Towers Watson and AXA-XL and led the development of the first reef insurance mechanism in Mexico.

TNC - and more recently YKAN as TNC's Indonesian partner - has worked in Indonesia for almost 30 years in partnership with the government, communities, and the private sector to conserve and sustainably manage coral reefs. A Memorandum of Understanding (MoU) between YKAN and the Ministry of Environment and Forestry (as represented by the Director General of Natural Resource and Ecosystem Conservation) was signed on 18 February 2021. Another MoU between YKAN and the Ministry of Marine Affairs and Fisheries was signed on 10 March 2021. This collaboration focuses on contributing toward 19% of the government's total goal of declaring 300,000 km2 of MPAs by 2030. TNC YKAN has also partnered with the government to develop national marine conservation policies, design a national MPA network, strengthen management capacity, develop a national measuring system for MPA management effectiveness, and enhance community and private sector engagement in sustainable marine resources management.

In implementing this programme, TNC YKAN will ensure efficient delivery by building on their existing work, government relations, and community and partner network in the priority areas. TNC YKAN will be supported by four TNC global teams - Global Reefs, Global Wetlands, Aquaculture, and Coastal Risk and Resilience, as well as NatureVest, TNC's impact investment arm. Through setting up financial

mechanisms and collaborating with locally established partners for their implementation, the work of the programme can be continued beyond the programme's lifetime.

TNC YKAN has been implementing various initiatives in the last 5 years upon which this programme will build. With regards to sustainable fisheries, YKAN has been working with seven fishing companies as the lead of an A-rated Forest Improvement Project (FIP) for deepwater demersal fisheries ("groundfish) since 2014. The work included support for nation-wide stock assessments and support to government for the development of management plans. Furthermore, YKAN has been an implementing partner in the Walton-funded tuna consortium, which focuses on three of Indonesia's eleven fishery management areas (WPPs). Recently, YKAN started trialling a management concept for nearshore coastal fisheries in Raja Ampat, West Papua.[68]

In sustainable aquaculture, TNC YKAN has developed, tested, and refined Best Management Practices (BMP) for sustainable seaweed aquaculture in Savu Sea, working with seaweed farmer groups across six villages in Sabu Raijua District and two villages in Rote Ndao District. The BMP has been successful in setting up a seeds demo plot and improving sustainable practices, aquaculture techniques, and post-harvest handling, which improved seaweed quality as confirmed by buyers from a seaweed plant. Currently, TNC YKAN is working to strengthen the organisational capacity of farmer groups, develop plans to link them to new off-takers and actors along the supply chain, and is exploring opportunities to develop seaweed value-added products (intermediary products). In addition, TNC YKAN has initiated the Shrimp-Carbon Aquaculture (SECURE) at Pegat Batumbuk Village in Berau. The project works with shrimp farmers to improve sustainable aquaculture practices. The method for this shrimp-carbon aquaculture is to reduce the size of active shrimp ponds to 20% while sustaining similar shrimp productivity levels. This will allow for mangrove restoration on the remaining 80% of the ponds. This method is expected to prevent loss of mangrove, hydrology system driven and pond embankment and watergate improvement.

6.1.2 Key Partners

6.1.2.1 Co-recipients

TNC YKAN will be the only direct recipient of GFCR grant funding.

6.1.2.2 Co-implementers

TNC YKAN will aim to work with various co-implementers. The potential co-implementors are listed below. During the full proposal development initial conversations with these organisations have been held, and the organisations have confirmed they are willing to collaborate. However, during the inception phase full agreements will be put in place. During implementation, TNC YKAN may also identify additional partners

[68] This is a TURF reserve, a combination of protected areas with areas where local fishers have exclusive fishing rights.

that will support implementation, including those from the private sector, local universities, and local NGOs and women associations.

Co-implementer Organisation	Role in Programme
NatureVest (TBC: likely in-kind contribution)	NatureVest is TNC's impact investment arm. Their expertise in blended finance vehicle design and experience in running the NatureVest Hatch Blue Revolution Fund will be leveraged to design the financial mechanisms and specifically the Coral Reef Funding Facility. They will add value by bringing financial expertise. They will primarily contribute to the following programme outputs: *Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)* Within the operational structure, they will be part of the steering committee to provide direction and oversight for the financial mechanisms developed and implemented under KORALESTARi.
TBC: CRFF Fund Manager (Co-implementer)	The CRFF Fund Manager will be leading the CRFF development and implementation. TNC YKAN has engaged with various potential fund managers, including Planet Partnership, Pact, and Pt Palladium. A Terms of Reference for the Fund Manager has been shared with the organisations. During the Inception Phase, TNC YKAN will select the most appropriate organisation to take on this role. The fund manager will primarily contribute to the following output: *Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)* Within the operational structure, they will be one of the co-implementers, and be part of the CRFF management. They will support the convening of the expert panel to select businesses, and where possible will provide direct TA to the selected businesses. They will also help identify co-financers for the CRFF and provide match-making support to businesses to access other sources of finance.
Hatch Blue (Confirmation pending, likely co-implementer and in-kind contribution)	On this programme, Hatch Blue is expected to be the main partner to support sustainable aquaculture work. Hatch Blue is an expert in incubating and accelerating sustainable aquaculture projects globally, complementing YKAN's technical aquaculture experience with business support services. They are an existing TNC partner in the Revolution Fund, where they incubate aquaculture projects globally including in Indonesia. Hatch Blue has an existing presence in Indonesia and also worked with CI Ventures on aquaculture incubation programmes.

Co-implementer Organisation	Role in Programme
	Hatch Blue is expected to support the preparation of an aquaculture investment roadmap for Indonesia, including identifying suitable locations and priority investment areas for sustainable aquaculture projects and developing a pipeline of projects that can receive (returnable) grants and other sources of concessional finance. They are also expected to be able to provide incubation and acceleration support to aquaculture projects supported in the priority areas (Savu Sea, Berau, and Natuna Sea). This can include ensuring they can enter the pipeline of the CRFF, as well as matchmaking with other funds. Finally, Hatch Blue is expected to provide an aquaculture expert for the CRFF selection panel to help design the selection process and select aquaculture projects and businesses. They are expected to contribute to the CRFF as well as the Sustainability Standard and Incubation Support to Aquaculture projects financing solutions. The specific outputs Hatch Blue will likely contribute to are: *Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)* *Output 2.2 - Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards* Within the operational structure, they can be part of the co-implementers of various activities (such as the aquaculture study, providing incubation and match-making services), and will likely also be represented on the CRFF expert panel.
BlueYou (Confirmation pending, likely co-implementer and in-kind contribution)	BlueYou is a private company active in the harvesting, manufacturing and commercialization of sustainable seafood. BlueYou also offers scientific and technical guidance in the design, development and implementation of fisheries and aquaculture transition and improvement programs worldwide, with a focus on community-based, coastal fisheries and the small-scale aquaculture sector. They complement YKAN's technical skills in improving sustainable fisheries and aquaculture production by providing market access to (inter)national off-takers and downstream supply chain actors. On this programme, BlueYou is expected to support sustainable fisheries and aquaculture work. They will be able to contribute to research activities to identify suitable locations for sustainable reef fisheries and aquaculture projects. They will also be able to provide TA to fisheries to meet ecolabel certification requirements and can support engagement with off-takers and private companies that are interested to invest in the fisheries. Besides, they

Co-implementer Organisation	Role in Programme
	can provide incubation and acceleration support for sustainable fishery projects more widely, and support the design of CRFF and selecting eligible fisheries and aquaculture projects as part of the expert panel. As such, the specific outputs & financing solutions Blue Hatch is expected to contribute to are: *Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)* *Output 2.4 - Coral reef fisheries participation in ecolabel-certified supply lines promoted* Within the operational structure, they are expected to be part of the co-implementers of various activities as outlined above and will also be represented on the CRFF expert panel.
Blue Forests (Co-implementer)	Blue Forests is an NGO that has worked in Indonesia since 2000. They focus on improving sustainable watershed management through various activities, including mangrove restoration projects and working with shrimp farmers. They developed the concept of shrimp-carbon farmer field schools to engage communities on small islands in mangrove protection and restoration activities. They complement YKAN's coral reef protection skills by their strong focus on mangrove restoration. They have specific experience in mangrove silviculture assessments, mangrove restoration, and field school implementation. On this programme, Blue Forests is expected to implement shrimp-carbon farmer field schools and mangrove protection activities as part of the blue carbon pilot and sustainable aquaculture work. The outputs they are expected to work on include: *Output 1.3: A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities* *Output 2.2 - Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards* Within the operational structure, they are expected to be part of the co-implementers of various activities as outlined above.

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6.1.3 Governance and Operational structure

A Project Management Unit (PMU) responsible for the day-to-day management and implementation of the programme will be embedded in TNC YKAN's Oceans Programme team. The full-time positions in the PMU will report to the Director of the Indonesia Oceans Programme of TNC YKAN. Responsibilities of the PMU include:

- Preparing and implementing the programme's annual work plans and budgets;
- Coordinating the programme's financial management including leveraging co-financing;
- Ensuring compliance with fiduciary and safeguard standards;
- Coordinating risk assessment and management actions;
- Fulfilling M&R requirements;
- Carrying out all procurement procedures for consultants, partners, and beneficiaries that receive GFCR resources;
- Coordinating and supervising the work of co-implementers;
- Carrying out the programmes' communication and visibility strategy;
- Liaising with all public authorities, partners, and beneficiaries; and
- Convening the programme's committees and managing engagement with all relevant actors in the governance structure as outlined below.
- Reporting to the GFCR according to the results framework agreed

The PMU will consist of the positions as listed below and visualised in the organogram in Figure X. The full-time positions will be recruited at programme start and will report to TNC YKAN's Director of the Indonesia Oceans Programme.

