

GLOBAL GRANT APPLICATION



Photo: A portion of Guang-Guang Mangrove Park and Nursery in Mati City, Davao Oriental, Philippines (Photo Credit: Camille Adle)

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PART 1: BASIC INFORMATION

PROJECT NAME/TITLE:	Fostering Coastal Resilience: Empowering Fisherfolks in Dava Oriental through Community-led Mangrove Restoration		
AREA OF FOCUS:	Environmental Protection and expansion of mangroves ar natural resources in Davao Oriental, Philippines and Communi economic development		
PRIMARY HOST AND	PRIMARY HOST:		
CONTACTS:	Rotary Club of Tagum Laces		
	INTERNATIONAL PARTNER: Insert details		

PART 2: COMMITTEE MEMBERS

HOST COMMITTEE:	ROTARYCLUBOFTagumLaces(DavaodelNorte,Philippines)Other contacts in the host committee.Mr. Bertel Ingmar Bertelsen (Past President, RC South Davao)Mr. JackRodriquez (Past President, RC Manila 2019-2020 andPast District governor 3810)
INTERNATIONAL COMMITTEE:	Insert details
CONFLICT OF INTEREST DECLARATION:	None

PART 3: PROJECT OVERVIEW

The Project has the overall goal of supporting nature and biodiversity conservation within the Pujada Bay Protected Landscape and Seascape¹ and within the gulf towns of Davao Oriental.

The Pujada Bay Protected Landscape and Seascape has been listed as one of the Most Beautiful Bays in the World (MBBW) during the 15th World Bays Congress in Toyama Prefecture, Japan, held on October 2019².

The reason for its inclusion in the MBBW lies mainly in its beautiful landscapes and seascapes marked by stretches of white sandy beaches in its shoreline and calm turquoise blue waters, and with the UNESCO-inscribed Mount Hamiguitan Range Wildlife Sanctuary in its backdrop.

The Pujada Bay was also declared as a protected area under the National Integrated Protected Areas System (NIPAS) through Presidential Proclamation No. 431 in 1994. Areas protected under this law are those with "national significance characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through the recreation and tourism within the normal lifestyle and economic activity of these areas".

The gulf towns in Davao Oriental are coastal LGUs within the Davao Gulf which have marine protected areas (MPA) within the Davao Regional MPA Network of the Davao Integrated Development Program (DIDP), through Resolution No. 2 series of 2018 issued by the DIDP Executive Board³.

To achieve the overall goal, the Project will work towards the following objectives:

Support the protection of coastal and marine ecosystems in Pujada Bay and Gulf Towns: The Project will support the habitats of various fauna dependent on mangrove ecosystems, particularly those adjacent to reefs and seagrass. Mangrove forests have been known to support high biodiversity of faunal organisms such as fiddler crabs (*Uca sp*), olive ridley turtle (*Lepidochelys olivacea*) and green sea turtle (*Chelonia mydas*), sea cucumbers (*Holothuria scabra*)⁴, various mollusks (*Anadara maculosa, Antigona puerpera, Canarium urceus and Lambis lambis*)⁵ and over 118 species of fish⁶. Mangroves also serve as nurseries and feeding grounds for fish, invertebrates and other locally important faunal groups such as birds and reptiles⁷. Higher numbers of marine fauna may also be found in mangrove forests adjacent to reefs or seagrass habitats⁸. Proper zonation of mangrove planting allows for the optimum growth of seagrass beds which provide nutrients and physical habitats to many fish species, invertebrates, crustaceans and marine turtles⁹. Mangroves will also minimize soil erosion and provide a

⁷ Angsingco-Jimenez, L. Guide to Common Mangroves in Pujada Bay, City of Mati, Davao Oriental, Philippines. 2016.

⁸ ibid.,

¹ id., Bandigan-Rapiz, F. and Angsingco-Jimenez, L.