- **Programme manager Sr. (full-time):** The programme manager will lead the day-to-day implementation of the programme, will manage the PMU team, and will lead reporting and coordination with GFCR, TNC YKAN's Indonesia Oceans Programme, and partners.
- **MPA Manager (full-time):** This coordinator will manage the policy activities, MPA Effective Management, and UPTD-BLUD self-financing model work.
- **Business and Financing Manager (full-time):** This coordinator will manage and coordinate all work on the financial solutions and business incubation support under Output 2. They will closely collaborate with the CRFF manager and partners for the specific activities.
- **Restorative Aquaculture Manager (full-time).** This manager will coordinate all work related to aquaculture.
- **Admin, procurement, and finance assistant (full-time):** This assistant will provide day-to-day support with all administrative, procurement, and financial reporting tasks.

In addition, the KORALESTARI PMU will draw on experts of TNC YKAN's existing teams, who will contribute to specific activities of the programme as and when needed (on a part-time basis). These include:

- **East Kalimantan Oceans Program Coordinator**
- **Savu Sea Program Coordinator**
- **Ocean Protection Senior Manager**
- **Sustainable Practices Senior Manager**
- **Fisheries Expert**
- **Fisheries Partnerships Specialist**
- **Communication Specialist**
- **Ocean Finance and Program Support Manager**

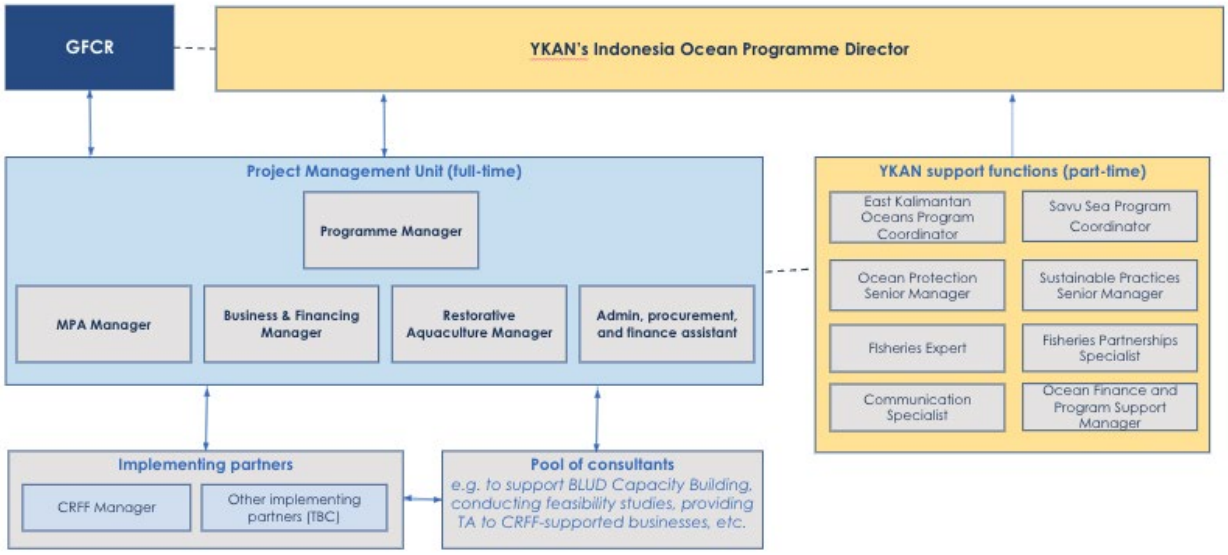


Figure 8. An overview of the PMU organogram and how they coordinate with YKAN's Indonesia Oceans Programme and experts. The solid lines represent reporting lines, and the dotted lines coordination lines.

Governance and operational structure

Figure 9 provides an overview of the wider governance and operational structure of KORALESTARI.

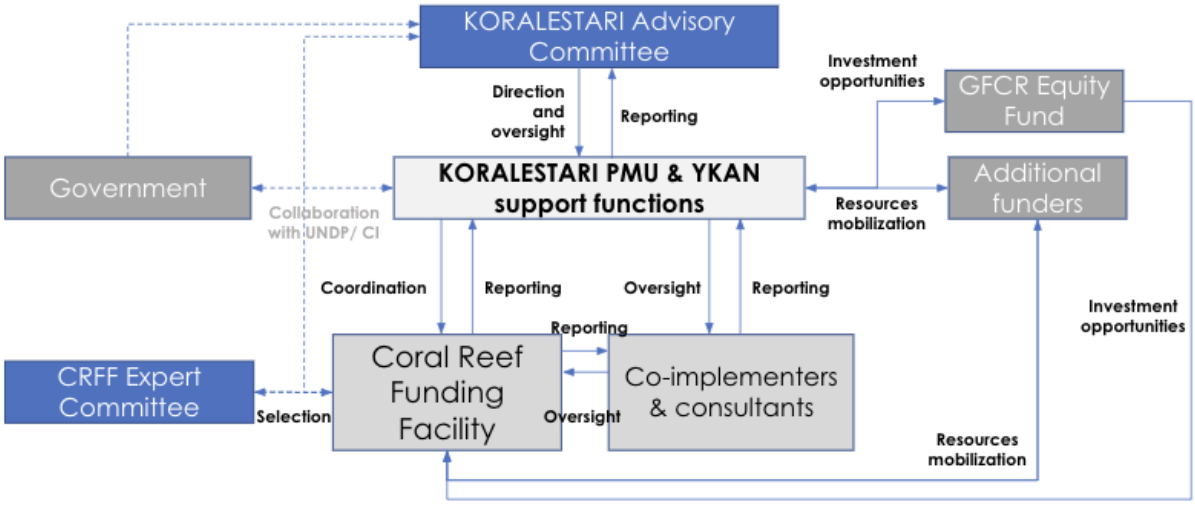


Figure 9. An overview of the governance and operational structure.

The **KORALESTARI Advisory Committee** will provide overall strategic direction and oversight to the programme, ensuring its alignment with public policies and national and regional priorities. It will review annual plans, budgets and reports, and support communication and fundraising actions, representing the programme publicly. It will also ensure adaptive management of the programme. This committee

will be a high-level strategic committee, meeting at least once a year and composed of the following members[69]:

- A representative of the relevant Provincial Governments
- A representative of the relevant MPAs
- A representative of the communities in each of the priority areas
- A coral reef specialist
- A representative of TNC's NatureVest impact investment arm
- A representative of TNC Global
- A representative of YKAN (acting as secretariat of the committee)

The **CRFF Expert Committee** will support the PMU and CRFF Fund Manager in designing, selecting and monitoring reef-positive businesses, analysing financial viability and impact on coral reef ecosystems and associated communities. The Expert Committee will meet when needed, in particular during the preparation of the selection procedures for the CRFF calls for proposals and during the proposal selection process. At these times, monthly to quarterly meetings will be held. The committee will also be called upon to identify co-financing opportunities to leverage private financing that can be distributed through the CRFF, as well as support potential financiers to provide match-making services for the businesses supported. The committee will be composed of the following members:

- A representative of TNC
- A representative of YKAN
- A representative of the CRFF Fund Manager
- A representative of BlueYou
- A representative of Hatch Blue
- A waste management/eco-tourism specialist
- The PMU coral reef specialist
- The PMU Business Incubation and Financing Mechanism specialist
- The PMU Gender and inclusion specialist
- A technical representative of the Provincial Government
- Potential co-financers' representatives (e.g. WB Lautra programme)

The role of the different co-implementers has been explained in section 6.1.2. The PMU will continuously be looking to bring in additional **funders** and to identify investment opportunities for the **GFCR Equity Fund.** Finally, the PMU will coordinate with CI's GFCR programme in engaging with the **government**. Regular meetings between TNC YKAN, CI and the UNDP will be convened to pursue alignment in the presentation of the programme to the Government of Indonesia as further detailed in Section 6.4.

[69] The Steering Committee can invite specific participants to the annual meetings in order to address certain issues or gather specialised opinions (i.e. business specialist, etc).

6.2 Country ownership

6.2.1 Government engagement

This programme encompasses various activities that fall under at least 11 line ministries and agencies at the national level. Table 6 below shows how the different ministries are relevant for the different programme outcomes. During proposal development, TNC YKAN has engaged with various ministries and government bodies to introduce the KORALESTARI programme and request their views and feedback on this. This includes MMAF's MPA office in Savu Sea (BKKPN), Provincial Government of Riau Island, and Provincial Government of Natuna Anambas.

Table 6. Overview of which ministries engage with the different project components.

Ministries	Outcome 1: Innovative finance mechanisms are implemented and generate additional resources for coral reef restoration and conservation	Outcome 2: Bankable reef-positive projects are implemented and support livelihoods of reef-dependent communities	Outcome 3: Local capacity to protect, restore, and recover coral reefs, including after major shocks, is enhanced.
Ministry Of Marine Affairs and Fisheries (MMAF)	x	x	x
Ministry of Environment and Forestry (MoEF)	x		
Ministry of Finance (MoF)	x	x	
Ministry of Home Affairs (MoHA)	x		
Indonesia Financial Authority (OJK)	x	x	
Coordination Ministry for Maritime and Investment Affairs	x	x	
Ministry of Creative Economy and Tourism (MoCET)	x	x	x
Ministry of Cooperatives and Medium and Small Enterprise (MoCMSE)	x	x	
Ministry of Village (MoV)		x	x
Indonesia Development Planning Agency (Bappenas)			x
Ministry of Social Affairs (MoSA)		x	

Conservation area management in Indonesia is under a split arrangement between MMAF and MoEF. In 2021, YKAN signed MoUs with both ministries to run conservation works in their areas of jurisdictions. The three focus areas under this proposal fall under the jurisdiction of MMAF and YKAN has also signed MoUs with the provincial offices in the three sites.

Natuna Sea

During the development stage of this proposal, TNC YKAN met with LKKPN Pekanbaru[70] and MAFS[71]. The local government welcomed this and will be ready to work together to facilitate the development of a management plan that ensures that private sector partners (fishing companies and fishing communities) have secure access to the resources and that sustainability standards are in place. Additionally, the program may also facilitate the process of designating the MPA area in the Savu Sea waters, which is currently in the reserve stage. It is very important for the GFCR initiative to be able to assist the local government in establishing the area as an MPA. The UPTD-BLUD model that will be implemented in the KORALESTARI program will also strengthen regional governance and can be replicated in the Natuna Sea in the future. As a public service agency with financial autonomy, it supports multi-stakeholder partnerships and a co-management system.