² Deloso, Karen Lou. Pujada Bay is Among The World's Most Beautiful Bays.

https://davaooriental.gov.ph/news/tourism/pujada-bay-is-now-among-worlds-most-beautiful-bays/ ³ EO 29, series of 2021. Republic of the Philippines Province of Davao Oriental. https://davaooriental.gov.ph/wp-content/uploads/2021/11/EO-29.pdf

⁴ Bandigan-Rapiz, F. and Angsingco-Jimenez, L. Ridge to Reefs: A Photobook of the City of Mati. 2021.

⁵ Tayone, J. et.al. Selected Mollusks from Pujada Bay, Philippines: Heavy Metal Health Risk Assessment and Antibacterial Activities. 2020. <u>https://www.ajbls.com/sites/default/files/AsianJBiolLifeSci-9-2-177.pdf</u>

⁶ https://r11.denr.gov.ph/index.php/news-events/press-releases/1355-denr-xi-s-marine-conservationists-assess-pujada-bay-anew

⁹ Bureau of Fisheries and Aquatic Resources, Region V, Philippines. Field Guide on Seagrass, FishCORAL Project - Region V.

cover to protect coastal communities against strong winds and coastal erosions brought about by typhoons and the monsoon season. The expansion of mangrove forests in the gulf areas of Davao Oriental will also provide legal protection to coastal areas against potentially harmful activities to the environment (e.g. ongoing mining activities in Davao Oriental), as the Davao Oriental Marine Protected Area Network (MPAN) Council¹⁰ prohibits the destruction of mangrove areas.

- Enhance knowledge of Pujada Bay and Gulf Town communities on coastal resource management and pro-environmental behaviors: The Project builds on ongoing natural resource management and conservation efforts in Pujada Bay, where there is relatively stronger capacity and leadership from women's and mangroves' associations. This can be leveraged in the Project so that other fisherfolk associations in the gulf areas could build their own capacities and leadership. In addition to this, the Project will also continue to support knowledge- and awareness-raising on proper mangrove forest management, coastal solid waste management and ecotourism through various activities.
- Support increased carbon sequestration to contribute to climate change mitigation: Various research indicates that mangroves and coastal wetlands possess a remarkable ability to sequester carbon, surpassing even mature tropical forests. They store three to five times more carbon per unit area, making them crucial in combating climate change¹¹. For instance, one mature mangrove tree can store up to 5 kg of carbon on average per year, with younger mangroves storing less than older ones. Given that mangrove trees' minimum life span is 25 years, this means that one tree can potentially store up to 125 kg of carbon¹².

The Project aims to directly benefit fisherfolk communities in the areas of Barangays Badas, Dahican, Mangihay and Mamali in Mati City and Barangays Bato-Bato, Bitaogan and Manikling in the Municipality of San Isidro, all of which are in Davao Oriental, Mindanao, Philippines. The Project will have the potential to expand to adjacent barangay's in the gulf-facing municipalities of Davao Oriental, particularly as their municipalities hear about the benefits of mangrove reforestation. Indirect beneficiaries will be the adjacent municipalities and cities in Pujada Bay and the gulf areas of Davao Oriental, which are also within the protected area network of the province.

This Project is eventually envisioned to support the development of sustainable alternative livelihoods for these fisherfolk communities such as the following:

Plastic Waste Recycling: Mama Earth Foundation works with Envirotech Waste Recycling Inc., a company that reuses recyclable materials such as plastics in the production of tables, school chairs, garbage bins and bricks, among others. Mama Earth has already initiated a supply chain for plastic waste in Dahican Beach, a 7-km stretch of open beach that produces a huge volume¹³ of plastic waste on a daily basis because of its high number of tourists. Currently, Mama Earth has trained several people's organizations on collecting and sorting the waste which is then paid an amount of PHP 5.00/kg. This initiative not only offers an alternative source of income for fisherfolks, but also supports the optimum growth of mangrove forests and overall coastal and marine

 ¹⁰ id., EO 29, series of 2021. Republic of the Philippines Province of Davao Oriental.
 ¹¹ NOAA. What is Coastal Blue Carbon? National Ocean Service website.

https://oceanservice.noaa.gov/ecosystems/coastal-blue-carbon/#:~:text=Current%20studies%20suggest%20that%20mangroves.eq uivalent%20area%20than%20tropical%20forests.