Berau

TNC YKAN has been working in the area since 17 years ago together with the Berau government. In addition to that, YKAN has also signed a MoU with the MAFS of East Kalimantan Province. The government of East Kalimantan has a long history of collaboration in conserving the natural resources of Berau and manage MPA which is named Kawasan Konservasi Pesisir dan Pulau-Pulau Kecil Kepulauan Derawan dan Perairan Sekitarnya (KKP3K-KDPS). Currently, YKAN is supporting the government of East Kalimantan Province to manage MPA effectively, to improve the health of ocean ecosystems and community livelihood improvement. The government of East Kalimantan is ready to support TNC YKAN by facilitating the policy development process necessary to ensure smooth implementation of the project activities.

Savu Sea

YKAN has already engaged the Government of The East Nusa Tenggara Province through the Marine And Fisheries Office. This commitment was stated through a Memorandum of Understanding (MoU) on "Support for Coral Reef Activities," to carry out activities in NTT[72], specifically the Savu Sea and its surroundings. It has also engaged with BKKPN Kupang (the agency that manages MPA in the region). One of the proposed activities includes Sustainable Seaweed Aquaculture: Investing in Nature to Improve Integrated Coastal Management in Savu Sea, Marine National Park, East Nusa Tenggara. Building on initial expressions of support by key government ministries, the programme will be Involved in the formulation of the Regulation of the Governor of East Nusa Tenggara regarding: 1) The trading system for fishery products; 2) Control and supervision of the utilisation of marine spatial; and 3) Marine spatial utilisation permit. This program will provide regular opportunities for consultation and engagement with local authorities in Kupang, Rote, and Sabu Raijua who are involved in the development and commercialization of the seaweed sector. It will also include engagement with provincial and national-level ministry stakeholders as part of the process of developing an investment roadmap for seaweed sector development.

[70] The Pekanbaru National Marine Protected Area Office, also known as LKKPN Pekanbaru, is a government institution that is responsible for managing and utilizing marine conservation areas in the Natuna Sea, with the goal of preserving fish resources and the environment in accordance with legal regulations.

[71] Government of Riau province - Department of marine and fisheries

72 East Nusa Tenggara Province

6.2.2 Programme consistency with national priorities and plans

Aligning with national priorities and plans is key for the effectiveness of this programme. The indicators developed by the programme are designed to be compatible with national priorities and commitments, including the long-term and medium-term national development plans, which aim at developing the marine-based economy while conserving biodiversity and the coastal ecosystems. They also align with the National Biodiversity Strategy and Action Plan and the Climate Change Sectoral Roadmap, as these include the management and conservation of mangrove ecosystems and coral reefs. The programme's interventions will directly and indirectly support government agencies, through research and planning activities, as well as investment pipeline development.

Table 7. Programme consistency with national priorities and plans

Programme indicators	Alignment with government targets or objectives
	• Contributing to Indonesia's Marine Protected Areas Vision 2030 - encapsulates 7 work areas across a ten-year vision and roadmap towards protecting 32.5 million hectares of marine ecosystems. • Contributing to Indonesia's NDC target of reducing GHG from AFOLU sector[73]. • Long-Term National Development Plan, 2005-2025 – Chapter IV.1.6.5 developing the potential of marine resources[74]. • Indonesia's National Medium-Term Development Plan (RPJMN), 2020–2024 - includes several goals around developing a marine-based economy, conservation, and sustainable use of biodiversity, and preserving ecosystems, especially in its chapter X, which is the basis of the national marine policy[75] • Legal regulatory frameworks that form the basis of ocean-based adaptation and mitigation include Law No. 27/2007 on Coastal Zone Management, Law No. 31/2004 on Fishery, Law No. 32/2014 and the decree 16/2017 on Indonesia's Ocean Policy, and Law No. 32/2019 on Ocean Spatial Planning, and their amendments. • Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2015-2020 - includes targets relevant to coral reef conservation, including reduction of pollution that damages biodiverse ecosystems and realisation of sustainable maintenance and improvement of conservation areas.[76] • The Indonesia Climate Change Sectoral Roadmap (ICCSR) states that the Activities of Long-Term Development Plan in the Marine and Fisheries Sector should include management and conservation of mangrove ecosystems and coral reefs.[77] • In terms of waste management, the country has developed a Multi-stakeholder Action Plan[78] to reduce by 70% the amount of plastic entering the ocean by 2025.

73 Enhanced Nationally Determined Contribution Republic of Indonesia. (Ministry of Environment and Forestry, 2022)

74 Indonesia Long-Term National Development Plan (RPJPN): 2005-2025 (Indonesia Ministry of National Development Planning, 2007).

75 Government Issues Regulation on 2020-2024 National Medium-Term Development Plan (Indonesia National Development Planning Agency, 2020).

76 Indonesia Biodiversity Strategy and Action Plan. (Indonesia Ministry of National Development Planning, 2016).

77 Indonesia Climate Change Sectoral Roadmap ICCSR (Indonesia Ministry of National Development Planning, 2009).

78 https://globalplasticaction.org/wp-content/uploads/NPAP-Indonesia-Multistakeholder-Action-Plan_April-2020.pdf

Ecological integrity of coral reefs: change in hard coral cover (%) and coral reef fish biomass (kg/ha) (GBF)	
Number of jobs created for Indigenous Peoples and local communities	
Number of direct and indirect local beneficiaries of Fund investments	
Investments into reef-positive businesses	
Extent (ha) of coral reefs that are under effective coral restoration (GBF)	
Improved crisis response to support the recovery of coastal communities and coral reefs ecosystems after major shocks	
Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.	
Number of sustainable finance mechanisms directly supported	
Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses	

6.3 Community engagement including Indigenous People (IPLCs)

Engagement with communities is a crucial aspect of the KORALESTARI project. The programme will consult, engage, and promote benefits for Indigenous Peoples and Local Communities (IPLCs) who live near the coral reefs, by involving them in decision-making processes on any programme activities that affect their communities. The programme's approach will be embedded and follow the following policies of TNC global: TNC's Human Rights Guide for Working with Indigenous Peoples and Local Communities and TNC's Voice, Choice, and Action Framework to guide Indigenous- and community-led conservation.

First, the programme will recognise and foster full respect for the human rights of Indigenous Peoples. This includes defining and identifying Indigenous Peoples, recognising their rights, and ensuring that no actions are supported that violate these rights. It is important to ensure that Indigenous Peoples are treated with dignity and respect and that their rights and interests are taken into account in the conservation and restoration of coral reefs. This involves recognising Indigenous Peoples' collective rights to own, use, develop, and control the lands, resources, and territories they have traditionally owned, occupied, or otherwise used or acquired. As detailed in the Gender Action Plan, in the inception phase a gender analysis study will be conducted in the priority areas, which will include identifying gender relations in relevant Indigenous Peoples.

Community consultations and engagement will take place with IPLCs for activities that affect their rights, lands, resources, territories, and traditional livelihoods using Free, Prior, and Informed Consent (FPIC) principles. This involves undertaking culturally appropriate and meaningful participation with Indigenous Peoples, and ensuring that they are involved in decision-making for activities and processes that affect them. TNC YKAN will build on their experience and identify innovative communities that have demonstrated a strong commitment to successful protection, conservation, and sustainable use of coral reefs. For community engagement, TNC YKAN will rely on a network of civil society organisations (CSOs) that already work in the target sites and that have partnered with TNC YKAN before. These include fishers' associations, local community business units in aquaculture, seaweed farmers groups, women association, and support CSOs that provide facilitation and research. A list of CSOs already identified in the Savu Sea and in Berau is provided in Annex VI. CSOs in the Natuna Sea will be identified during the inception phase, as this is a site where TNC YKAN has not developed projects in the past.

Community benefits. The KORALESTARI project seeks to promote improved livelihood opportunities for IPLCs and aims to avoid unintended adverse impacts on IPLCs, to ensure that just and equitable benefits and opportunities are provided in a culturally appropriate manner. Under Outcome 1, the blue carbon project will work closely with local communities and provide fair benefit-sharing arrangements. Under Outcome 2, the programme will specifically work with local communities to ensure they can benefit from reef-positive business opportunities. For example, the CRFF will allow open and competitive bidding opportunities to obtain funding for coral reef conservation and restoration in the target areas.

There will also be opportunities to run specific calls for proposals for women and community-led businesses (see the Gender Action Plan). The CRFF processes will assess community innovation, commitment, and capacity-building needs and will also support the development and management of community-based projects. Work under Output 2.2-2.4 (support to sustainable fisheries, aquaculture, and micro-business groups) will specifically focus on creating reef-positive business opportunities for local communities. Additionally, reef brigades and the development of community-based vulnerability assessments and adaptation plans are focused on providing community benefits under Outcome 3.

6.4 Coordination with other initiatives

The Project Management Unit (PMU) will promote close cooperation and coordination with the different stakeholders and relevant initiatives implemented in the priority regions. Table 3 in Section 1.4 and Table 8 in Annex 1.1.3 provide a full overview of relevant initiatives that are active to promote coral reef protection and reef-positive businesses in Indonesia. In Chapter 4, each of the financial solutions will work with different partners and coordinate with existing activities. Building on these explanations, the coordination with these initiatives can be summarised along with the different types of activities the programme will undertake as detailed below.

In general, **TNC YKAN and CI** will closely collaborate as the two Convening Agents of the GFCR in Indonesia. Although CI and TNC's programmes have limited overlap in geographic scope, there are similarities in vision, strategy, blue economy sectors, financial instruments/vehicles, and partnerships. This provides an opportunity for collaboration to maximise efficiency and impact. TNC and CI have begun, and will continue throughout the programme lifetimes, to communicate, share solutions and lessons learned, and identify synergistic opportunities to improve coral reef resilience in Indonesia. The following areas of collaboration have been identified so far: collaborate on policy and UPTD-BLUD work, share aquaculture mapping and investment roadmap information for Savu Sea, and share pipeline information between CI Ventures and the CRFF. TNC YKAN and CI will also coordinate closely with the GFCR Investment Fund to identify and develop investment opportunities. A regular coordination meeting (quarterly) will be installed with the YKAN, CI, and Investment Fund teams. Joint coordination and communication with the Government of Indonesia, local agencies and local stakeholders in overlapping locations will also be pursued.

Policy work to ensure the UPTD-BLUD-model remains viable and to advance regulations for a blue carbon market will be pursued in close collaboration with (donor-funded) programmes that work on these aspects, such as CI's GFCR programme.

Research work to identify resilient coral reefs, community-based vulnerability assessments, and climate risk reduction strategies will be carried out with research institutions and universities active in the priority areas. Eight local universities have been identified in the priority areas to support this work as detailed in Annex VI.

The replication of the UPTD-BLUD self-financing model and the enhancement of MPA effective management will be pursued in close collaboration with the relevant MPAs. Besides, there are various (donor)-funded programmes that focus on enhancing MPA management that work at the national level and therefore cover the priority areas, such as the WB Lautra programme (that is interested to collaborate, where TNC YKAN can lead the engagement with the MPAs in KORALESTARI's priority areas). KORALESTARI will also closely collaborate with CI to leverage the lessons from their work on replicating the UPTD-BLUD self-financing model.

The Blue Carbon Pilot will be pursued in collaboration with Blue Forests, BlueYou and the WB-funded mangrove project that are also active in Berau.

Support to reef-positive business models, including work on the CRFF and support to sustainable fisheries, aquaculture and micro-business groups will be implemented with the support of a range of partners and existing initiatives as detailed in Chapter 4 on the Financial Solutions. This includes building on the existing business incubation and acceleration services of BlueYou and Hatch Blue in the aquaculture and fisheries sector, collaborating with the WB Lautra project to support community micro-business groups, and ensuring reef-positive businesses supported can access and are matched with other financiers, such as CI Ventures and the GFCR Investment Fund.

Reef insurance mechanism and reef brigades. To develop the reef insurance mechanism, the programme will closely collaborate with the GEF-funded ADB programme focused on reef insurance, and where possible identify how feasibility studies can be pursued in collaboration (for example by focusing on complementary sites). The programme will also collaborate with insurance companies interested in developing parametric insurance products in the region, such as Zurich NA (these partnerships will be further developed during the inception phase). Besides, to establish and train reef brigades, YKAN will closely collaborate with the network of CSOs and community organisations as identified in the priority areas in Annex VI.

Overall, under Output 1.4, KORALESTARI will organise targeted stakeholder meetings, roundtables, and knowledge-sharing events which will also aim to coordinate with similar initiatives. Yearly workshops will be organised with relevant partner organisations to promote synergies and learning. Government officials, community representatives, private sector actors, donors and other relevant stakeholders will be invited to these workshops, fostering collaboration, coordination, co-funding and eventually replicating or upscaling of initiatives.

6.5 Stakeholder mapping & engagement plan

The KORALESTARI programme will involve a range of stakeholders in its efforts to sustain Indonesia's coral reefs through bankable conservation and restoration initiatives. This will include national and local government agencies, private sector entities, universities, civil society organisations, and Indigenous Peoples and Local Communities (IPLCs). Additionally, the programme will closely collaborate with other

relevant initiatives, including the CI GFCR programme as detailed in section 6.4. Annex VI provides an overview of relevant programme stakeholders and specific engagement strategies. This section summarises engagement strategies for each type of actor.

The programme will work closely with **national and local government agencies**[79] to ensure that conservation and restoration efforts are aligned with broader policy goals and objectives. KORALESTARI will support the government in creating an enabling policy environment for coral reef protection and will support the capacity building of public entities such as the MPAs in the priority areas. The programme will work in close collaboration with various national ministries and agencies, and sub-national government agencies. The latter includes other units/departments within MMAF, MoEF and MoHA, MoF that do not serve as implementing agencies but have some influence and/or interest in project activities. Sub-national agencies may be affected by policy and regulatory changes and/or enforcement of sustainable marine resources management. In the context of financing and business development, it is also important to consider the Ministry of Finance, OJK, Ministry of Investment, Ministry of Tourism, Ministry of MSMEs. Although this programme may not fully or directly engage with them, the regulations and policies from these ministries are important to consider or align with.

Private sector entities will also be important stakeholders in the programme, as many of them are involved in economic activities that impact coral reefs. The programme will work directly with companies (such as Blue You, Zurich NA, and others)and impact investors (such as NatureVest, CI Ventures, Blue Ventures, and others) to develop, incubate, accelerate, and fund business models that support the conservation and restoration of coral reefs, and to explore opportunities for private sector investment in these efforts. Table 8 in Annex VI provides an overview of companies and investors to collaborate with.

Universities will be engaged in conducting research activities such as identifying resilient coral reefs and drafting community-based adaptation and disaster risk reduction plans. Table 8 in Annex VI provides an overview of universities, examples include the University of Riau and Nusa Cendana University in Savu Sea.

Civil society organisations will play a key role in supporting the programme's community engagement efforts. This will involve working with local NGOs and other organisations to involve Indigenous Peoples and Local Communities in decision-making processes, and to ensure that their rights and interests are respected in conservation and restoration efforts as well as reef-positive business opportunities. Table 8 in Annex VI provides a long list of CSOs to collaborate with. Examples include Indonesia's Solid Waste Association (ISWA) and Anambas Foundation.

[79] In Berau, YKAN already has MoU in place with MoEF, a cooperation/partnership agreement with the East Kalimantan Provincial Government, and a cooperation/partnership agreement with the Berau Regency Government. In Savu Sea, YKAN has an MoU with MMAF and the East Nusa Tenggara Provincial Government.

The inclusive engagement and consultation with local communities have been discussed in Section 6.3 and Section 6.7, including the implementation of FPIC processes and ensuring their concerns and interests are considered in programme design and implementation. All meetings will be facilitated in a gender-considerate manner as detailed in section 6.7. It is envisaged that local community groups will have various roles in implementation. For example, local fisheries, aquaculture groups, and micro-business groups will be supported under the CRFF with direct support and acceleration services provided under Outcome 2. Additionally, local communities and organisations, such as diving shops, will be engaged as part of the reef brigades under Outcome 3.

The stakeholder mapping and engagement plan as presented in Annex VI will be updated in the inception phase.

6.6 Awareness building and communications

Awareness-building and communications will be important aspects of KORALESTARI. Output 1.4. is dedicated to this end, ensuring targeted communication interventions are implemented to promote the adoption of the finance solutions to support reef-positive businesses and community projects. Annex VI provides a more detailed community and visibility plan.

In the inception phase, **a detailed communication and education plan for each finance solution** will be developed under Activity 1.4.1, in coordination with the GFCR, CI, the Investment Fund and the programme co-implementers. This will include strategies to build local and national awareness of the programme and activities with key stakeholders. This is aimed to secure buy-in for the programme activities and co-design financing solutions with communities that aim to benefit them equally. Key aspects of the communication plan include an overall strategic plan, the development of key programme messages, determining media and tools for each target group, and draft a delivery plan for all communication outputs.

KORALESTARI will implement Activity 1.4.2 to **coordinate with partners and existing initiatives and enhance the adoption of the finance solutions and upscale of reef-positive businesses**. It is envisaged that activities will include the organisation of targeted stakeholder meetings, roundtables, and knowledge-sharing events to introduce FMs and reef-positive projects under Outcomes 1, 2 and 3 to relevant stakeholders, aiming at successful implementation of the FMs and investment support for reef-positive businesses. KORALESTARI is expected to work with partners such as BlueYou, Hatch Blue, and Planet Partnership to organise incubator, accelerator, and match-making events to match support for reef-positive businesses and projects with other funds and investors. The programme will also ensure cross-learning between sites and ensure local champions and lessons learned (e.g. on the BLUD and Reef Brigades training) are featured in events and media coverage (e.g. traditional media, broadcast, and digital/social media).

KORALESTARI will carry out Activity 1.4.3 to bring **broader visibility and demonstration of the programme's activities and results** in the final phase of the programme. Activities are envisaged to

focus on sharing knowledge on successes, barriers, and opportunities for scaling-up and replication of KORALESTARI's finance solutions, supported projects, and activities through publications and events. It is envisaged that a range of communication channels and tools will be used to raise awareness about coral reefs and the programme's activities. This will include traditional media such as print and broadcast media, as well as digital channels such as social media and YKAN's website.

The programme is envisaged to use targeted communications strategies to reach specific audiences, such as local communities, government officials, and private sector entities, as mentioned above. This will involve developing targeted messages and materials that are tailored to the interests and concerns of these different audiences as detailed in Annex VI. Awareness-building efforts will focus on the importance of coral reefs, and on the need to conserve and restore these ecosystems, and the opportunities to do so through using reef-positive business models and finance solutions. This will include highlighting the role of coral reefs in supporting biodiversity, providing livelihoods, and protecting coastal areas from storms and other natural disasters. Specific knowledge pieces on the successes and lessons learned of female-led reef-positive businesses will be shared.

6.7 Gender mainstreaming considerations

This section draws on the full Gender Analysis presented in Annex IX. The Annex also provides more details on the specific gender activities, indicators, and responsible actors for each of the outputs. In general, KORALESTARI will integrate the following actions to mainstream gender across project implementation:

- At programme start, KORALESTARI will hire a local gender expert to conduct an in-depth gender intersectional analysis to: 1) identify inequalities, conditions, barriers, needs and impact of the programme for men, women, and identify other specific marginalised groups; 2) validate activities and indicators outlined in this plan; and 3) validate targets and establish baseline values for the gender actions in the results framework. This plan will be reviewed and updated, if necessary, on an annual basis.
- Across the programme, KORALESTARI will conduct gender-responsive planning and monitoring. The KORALESTARI programme will report on progress against gender and inclusion actions and indicators on an annual basis, identify opportunities and challenges, and adjust its gender and inclusion approach where needed. It will also aim to collect gender-disaggregated data continuously that can be used for reporting.
- KORALESTARI will work with existing partnerships and networks that promote gender equality in the blue economy. This involves working with a diverse range of partners and stakeholders, including stakeholders that specifically promote the role of women in reef-positive businesses (such as Hatch Blue's work on incubation female-led seaweed businesses), to support the integration of gender considerations into conservation and restoration efforts.
- Across programme activities, KORALESTARI will promote the participation of women and other marginalised groups and aim for a more equal gender balance in participation (aiming for 50% women

representation). Activities include consultations, training, workshops, knowledge-sharing, capacity building and promoting the participation of women's organisations when suitable.