¹² Should this project be granted its proposed amount, it will allow for the planting of 150,000-165,000 mangrove trees which can potentially sequester a minimum of 20,625,000 kg or almost 21 thousand tons of carbon, but likely more as there are already centennial-old mangroves present in the area. (Mama Earth Foundation brochure)

¹³ According to Mama Earth Foundation, Dahican Beach has the potential

ecosystem protection.

- Ecotourism opportunities: The mangrove sites in Mati City, particularly the Guang-Guang Mangrove Park and Nursery, present many opportunities for ecotourism. For instance, the Mangrove Park and Nursery management can provide employment opportunities for fisherfolks. Other possible income opportunities can be food peddling in the Park and Nursery, plastic waste gathering (in relation to the above), transport for tourists, and touring/tour guide services. It is important to note, however, that all of these will rely upon the further development and promotion of the Mangrove Park and Nursery by the local government of Mati City.
- High-value seafoods production: The mangrove sites in Mati City and San Isidro can be utilized for aqua silviculture of fish, crabs and other seafoods for consumption. Aqua silviculture is a multi-purpose production system that allows production of fish in a mangrove reforestation project. It is a mangrove-friendly aquaculture technique of producing fish in a watered area enclosed with net but does not allow cutting of mangrove trees¹⁴. The women's and mangrove associations managing the existing mangrove forests and leading the mangrove reforestation efforts in Pujada Bay and gulf areas of Davao Oriental are well-placed to do this as this is could easily be linked to monitoring the mangrove nurseries and newly-planted mangroves. This initiative can be further explored with the Bureau of Fisheries and Aquatic Resources (BFAR) as they may have existing funding and support for aquasilviculture activities.
- **Support coral reef restoration efforts**: Mama Earth Foundation is also currently working with rrreefs: rethinking, rebuilding, regenerating on restoring coral reefs to support sea turtle colonies and other marine wildlife in Pujada Bay. This aims to support the ridge-to-reef initiatives in the area, where mangrove ecosystems, seagrass ecosystems and artificial reef ecosystems are interconnected. Such initiatives will eventually provide another source of alternative income to communities that will be supported by this Project, According to past experiences of rrreefs within 5-10 years artificial reefs will have become more stable and attract more fish and marine organisms, thereby increasing fishing yields of fisherfolks as well as attracting divers to support ecotourism opportunities in the area.

¹⁴ Dieta, R. and Dieta, F. The Philippine National Aquasilviculture Program. 2014. https://core.ac.uk/download/pdf/77980931.pdf



PART 4: PROJECT AREAS OF FOCUS

The project focuses on the following goals as designed for the Supporting the Environment area of focus of the Rotary Foundation:

- \Box Peacebuilding and conflict prevention
- □ Disease prevention and treatment
- $\hfill\square$ Water, sanitation, and hygiene
- □ Maternal and child health
- \Box Basic education and literacy
- Community economic development
- **Environment**

Marine Threatened and Charismatic Species in Mayo & Pujada Bays, Davao Oriental



PART 5: MEASURING SUCCESS

Baseline:

The Project will be measuring impact based on the table below:

Objective 1: Support the protection of coastal and marine ecosystems in Mati City and the Municipality of San Isidro				
Measure/Indicator	Collection Method	Frequency	Beneficiaries	
% survival of mangroves planted (based on growth rate, mortality rate and leaf count) <i>Baseline:</i>	Monitoring of mangrove nurseries and trees planted on a periodic basis	Every six months		
Change in abundance of harvest by fisherfolks in the communities	Monitoring of fish and shellfish catch in kg	Every six months		

Objective 2: Enhance knowledge and capacity development of Mati and San Isidro communities on coastal resource management and pro-environmental behaviors

Measure/Indicator	Collection Method	Frequency	Beneficiaries
Number of direct beneficiaries (mangrove planters and immediate family/household members) receiving education sessions <i>Baseline:</i>	Attendance sheets	Once, per training session	
Number of indirect beneficiaries (other families/households in the community) <i>Baseline:</i>	Barangay population data	Once	
Change in community cooperation in self-monitoring and conservation efforts <i>Baseline:</i>	Beneficiary interviews	Every six months	

Objective 3: Support increased carbon sequestration to contribute to climate change mitigation

Measure/Indicator	Collection Method	Frequency	Beneficiaries
Change in total land use area covered by mangroves	Secondary data, through municipal and	Annually	
Baseline: Comprehensive Land Use Plan of the LGU vs. GIS Mapping	barangay-level mapping and plans		

Change in carbon sequestered in mangrove forests	Field monitoring visits, using GPS	Every six months	
Baseline:			

To monitor the above, a Monitoring and Evaluation team shall be led by Dr. Lea Angsinco-Jimenez, Ph.D, a Professor at Davao Oriental State University (DOrSU) and the Director of the Office of the Regional Integrated Coastal Resource Management Center (RIC XI). Dr. Angsinco-Jimenez shall be assisted by Environmental Science post-graduate and baccalaureate students and the Mama Earth Foundation's foresters who will be assigned in the area.

Davao Oriental State University-Regional Integrated Coastal Resource Management Center from here on and further mentioned as DOrSU-RIC XI is best qualified for this task. They are educated on the indicators to monitor and they are also based within the project area. Next to that they already are conducting existing mangrove forest and coastal ecosystem monitoring projects within these areas. The DOrSU-RIC XI also has an existing Memorandum of Agreement (MOA) with the Mati City government for mangrove rehabilitation, and has both government and university-led support. The University is also a longtime partner of Mama Earth Foundation for its other mangrove rehabilitation projects that they have been doing on other locations.



ENGLISH (EN)

PART 6: LOCATION

The Project will be implemented in the areas of Barangays Badas, Dahican, Mangihay and Mamali in Mati City and Barangays Bato-Bato, Bitaogan and Manikling in the Municipality of San Isidro, all of which are in Davao Oriental, Mindanao, Philippines and will form part of ongoing mangrove reforestation projects of Mama Earth Foundation and the DOrSU-RIC XI¹⁵. The Project will have the potential to expand to adjacent barangays in the gulf-facing municipalities of Davao Oriental, particularly as their municipalities hear about the benefits of mangrove reforestation.



¹⁵ More information on ongoing projects of Mama Earth Foundation with DOrSU may be found on: <u>https://mama-earth.info/mangroves/</u>

PART 7: PARTICIPANTS

The following are the cooperating organizations for this Project:

Name	Description	Location		
Rotary Club of Tagum Laces	Add description	Tagum City, Davao del Sur, Philippines		
<u>Mama Earth Foundation</u>	Mama Earth Foundation is a local non-government organization based in Davao City that has been working on environmental protection and economic development for over 25 years. They are engaged in various mangrove reforestation projects in Davao Region as well as teak, mahogany and cacao tree livelihoods with local farmers.	Davao City, Davao del Sur, Philippines		
<u>Davao Oriental State</u> <u>University – Regional</u> <u>Integrated Coastal</u> <u>Resource Management</u> <u>Center(DOrSU-RIC XI)</u>	The DOrSU is a state university based in Mati City, Davao Oriental that offers undergraduate, graduate, and postgraduate programs in various fields of science and technology, including agriculture and environmental studies. It hosts the Regional Integrated Coastal Resource Management Center (RIC-XI), the local hub for research, monitoring, training and demonstration activities, and focal institution for information, education and communication (IEC) campaign on coastal biodiversity conservation in the Davao Region.	Mati City, Davao Oriental, Philippines		

The host Rotarian, **the Rotary Club of Tagum Laces shall be the direct implementer of the Project**. Specifically, the RC of Tagum Laces shall perform the following functions:

- **Overall project management:** Ensure that all necessary project documents and agreements are properly signed, and ensure the smooth implementation of the project, with all project deliverables performed to satisfaction, as per work plan and grant agreement.
- **Partnership management:** Ensure that the local partners are performing their roles in terms of actual execution of the project and the delivery of project deliverables, as incorporated in the grant agreement.
- Project networking and coordination: and that networking and linkages with other

organizations, government, private or non-government, in connection with the project is enhanced.