- The KORALESTARI project will ensure that all consultations, training, and other events are organised in an inclusive manner. This will be done by ensuring invitations reach women and marginalised groups, organising meetings at times and places convenient for women and marginalised groups, ensuring people with disabilities can equally participate in events, and using facilitation techniques that encourage the participation of all stakeholder groups equally (e.g. specifically asking questions to women, using appropriate language and visual tools, etc).

The following Gender activities were identified under each outcome.
Under Outcome 1 (developing financial mechanisms), the gender approach focuses on ensuring women are consulted and can benefit from the policies and FMs developed. Specific actions include:

- Collaborate with local women's groups and cooperatives to disseminate information on available opportunities.
- Include a gender chapter in all policy recommendations provided by the project.
- Create income opportunities for women in blue carbon projects.
- Hold workshops and consultations aimed at building capacity and sharing knowledge on the importance of women's inclusion in the blue economy.

Under Outcome 2 (implementation of bankable reef-positive projects), the gender approach focuses on data collection, capacity building, and supporting existing initiatives for women-led businesses. Specific actions include:

- Provide equal opportunities for men and women through accessible funding and assistance.
- Provide technical assistance and build capacity for women to understand, implement, and report on environmental standards.
- Partner with Hatch Blue to run an accelerator programme to promote women-led aquaculture business opportunities building on their previous work.
- Partner with the WB Lautra programme to channel some of their funding earmarked to support female-led reef-positive businesses through the CRFF, by running a specific Call for Proposals for women-led businesses.

Under Output 3 (local capacity), the gender approach focuses on strengthening the understanding of women's importance in coral reef protection and enhancing resilience by providing opportunities for increased involvement from women.

- Build capacity and ensure women's participation in MPA management.
- Work with local women's organisations to ensure women are equally represented in Reef Brigades and community engagement activities.
- Ensure women's roles, responsibilities, and needs are accounted for in vulnerability assessments and risk reduction plans.

7 Financial arrangements and procedures

7.1 Overview

Table 8. Total Grant Costs (USD)

Source	Grant	Percent deployed as Concessional loan/Recoverable Grant/Guarantee	TOTAL
GFCR	USD 10,000,000	Recoverable grants: 29%*	USD 10,000,000
Co-financing			
Secured			
Anticipated	USD 18,050,000	Expected 50%	USD 18,050,000
TOTAL (secured)			
		GFCR Grant Co-financing leverage	1:1.81
TOTAL (anticipated)			

*Given the programme's capacity-building activities and focus on MSMEs in remote locations, it is expected to be difficult to reach a 50% ratio of concessional capital. Concessional capital will be mostly provided through the CRFF, which will aim to distribute USD 500,000 in grants and USD 2,900,000 in recoverable grants. This number will be reassessed during the inception phase as feasibility and market studies are carried out and the CRFF is further designed. The CRFF is set up to leverage more finance from co-financers, of which at least 50% is expected to be concessional. Similarly, private finance is expected to be leveraged for the other solutions.

Table 9: Leverage potential of GFCR grants (USD)

	Private Sector Investment	Public Sector Investment	TOTAL	GFCR Grant Leverage
Secured				
Ambition	USD 8,100,000 (see table 11)	USD 9,9750,000 (see table 10)	USD 18,075,000	1:1.81
TOTAL	USD 8,100,000	USD 9,9750,000		

7.1.1 GFCR Grant Cost Overview by Outcome

Table 10: GFCR Grant cost by Outcome (USD)

Component	Total GFCR Grant Cost (% of TOTAL)	Percent deployed as Concessional loan/Recoverable Grant/Guarantee
Outcome 1	20%	0%
Outcome 2	42%	50%
Outcome 3	18%	0%
M&E costs	2%	0%
PM Costs (incl comms & audits)	12%	0%

Total Direct Costs	93%	0%
Indirect Costs (7%)	7%	0%
TOTAL	10,000,000	

7.1.2 Grant co-financing

Table 11: Grant Co-financing arrangements (USD)

Co-financing Source	USD	Monetary *or* In-kind	Status	Relevant programme Outcome / output / activity
USAID Kolektif	50,000	In-kind	Anticipated (TBC: need approval from the donor)	Output 1.2: MPAs and other reserves have self-financing models in place (BLUD model)
Anonymous donor	25,000	In-kind	Confirmed (TBC: needs coordination with the donor)	Output 2.2 (Sustainable Aquaculture)
Tiffany	25,000	In-kind	Confirmed (TBC: needs coordination with the donor)	Output 2.2 (Sustainable Aquaculture)
Blue carbon experts (e.g. Blue Forests)	25,000	In-kind	Ambition	Output 1.3 (Blue Carbon)
Blue economy experts (e.g. BlueYou)	100,000	In-kind	Ambition	Output 1.3 (Blue Carbon) Output 2.2 (Sustainable Aquaculture) Output 2.4 (Coral Reef Fisheries)
Co-financing to provide funding through the CRFF; sources TBD (but likely to include CI Ventures and WB Lautra)	5,100,000	Monetary	Ambition	Output 2.1 (CRFF)
Aquaculture accelerator experts (e.g. HatchBlue)	25,000	In-kind	Ambition	Output 2.2. (Sustainable Aquaculture)
WB Lautra programme	2,000,000	Monetary	Ambition	Output 2.1 (CRFF) Output 2.3 (Micro-business support)
USAID Ber-Ikan	1,150,000	In-kind	Ambition	Output 2.4 (Coral Reef Fisheries)
CI Blue Halo	500,000	In-kind	Anticipated	Output 2.4 (Coral Reef Fisheries)
ADB - Partnership for Coral Reef Finance and	950,000	In-Kind	Ambition	Output 3.3. (Reef Insurance)

Insurance in Asia and the Pacific				

7.1.3 Commercial Investments

Table 12: Private Sector co-financing

Relevant Programme Solution	Source of Invest. Capital	Category	Amount	Status
CRFF	GFCR Investment Fund		TBD	Ambition
Support to micro-business groups / CRFF	TBD	Micro-finance schemes	500,000	Ambition
CRFF	TBD	Impact investors	2,300,000	Ambition
CRFF	TBD	Development Banks	2,300,000	Ambition
Blue Carbon Project	TBD	Private companies	2,500,000	Ambition
Reef Insurance	TBD (Potential Zurich NA)	Reef Insurance Company	TBD after the feasibility study	Ambition
UPTD-BLUD MPA Management	Tourism fees	MPA users	500,000	Ambition

7.2 Work-planning

Please see the workplan in the budget Annex, which includes relevant milestones. These milestones are aligned with the milestones for the outcomes and outputs as presented in Chapter 9: Results framework.

8 Risk management

Table 13 shows the key risks KORALESTARI will mitigate. The methodology on how risk levels are calculated is included in Annex X.

Table 13. Risk management Matrix

Risks	**Risk Level:** Very high High Medium Low (Likelihood x Impact)	**Likelihood:** Almost Certain - 5 Likely - 4 Possible - 3 Unlikely - 2 Rare – 1	**Impact:** Extreme – 5 Major - 4 Moderate - 3 Minor - 2 Insignificant - 1	**Mitigating measures**	**Responsible Unit/Person**
Contextual risks					
Climate change effects damaging reefs	Medium	2	3	The KORALESTARI programme will be supporting projects that protect, enhance, and restore coral reefs and associated ecosystems. These ecosystems are critical for both climate change mitigation and adaptation. Specifically, the programme is focused on improved management effectiveness of priority coral reef sites. In general, coral reefs in the priority areas (and in Indonesia) are suggested to be more resilient to the impacts of climate change given contextual factors such as generally warm, stable waters and low risk of storm events.	TNC YKAN
Major natural disasters in projects areas	High	3	4	The programme will aim to increase climate change resiliency and reduce vulnerability to natural disasters through strengthening the livelihoods of reef-dependent communities through reef-positive businesses, installing Reef Brigades and climate adaptation and risk reduction plans, and ensuring that coral reefs and associated ecosystems are restored more generally.	TNC YKAN
Exploitation of gas field in East Nusa Tengarra (close to Savus Sea)	Low	3	1	The potential gas project location is far from the MPA, thus not directly affecting the coral reef in the GFCR location. In addition, Indonesia has a set of regulation to mitigate the impact (AMDAL) and to protect the ecosystems both at the national and sub-national level. TNC-YKAN team members	TNC YKAN