- **Financial management:** Ensure that all fund disbursements are within the approved budget.
- **Project reporting**: Ensure that timely and appropriate reports are submitted, with all necessary documentation provided.
- **Project visibility:** Ensure that required signages bearing the icon and identification of Rotary are installed and that proper promotional activities with television, vloggers and print media for Rotary are put in place.

The Rotary Club of Tagum Laces has chosen to partner with the Mama Earth Foundation, Inc. and the Davao Oriental State University-Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI) for this nature conservation and community and economic development project for the following reasons:

- Mama Earth Foundation is the only NGO in the Davao Region that has planted and protected mangroves on a large multi-hectare scale in the last 25 years. Mama Earth Foundation has been proven to work with measurable goals, with a proven track record regarding the growing and protecting of mangroves for over 20 years and over 4 million total mangroves planted around the entire Davao Region, in Davao del Norte, Davao del Sur, Davao de Oro and Davao Oriental.
- Local Rotary clubs, including the Rotary Club of South Davao and Rotary Club of Manila, have already worked together with Mama Earth Foundation in smaller nature conservation projects which have also proven to be successful. With RC South Davao they grew and planted 5000 mangroves in barangay Bato in Digos together with their Rotaract club of south Davao. RC Manila donated a yearly budget from 2020 tot 2025 to plant 1500 mangroves.
- Mama Earth Foundation also works on education, protection, research and livelihood initiatives and would therefore have the capacity to implement all objectives of the project. Next to the planting of mangrove forests which is a central part of the project, local economic development shall also be pursued with Mama Earth Foundation, which shall benefit the local fisherfolk communities around the Balete Bay who are in need of alternative income sources.
- Mama Earth Foundation has been in partnership with the Davao Oriental State University-Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI) for many years and has an existing Memorandum of Agreement (MOA) with them for mangrove reforestation projects. DOrSU-RIC XI will support Mama Earth Foundation and our Rotary Clubs on data collection, trainings and monitoring and evaluation. As also previously mentioned, DOrSU-RIC XI also currently has a MOA with the Mati City Government which means they are locally-accredited and would be able to access support from the local government as necessary for the sustainability of the Project.
- The Rotary Club of Tagum Golden L.A.C.E.S. (Ladies in Action Committed to Effective Service) was established in 1992. As of 2025, the club has been actively serving the Tagum City community for 33 years. Throughout its history, the club has focused on initiatives that promote education, health, and social welfare. Notably, in 1998, they collaborated with their sister club, the Rotary Club of Noda Central in Japan, to establish the Sibol Learning Center, enhancing educational access for children in a local relocation site. Specifically, they will over see the whole project in Mati.
- The International Rotarian partner, the Rotary Club of _____
- The above Project Participants will also be coordinating closely with the Mati City Government, along with government agencies such as the Department of Environment

and Natural Resources (DENR), the Department of Science and Technology (DOST), the Bureau of Fisheries and Aquatic Resources (BFAR), and the Regional and City Tourism Office. These government entities will be crucial to ensuring the sustainability of the Project's objectives beyond the proposed project timeline.

PART 8: BUDGET

The following table provides a summary of the Project Budget, in the currency of Philippine Peso (PHP). The exchange rate from US Dollars to Philippine Peso used in this Budget is **56 PHP** = **1 USD**¹⁶ **as of 26 July 2023**. (14-5-2025 I used <u>https://my.rotary.org/document/exchange-rates-may-2025</u>)

A detailed budget proposal is attached as Annex B.

¹⁶ From <u>https://www.xe.com/</u>

#	Category*	Description	Supplier	Cost in PHP	Cost in USD
	Personnel				
1	Mangrove planters	persons	Local people's organizations in Mati and San Isidro	2.514.444	46.011,89
2	ME Forester (100% Project)	person-mont hs	Mama Earth Foundation	1.760.129	4601,12
3	Woman association	Overhead cost	Local people's organizations in Mati and San Isidro	251444	18.036,62
	Equipment				
4	Maintenance costs of technical equipment (GoPro, camera, drone and cellphones)	lumpsum	Local service providers in Davao City	2,000.00	36
5	Salinity meter	unit	Lazada	10,000	179
	Supplies				
6	Office supplies	lumpsum	Local suppliers in Mati or San Isidro	10,000.00	179.00
	Travel				
7	Fuel allowance of Mama Earth foresters	lumpsum	Local suppliers in Mati and San Isidro	20,000.00	357.00
8	Transport allowance of DOrSU students	person-days	Local suppliers in Mati and San Isidro	30,000.00	535,71
9	Vehicle maintenance	days	Local service providers in Davao City	10,000.00	179.00
	Project Management				
10	Mama Earth Foundation administration costs	lumpsum	Mama Earth Foundation	30,000.00	535,71
	Monitoring and Evaluation				
11	ME Foresters (% level of effort)	person-days	Mama Earth Foundation	10,000.00	179
				Peso 4,648,000.00	85.000 USD

PART 9: FUNDING

Tell us about the funding you've secured for your project. We'll use the information you enter here to calculate your maximum possible funding match from the World Fund. List all of your funding, including cash contributions and District Designated Funds (DDF). (Add rows as needed.)

#	Source	Details	Amount (USD)	Support*	Total
	<mark>Momin Khan</mark>	<mark>Samal, Davao</mark> Del Norte, Philippines	<mark>30.000</mark>		
	District 3860	<mark>Visaya's,</mark> Mindanao, Philipines	<u>30.000</u>		
	World fund	<mark>Rotary</mark> International	<mark>24.000</mark>		
	<mark>Rotary Club of</mark> Manila	<mark>Manila,</mark> Philippines	1.000		
	Total		<mark>85.000</mark>		

PART 10: SUSTAINABILITY

PROJECT PLANNING

The Community Needs Assessment (see <u>Annex A</u>) identified the following as the priority issues and needs of communities in Mati City and San Isidro:

Issues the communities are facing	Needs identified
Decreasing yield of fishing activities in the area because of marine and coastal pollution (e.g. solid waste) and climate-related hazards, leading to lesser incomes	No available service for solid waste management in coastal communities but it is needed; need to restore habitats of fish and seafood to increase yield
Seasonality of fishing as a livelihood	Need for alternative sources of livelihoods alongside fishing and monitoring mangrove forests
Increasing coastal erosion in communities living by the shore	Relocation is not necessarily an option for many fisherfolks, so there is a need to place barriers that will prevent coastal erosion.
Threat of mining activities destroying coastal resources	Need to empower communities to prevent the destruction of coastal areas for profit

These needs were identified through various consultations conducted by the Rotary Club of Manila in cooperation with local Rotary clubs. In the past, these Rotary Clubs conducted and attended several organizational activities with small-scale mangrove planting activities in the area (around 1000 mangrove trees). These Rotary Clubs witnessed the plight of the local fisherfolks and held informal discussions with some of the community members, including Mama Earth Foundation who has been working with fisherfolks to expand mangrove forests. A more focused community assessment was made on May 2023, where the Rotary Club of Manila spoke with Mama Earth Foundation, Davao Oriental State University (DOrSU), and representatives from the women's organization and mangrove association who are leading the mangrove reforestation activities.