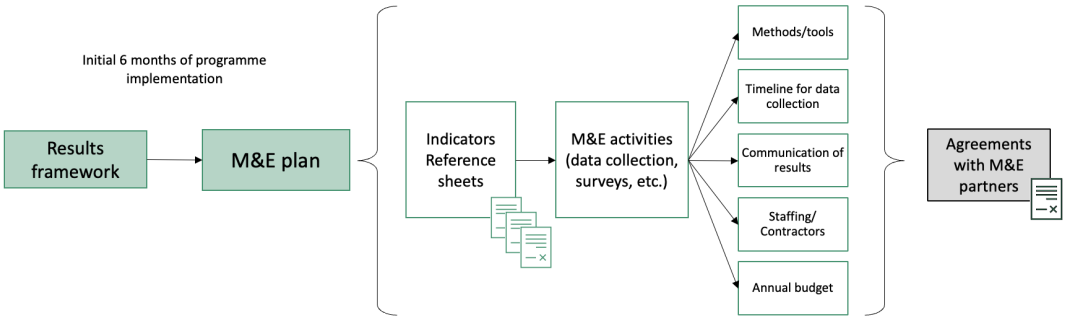
				have operational agreement with the provincial government on the protection of marine resources. Therefore, TNC YKAN will be able to assist with technical advice on the potential biodiversity impacts and mitigation options for the natural gas exploitation project in the area.	
Programmatic risks					
Lack of political buy-in	Medium	2	3	TNC YKAN already has MoUs in place and strong government relations in the priority locations. The main risk for a lack of political buy-in is related to blue carbon regulation and regulation related to the UDTP-BLUD model. To mitigate this risk, TNC YKAN will work on improving the policy enabling environment with government and other partners working on these issues. Besides, the programme will cooperate closely with relevant government bodies to keep them up to date on programme activities.	TNC YKAN
Limited investment opportunities	Medium	3	3	As outlined in Annex VI, the programme has mapped several projects, initiatives, and businesses to compose the CRFF pipeline. The programme will provide technical assistance, training, development of business partnerships and piloting to create investable opportunities. Besides, during programme design the team has engaged with various other funders and accelerators who are interested in sharing and aligning pipelines. The CRFF has been designed to support the development of new business opportunities, mitigating the risk of limited investment opportunities.	TNC YKAN
Institutional risks					
Limited local capacity and skills relating to business management	Medium	3	2	TNC YKAN will partner with a fund manager and expert committee for the CRFF and other partners for the other financing solutions that have extensive experience in supporting community-based enterprises and MSMEs and will provide support to local organizations in terms of business administration, marketing, accounting, etc.	TNC YKAN
Lack of stakeholder participation	Low	1	3	TNC YKAN is partnering with local institutions that are recognized leaders in Indonesia and	TNC YKAN

				can build on its own experience and team in the priority location.	
Fiduciary risks					
Project cost overrun	Low	2	3	TNC YKAN's track record, experience and structure provide a strong base for financial accountability and expenditure control, backed up by TNC global's teams. The Programme Steering Committee will also review all financial and technical reporting. A full-time team will be in place in the PMU to oversee the project management and reporting.	TNC YKAN
Investment risk	Medium	3	3	By prioritizing community based, local MSMEs there is a risk that some of the supported businesses cannot become self-sustained or pay back recoverable grants or concessional loans. TNC YKAN will provide support to the selected businesses to help them overcome these challenges and will use GFCR grant resources to de-risk investments.	TNC YKAN
Assumptions: ● Partner organizations are willing to engage in the programme governance and activities, such as managing the CRFF and taking part in the expert selection panel. ● By strengthening local businesses and providing financial resources, the local communities engage in reef-positive activities and understand the importance of coral reefs for their livelihoods ● TNC YKAN and the co-implementers are able to mobilise the expected co-finance and investment leverage, given the strong track record of TNC Global, partners, and the global interest in investing in Indonesia's blue economy.					

9. Monitoring and Evaluation and Results Framework

The KORALESTARI Programme will design the full Monitoring and Evaluation (M&E) Strategy in the Inception phase of the programme (see the proposed process in Figure 10). The Programme Manager of KORALESTARI's PMU is ultimately responsible for M&E, but will work closely with TNC YKAN's Indonesian Oceans Programme team, including a Monitoring, Evaluation, Learning Specialist (part-time), to design and implement the M&E Strategy. KORALESTARI will closely work with GFCR Partner UNEP to to develop the M&E Strategy and ensure the GFCR indicators are captured. The M&E strategy will include detailed indicator reference sheets (including a description of the indicator, the unit of measure, disaggregation, the data collection plan and data quality issues) as well as information on the roles of M&E partners (for example local universities as identified in the Stakeholder Engagement Annex, who can support baseline setting and monitoring of ecological indicators).

Figure 10. KORALESTARI M&E Plan development process



The M&E Strategy will be developed in the inception phase using the GFCR Monitoring and Evaluation Toolkit and will include the following:

- M&E to check that interventions are in compliance with the agreed Investment Principles, the Safeguards and Gender Policies and the Risk Management Strategy of the GFCR on a regular basis (an external gender specialist will support the M&E strategy development at the beginning of the project);
- Monitoring of the progress of the programme according to the workplan; in terms of performance to meet outcomes and outputs.
- Monitoring of the threats to coral reefs and associated ecosystems (e.g. mangroves and seagrass beds) and the biophysical status of these ecosystems coupled with socio-economic effects on dependent communities;
- M&E for indicators related to the reef-positive businesses and projects supported, measuring aspects such as business profitability, socioeconomic impact, gender-inclusivity, innovation, and environmental standards implementation.Reef-positive businesses supported will report regularly on these indicators. An assessment of each initiative before and after the programme's support will be carried out (potentially through a scoring card) based on the M&E indicators, to measure its evolution.;

- Monitoring of interventions to build capacity to enable effective management of MPAs.
- Strategy for adaptive learning based on regular monitoring, evaluation, and learning.

As convening agent, TNC YKAN will be able to build on existing long-term coral reef monitoring in the project areas. The TNC YKAN team has already established a database that collates previous studies of coral reef conditions in Natuna Sea, Berau, and Savu Sea. However, data on specific project priority locations are not comprehensively available or up to date, and therefore baseline assessment of coral reef conditions in the specific implementation phase will be conducted during the Inception Phase. TNC YKAN will conduct baseline assessments and set targets for the biophysical and MPA management indicators using peer-reviewed methodologies. TNC YKAN has already conducted two unpublished internal studies in Berau and Savu Sea on the coral reef status in Derawan MPA (Berau) and Savu Sea which will be used baseline assessments. Besides, TNC YKAN has collated all available public data on the conditions of coral reefs in the priority site (see this excel file), which will be used for baseline assessments as well. This data will be updated to be specific to the exact locations of KORALESTARI's activities, as this information is currently unavailable.

Please note that although 39,900 USD is directly located under M&E costs, Activity 3.1.1. (Conduct scientific assessment and habitat mapping to identify priority coral reefs) will also be used to set M&E baselines and targets. The costs associated with this activity are $117,820, bringing the total M&E budget up to $157,720.

Besides, part-time M&E Capacity is included in the budget under 'contractual services' (budget line 5.1.1.2). A consultant, potentially from a local university, will be hired to support YKAN part-time on a monthly basis. Besides, YKAN's in-house M&E manager will support with tracking indicators (in-kind contribution by YKAN). Determining the cost for independent mid-term and end-of programme evaluations will be included as an M&E activity in the inception phase.

Table 14. Fund level M&E Framework

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
1. Extent (ha) of coral reefs where drivers of degradation are reduced so that climate resilient reefs are effectively conserved and managed (GBF)	Extent (ha) of coral reefs that are effectively managed or conserved, by type (MPA, OECM, other managed area, pollution control, etc)	KORALESTARI's activities will focus on 3 priority sites (Berau, Savu Sea, and in Natuna Sea either Natuna ***or*** Anambas). In Berau, the MPA area is called Derawan Islands MPA. In Savu Sea, KORALESTARI will be working in part of the Savu Sea MPA, which is near the Sabu Raijua Island. For the third priority site, the programme will focus on either Natuna/Anambas within Natuna Sea, based on assessment results in Phase 1. The baseline data for the different sites are the following: ▪ Berau (Derawan Islands MPA): 14,513.82 ha of coral reefs. Current EVIKA score: 71.30 ▪ Savu Sea: TBD after a baseline assessment in Phase 1 (to determine the ha of coral reefs in Savu Sea MPA that cover Sabu Raijua Island) Current EVIKA score: 54.46 ▪ Natuna (proposed MPA): 5,229.29 ha of coral reefs. Current EVIKA score: not available ▪ Anambas: 3,718.56 ha coral reefs. Current EVIKA score: 61.29 ▪ Bintan: TBC. Current EVIKA score: not available Baseline EVIKA scores for the MPAs will be used to measure MPA Management effectiveness. As the Savu Sea MPA covers a large area over 3 million ha, the EVIKA will be specific to the project intervention site (Sabu Raijua).	The EVIKA score at the programme start will be noted for each of the priority sites in the areas where KORALESTARI has activities.	For each priority site, the EVIKA score is maintained for the areas where KORALESTARI is active.	For each priority site, EVIKA score increased by one level for the areas where KORALESTARI is active.

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
2. Ecological integrity of coral reefs: change in hard coral cover (%) and coral reef fish biomass (kg/ha) (GBF)	Hard Coral Cover (% change)	Baseline assessments will be conducted **to verify** the existing data. Existing data (across entire MPAs, not yet determined for specific intervention areas of KORALESTARI): ▪ Berau (2021): hard coral cover 32.80% ▪ Savu Sea (2021): hard coral cover 22.3% ▪ Natuna: existing data in 2009 is outdated ▪ Anambas (2021): hard coral cover 37.83% ▪ Bintan: TBC	Verified and updated baseline data will be collected during inception for the areas within the priority sites where KORALESTARI is active.	Maintain the baseline level	Improved – by 5% compared to baseline, monitored in the direct intervention project locations.
	Cover of coral reef benthic groups, %	Baseline assessment will be done **to verify** the existing data. Existing data: ▪ Berau (2021): TBD ▪ Savu Sea (2016): coral reef benthic group 45.5% ▪ Natuna: existing data in 2007 is outdated ▪ Anambas (2021): data is not available ▪ Bintan: TBC	Verified and updated baseline data will be collected during inception	Maintain the baseline level	Improved – by 5% compared to baseline, monitored in the direct intervention project locations.
	Reef fish biomass, kg/ha	Baseline assessment will be done to verify the existing data. Existing data: ▪ Berau (2021): 2.910 individu/ha ▪ Savu Sea (2021): commercial fish biomass 340 kg/ha (average) ▪ Natuna: No data available ▪ Anambas (2021): 2,711.56 individu/ha (there is no biomass data available) ▪ Bintan: TBC	Verified and updated baseline data will be collected during inception.	Maintain the baseline level	Improved – by 5% compared to baseline, monitored in the direct intervention villages
3. Number of jobs created for Indigenous Peoples and local communities	# of jobs created for men	Zero	TBD in Phase 1 based on the final CRFF design and locations of all KORALESTARI activities which are determined during baseline assessments.	TBD in Phase 1 based on the final CRFF design and locations of all KORALESTARI activities which are determined during baseline assessments.	TBD in Phase 1 based on the final CRFF design and locations of all KORALESTARI activities which are determined during baseline assessments.
	# of jobs created for women	Zero	TBD – 30% of all jobs created are expected to	TBD – 30% of all jobs created are expected to	TBD – 30% of all jobs created are expected to

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
			be for women (given some sectors such as fisheries employ more men), but this will be determined during final CRFF design and baseline assessments.	be for women (given some sectors such as fisheries employ more men), but this will be determined during final CRFF design and baseline assessments.	be for women (given some sectors such as fisheries employ more men), but this will be determined during final CRFF design and baseline assessments.
	# of jobs created for youth	Zero	TBD – 10% of all jobs created are expected to be for youth, but this will be determined during final CRFF design and baseline assessments.	TBD – 10% of all jobs created are expected to be for youth, but this will be determined during final CRFF design and baseline assessments.	TBD – 10% of all jobs created are expected to be for youth, but this will be determined during final CRFF design and baseline assessments.
	# of jobs created for Indigenous peoples	Zero	TBD – based on Gender & Inclusion assessment during inception	TBD – based on Gender & Inclusion assessment during inception	TBD – based on Gender & Inclusion assessment during inception
4. Number of direct and indirect local beneficiaries of Fund investments	# of beneficiaries that are men	Direct beneficiaries: 0 Indirect beneficiaries: 0 -	The direct and indirect beneficiaries of all activities will be further refined during the inception phase based on the final design of the CRFF, activity locations, and feasibility studies (e.g. for Reef Insurance). We have provided estimations for the direct and indirect beneficiaries of the support to sustainable fisheries, aquaculture, and micro-business groups, UPTD-BLUD, and blue carbon. These estimates are currently for **all beneficiaries**, but we assume around **30% of those will be women** and **10% youth**.	The direct and indirect beneficiaries of all activities will be further refined during the inception phase based on the final design of the CRFF, activity locations, and feasibility studies (e.g. for Reef Insurance). We have provided estimations for the direct and indirect beneficiaries of the support to sustainable fisheries, aquaculture, and micro-business groups, UPTD-BLUD, and blue carbon. These estimates are currently for **all beneficiaries**, but we assume around **30% of those will be women** and **10% youth**.	The direct and indirect beneficiaries of all activities will be further refined during the inception phase based on the final design of the CRFF, activity locations, and feasibility studies (e.g. for Reef Insurance). We have provided estimations for the direct and indirect beneficiaries of the support to sustainable fisheries, aquaculture, and micro-business groups, UPTD-BLUD, and blue carbon. These estimates are currently for **all beneficiaries**, but we assume around **30% of those will be women** and **10% youth**.

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
			Sustainable Fisheries Direct beneficiaries: Around 15 fishers across sites **Other interventions:** Direct beneficiaries: ▪ Natuna/Anambas/Bintan: 15 household/60 people ▪ Savu Sea: around 120 households/480 people ▪ Berau: around 115 household/460 people **Indirect beneficiaries:** TBD during Phase 1.	**Sustainable Fisheries** Direct beneficiaries: Around 30 fishers across sites **Other interventions:** **Direct beneficiaries:** Natuna/Anambas/Bintan: 40 household Savu Sea: 200 households/800 people Berau: 190 households/ 760 people **Indirect beneficiaries:** Savu Sea (BUMDes/Cooperative): 1 village (around 250 household/1,000 people) Berau (UPTD-BLUD): Across 4 villages in Maratua Island (around 1,000 household/4,000 people)	**Sustainable Fisheries** Direct beneficiaries:: Around 40 fishers across sites **Other interventions:** **Direct beneficiaries:** Natuna/Anambas/Bintan: 70 household / 280 people Savu Sea: 270 household/1080 people Berau: 220 households/880 people **Indirect beneficiaries:** Savu Sea (BUMDes/Cooperative): 2 villages (around 500 household/2,000 people Berau: (UPTD-BLUD): Across 4 villages in Maratua Island (around 1,000 household/4,000 people) (BUMDes/Cooperative): 1 village (around 250 household/1,000 people) Total Berau: 1,250 household/5,000 people

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
	# of beneficiaries that are women	*See above*	*See above*	*See above*	*See above*
	# of beneficiaries that are youth	*See above*	*See above*	*See above*	*See above*
	# of beneficiaries that are Indigenous peoples	*See above*	*See above*	*See above*	*See above*
5. Investments into reef-positive businesses	# of reef-positive businesses and sectors with GFCR investments	Zero reef-positive businesses and sectors with GFCR investments.	First round of proposals for CRFF, supporting 1-2 reef-positive businesses at incubation or growth phase across the following sector (TBC). Savu Sea: Sustainable seaweed aquaculture business Berau: Shrimp-carbon aquaculture and/or ecotourism Natuna/Anambas: Capture Fisheries	TBD during full CRFF design, expected to support around 30 reef-positive businesses across the following sectors: Savu Sea: At least 2 types of businesses: sustainable seaweed aquaculture, other (TBD). Berau: At least 4 types of businesses: shrimp-carbon aquaculture, UPTD-BLUD MPA model, ecotourism, other (TBD) Natuna/Anambas: At least 4 types of businesses (ecotourism, fish-cage aquaculture, capture fisheries, other)	TBD during full CRFF design, expected to support around 43 reef-positive businesses across the following sectors: Savu Sea: At least 3 types of businesses (sustainable seaweed aquaculture, intermediate seaweed product, other) Berau: At least 4 types of businesses (shrimp-carbon aquaculture, UPTD-BLUD MPA model, ecotourism, other) Natuna/Anambas: At least 4 types of businesses (ecotourism, fish-cage aquaculture, capture fisheries, other)
	Amount (USD) invested by GFCR into reef-positive businesses, by business and sector	Zero USD invested by GFCR into reef-positive businesses, by business type and sector	In total: USD 100,000. Business type and sector will be further specified during Inception but will likely include:	In total: USD 3,250,000. Business type and sector will be further specified during Inception but will likely include:	In total: USD 3,400,000. Business type and sector will be further specified during Inception but will likely include:

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
			▪ Savu Sea: Sustainable seaweed aquaculture and other-microbusiness (TBD), ▪ Berau : Shrimp-carbon aquaculture, ecotourism, other; waste management ▪ Natuna: Fish-cage aquaculture, ecotourism, capture fisheries	▪ Savu Sea: Sustainable seaweed aquaculture and other-microbusiness (TBD), ▪ Berau : Shrimp-carbon aquaculture, ecotourism, other; UPTD-BLUD MPA Model; waste management ▪ Natuna: Fish-cage aquaculture, ecotourism, capture fisheries	▪ Savu Sea: Sustainable seaweed aquaculture and other-microbusiness (TBD), ▪ Berau : Shrimp-carbon aquaculture, ecotourism, other; UPTD-BLUD MPA Model; waste management ▪ Natuna: Fish-cage aquaculture, ecotourism, capture fisheries
	# of businesses that meet 2X Gender Challenge standards	Zero businesses.	TBD during the inception phase in-depth gender and inclusion assessments.	TBD during the inception phase in-depth gender and inclusion assessments.	TBD during the inception phase in-depth gender and inclusion assessments.
6. Extent (ha) of coral reefs that are under effective coral restoration (GBF)	# of coral restoration 'technologies' (needs definition)	n.a.			
	# of in situ coral restoration projects	n.a.			
	# of coral restoration plans, strategies or guidelines developed	Zero strategies or guidelines	1 guidelines/strategies developed for one priority site.	3 guidelines/strategies developed (one for each priority site)	3 guidelines/strategies developed (one for each priority site)
	# of coral restoration trainings	Zero trainings provided to Reef Brigades (Pokmaswas)	1 training package provided to one Pokmaswas	3 training packages provided to three Pokmaswas (one is each priority location)	3 training packages provided to three Pokmaswas (one is each priority location)
	# of people engaged in coral restoration	Zero members of Pokmaswas (20 people per Pokmaswas)	20 members of Pokmaswas	60 members of Pokmaswas	60 members of Pokmaswas
	# of response plans (incl. financial mechanisms, eg., insurance) in place to support coral restoration after severe shocks (e.g,. storms, bleaching)	Zero insurance policies.	Feasibility study to identify suitable locations and partners involved in the reef insurance mechanism conducted.	Expected (depending on feasibility study): Reef insurance is set up (e.g. governance arrangements) and	Expected (depending on feasibility study): Potential scaling/replication of reef insurance mechanism

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
				capacity building is provided to the fund holder. Partnerships with organisations contributing to the insurance fund are established.	
7. Improved crisis response to support the recovery of coastal communities and coral reefs ecosystems after major shocks	# of rapid financial support mechanisms that help coastal communities or coral reef ecosystems recover from disasters (e.g., insurance, loans, village savings, restoration crisis plans, etc)	Zero UPTD-BLUD MPA funds for emergency restoration (Berau, Maratua Reefs)	Enabling conditions and mechanism for UPTD-BLUD MPA to provide funds for emergency restoration is identified. Anticipated to be: a policy or Standard Operating Procedures for an emergency fund.	Emergency fund for coral reef restoration (not covered by insurance), is available or allocated for Berau – Maratua reefs.	Emergency fund for coral reef restoration (not covered by insurance), is available or allocated for UPTD-BLUD MPA in Berau – Maratua reefs.
	# of people ('beneficiaries') supported by crisis management plans	Zero people	# of people (TBD during inception) living across 6 villages in Berau and Savu Sea with community-based vulnerability assessments for climate adaptation planning in place.	# of people (TBD during inception) living across 8 villages in Berau and Savu Sea with community-based vulnerability assessments for climate adaptation planning in place.	# of people (TBD during inception) living across 8 villages in Berau and Savu Sea with community-based vulnerability assessments for climate adaptation planning in place.
	Estimated avoided loss or damages (USD) based on ha of coral reefs/coastal ecosystems with improved ecosystem resilience	No avoided loss or damages.	TBD during reef insurance feasibility study in Phase 1.	TBD during reef insurance feasibility study in Phase 1.	TBD during reef insurance feasibility study in Phase 1.
8. Amount ($) of blended/public and private financing unlocked ($) e.g., investment capital leverage, grant co-financing, etc.	Amount (USD) of public finance (and source), by type of business/sector	Zero public finance unlocked.	TBD during inception phase based on feasibility studies, co-financing agreements, and final financial solutions designed.	TBD	Expected over programme lifetime: 9,875,000 USD (see table 11 in full proposal)
	Amount of private finance (and source), by type of business/sector	Zero private finance unlocked.	TBD during inception phase based on feasibility studies, co-financing		Expected over programme lifetime: 8,100,000 USD

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target (set for 2027; targets are cumulative, including previous targets)	Target by 2030
			agreements, and final financial solutions designed.		(see table 12 in full proposal)
	Ratio of public to private blended finance.	n.a.	TBD	TBD	TBD
9. Number of sustainable finance mechanisms directly supported	Number of sustainable finance mechanisms (and type)	Zero sustainable finance mechanisms	0 sustainable finance mechanisms	Three sustainable financial mechanisms directly supported: UPTD-BLUD MPA Model CRFF Blue Carbon Pilot	TBD: Potentially: Four sustainable financial mechanisms directly supported: UPTD-BLUD MPA Model CRFF Blue Carbon Pilot Reef insurance
10. Amount of revenue ($) generated from sustainable financing streams (user fees, reef insurance, blue carbon, etc.) and reef-positive businesses	Amount of revenue generated from sustainable financing (by type)	CRFF: 0 USD MPA User fees (UPTD-BLUD model): 0 USD Blue Carbon Project: 0 USD Reef Insurance: 0 USD	TBD During Inception based on baseline assessment, feasibility studies, and final design of the financial solutions. Expected: CRFF: 0 USD MPA User fees (UPTD-BLUD MPA Model): 0 USD Blue Carbon Project: 0 USD Reef Insurance: 0 USD	TBD During Inception based on baseline assessment, feasibility studies, and final design of the financial solutions. Expected: CRFF: 3,000,000 USD MPA User fees (UPTD-BLUD MPA Model): 300,000 USD Blue Carbon Project: 1,000,000 USD Reef Insurance: TBD	TBD During Inception based on baseline assessment, feasibility studies, and final design of the financial solutions. Expected: CRFF: 4,600,000 USD MPA User fees (UPTD-BLUD MPA Model): 480,000 USD Blue Carbon Project: 2,250,000 USD Reef Insurance: TBD
	# of and type of sustainable revenue streams	See above			

Table 15. 18-month milestones for KORALESTARI's outcome and outputs.

Indicator	Baseline	18-month target	End of project Target	Means of Verification	Responsible partner
Outcome 1 – Innovative finance mechanisms are implemented and generate additional resources for coral reef restoration and conservation. **18 month Milestones**					
Output 1.1 – Policy activities are supported to improve enabling conditions for the blue economy, including regulation to allow for the UPTD-BLUD MPA Management model, the blue carbon market, and a reef insurance mechanism.					
I.1.1.1: Policy landscape assessment and KORALESTARI policy activities defined	-	Policy landscape assessment is conducted and provide policy priorities for KORALESTARI. Support to government to develop regulatory frameworks to enable UPTD-BLUD model and blue carbon have started, covering study on potential revenues and establish taskforce to develop BLUD.	TBD depending on results of the roadmap	TNC YKAN reports to the GFCR	TNC YKAN
Output 1.2 – MPAs and other reserves have self-financing models in place (UPTD-BLUD model)					
I.1.2.1: Business model and implementation plan for MPA Management Unit in Berau is established	-	Support UPTD[80] in Berau with conducting a study on the potential revenues for a BLUD MPA Management Unit. Support the UPTD in Berau to establish a task force to develop UPTD-BLUD MPA Management Unit in Berau, including	Implementation of business model for MPA Management Unit in Berau is finalised.	TNC YKAN reports to the GFCR	TNC YKAN

[80] The UPTD is a generic MPA Management Unit, who conventionally rely on public funding. The programme will support existing UPTD to develop a BLUD Business Model, which allows to access private funding through for example charging tourist access fees to the MPA. In this case, the BLUD is the business management unit which enables access private funding next to public funding.

		evaluating the business model.			
Output 1.3 - A blue carbon demonstration project in mangrove and seagrass areas adjacent to reefs is implemented and provides evidence for policy activities					
I.1.3.1: Blue carbon project studied in Berau	-	Location identified for first blue carbon project in Berau Pre-feasibility study is conducted for the blue carbon project in Berau	TBD depending on pre-feasibility study.	TNC YKAN reports to GFCR Pre-feasiility study for carbon project	TNC YKAN Blue Carbon co-implementer (TBC)
Output 1.4 - Learnings on innovative finance mechanisms are shared externallyadopted with targeted communication interventions.					
I.1.4.1: Communication and education plan for each finance solutions is created	-	5 communication and education plans for each finance solution, as part of the overall programme communication plan.	TBD, depending on communication and education plans	TNC YKAN reports to GFCR	TNC YKAN
Outcome 2 - Bankable reef-positive projects are implemented and support livelihoods of reef-dependent communities **18 month Milestones**					
Output 2.1 - The Coral Reef Funding Facility (CRFF) is operational and supports a portfolio of reef-positive projects to become bankable (sustainable fisheries and aquaculture, ecotourism, waste management, bioprospecting)					
I.2.1.1: Landscape assessment of relevant CRFF sector conducted	-	Landscape assessment conducted to identify investment needs, industry practices, investment opportunities, and optimal CRFF portfolio composition in collaboration with the GFCR Investment Fund. CRFF Fund Manager and Expert Selection Committee partners identified	-	TNC YKAN reports to GFCR Landscape assessment	TNC YKAN CRFF Manager and Expert Panel
I.2.1.2: CRFF is designed and launched	-	CRFF is designed CRFF fund manager and expert committee installed Co-financing sought	TBD: based on landscape assessment and full CRFF design	TNC YKAN reports to GFCR	TNC YKAN CRFF Manager and Expert Panel

I.2.1.3: CRFF call for proposals launched		CRFF pipeline is built First call for proposals is prepared (distributing USD 100,000), supporting 1-2 businesses in incubation or growth stage	TBD: based on landscape assessment and full CRFF design	TNC YKAN reports to GFCR	TNC YKAN CRFF Manager and Expert Panel
Output 2.2 - Sustainable aquaculture is scaled up with incentives and technical assistance to farmers who implement environmental standards					
I.2.2.1: Aquaculture investment roadmap is drafted	Hatch Blue's internal aquaculture pipeline mapping and CI's work on aquaculture under their GFCR programme	National mapping of aquaculture growth projections and overlap with coral reefs conducted Investment roadmap for Indonesia's aquaculture sector prepared	TBD: based on investment roadmap	TNC YKAN reports to GFCR Aquaculture investment roadmap	TNC YKAN Hatch Blue and CI (TBC)
I.2.2.2: Sustainable aquaculture projects supported	-	Stakeholder engagement with priority aquaculture sites concluded TA support package prepared for each site	TBD: based on investment roadmap	TNC YKAN reports to GFCR	TNC YKAN
Output 2.3 - Economic incentives and technical assistance are provided to micro-business groups to improve their access to sustainable markets and to financial capital, including women's active participation.					
I.2.3.1: Micro-business groups supported	-	Stakeholder engagement with priority micro-business groups concluded TA support package prepared for each site	TBD: based on stakeholder engagement	TNC YKAN reports to GFCR	TNC YKAN
Output 2.4 - Coral reef fisheries participation in ecolabel-certified supply lines promoted					
I.2.4.1: Constraints and opportunities for business development in priority locations identified	-	Priority locations for sustainable fisheries projects identified Start of stock assessments, supply	TBD: based on studies	TNC YKAN reports to GFCR	TNC YKAN

		line assessments, fleet survey, and catch assessment survey conducted with representative small-scale fisheries in one to two priority locations			
I.2.4.2: Management plans for sustainable fisheries in place	-	Reach out to local governments to start developing sustainable management plans (e.g. secure access to sustainable resources for small-scale fisheries and sustainability standards in place).	TBD: based on I.2.4.1 outcome	TNC YKAN reports to GFCR	TNC YKAN
Outcome 3 - Local capacity to protect, restore, and recover coral reefs, including after major shocks, is enhanced **18 month Milestones**					
Output 3.1 - Resilient coral reefs are identified in the priority areas to inform MPA management and restoration efforts					
I.3.1.1: Resilient coral reefs in priority areas identified	-	Scientific assessments and habitat mapping conducted in priority locations Coral reef priority areas identified based on studies	-	TNC YKAN reports to GFCR	TNC YKAN
Output 3.2 - MPA management bodies are supported with developing and implementing Management plans					
I.3.2.1: Improved MPA management practices	-	Support to MPA Management Body in Berau ito develop/improved management plan is provided	-	TNC YKAN reports to GFCR	TNC YKAN
Output 3.3 - New reef insurance products, including a funding mechanism, are developed					
I.3.3.1: Feasibility study for potential reef insurance product conducted	-	Feasibility study to identify suitable locations and partners involved in the reef insurance mechanism conducted	TBD: based on feasibility study	TNC YKAN reports to GFCR	TNC YKAN

Output 3.4 - Local “Reef Brigades” (with local dive shops, rangers, and MPA managers) are established with the capacity to restore coral reefs and support reef recovery after damages					
I.3.4.1: Suitable Pokmaswas Perikanan (Reef Brigades) identified	-	Suitable partners t be trained as Pokmaswas Perikanan (Reef Brigades) in priority locations identified. Support package for each reef brigade prepared, including stakeholder engagement and training design)	TBD	TNC YKAN reports to GFCR	TNC YKAN
Output 3.5 - Community-based vulnerability assessment in the priority areas are carried out to support the development of climate adaptation and Disaster Risk Reduction plans					
I.3.5.1: Community-based vulnerability assessments carried out	-	Priority communities and partners identified Support package prepared (including stakeholder engagement and engaging consultants). Two community-based vulnerability assessments carried out.	TBD	TNC YKAN reports to GFCR	TNC YKAN