DOrSU through the Regional Integrated Coastal Resource Management Center (RIC-XI) has been leading community-based coastal ecosystems protection initiatives for Pujada Bay and the gulf areas of Davao Oriental for many years, and have been co-developing solutions with coastal communities, particularly the women's and mangroves' associations, on how to more effectively restore mangrove forests. As such, the existing business model employed by Mama Earth Foundation in their mangrove restoration projects have been co-designed with the communities in Davao Oriental. In this business model, community members are heavily involved from the process of collecting seeds and putting up seedlings in mangrove nurseries, replanting these seedlings in appropriate areas in the coast, and monitoring their growth and survival. Consequently, in terms of planning this proposed project, the women's and mangroves' associations have been very much involved in identifying project areas, mangrove planters and the number of mangroves that could be feasibly planted in the identified areas. While DOrSU-RIC XI and Mama Earth will be leading monitoring activities, they will also continue training the women's and mangroves' associations in the indicators being monitored and providing recommendations on how to support higher survival rates.

PROJECT IMPLEMENTATION

The proposed Project to be implemented within a year after the release of funding by Rotary International. This timeline will take into account the weather changes expected throughout the year, particularly the monsoon and typhoon seasons, and the optimal period of collecting seeds, setting up nurseries, planting mangroves and monitoring their survival rates. From previous experiences of implementing similar projects, DOrSU-RIC XI and Mama Earth Foundation have learned that mangrove seeds are best gathered starting September and seedlings cannot stay longer than six months in the nurseries. Monitoring the survival of mangroves will be primarily done by the planters with the guidance of DOrSU-RIC XI and Mama Earth Foundation.

Beyond this timeline, DOrSU-RIC XI will take charge of monitoring the growth and maturity of these mangroves in the area.

#	Activity	Duration		
1	Project Inception Meeting and Launch	1 day		
2	Collection of mangrove seeds, planting of seedlings and hauling of seeds and planting materials	1 month		
3	Setting up of mangrove nurseries	1-2 months		
4	Monitoring of mangrove seedlings in nurseries (first and second counting)	1-2 months		
5	Planting of mangrove seedlings	1-2 months		
6	Monitoring of surviving mangrove trees	1 week, done bi-annually		
7	Project Meetings	1 day, every two months		
8	 Coaching and advocacy sessions for fisherfolks/mangrove farmers Mangrove forest management Coastal ecosystem management 	1 day' on the job' training.		
9	Field Visit from RC Tagum Golden Laces and District 3860	1 day		
10	Project Reporting	1 week		

The project implementation will involve the following activities:

The following Grant Chart provides a summary of the timeline of the Project:

|--|

Activity		0	N	D	J	F	м	Α	М	J	J	Α
Project Inception Meeting and Launch												
Collection of mangrove seeds, planting of seedlings and hauling of seeds and planting materials												
Setting up of mangrove nurseries												
Monitoring of mangrove seedlings in nurseries (first and second counting)												
Planting of mangrove seedlings												
Monitoring of surviving mangrove trees												
Project Meetings												
 "Coaching and advocacy sessions on the following topics: Mangrove forest management Coastal ecosystem management Solid waste management Ecotourism Alternative livelihood opportunities 												
Field Visit from RCM and RC Davao												
Project Reporting												

Through Mama Earth Foundation and DOrSU-RIC XI, RCM and RC Tagum Golden Laces will coordinate with the local government units (LGUs) of Mati City and San Isidro and identify opportunities for collaboration or links with this Project. Currently, Mama Earth and DOrSU-RIC XI have existing partnerships with these LGUs because of their ongoing projects in these communities. Local initiatives related to ecotourism and biodiversity conservation will be the immediate links of this Project as this will support the maintenance of the protected area status of the Pujada Bay and gulf areas.

As outlined in the above tables, coaching and advocacy activities for fisherfolks/mangrove farmers have been identified based on the challenges identified by Mama Earth Foundation and DOrSU-RIC XI on their existing projects, such as the following:

Issues/Challenges	Knowledge, skills and attitudes needed
Mangrove forest management	Some mangrove planters may plant on top of seagrasses or may not yet know which varieties are best to plant in certain areas. In addition, proper monitoring of mangrove growth is usually left by fisherfolk to Mama Earth Foundation foresters or DOrSU students, who are not necessarily regularly present.
Coastal ecosystem management	Some fisherfolk are not very conscious about

	their fishing practices destroying newly planted mangroves (e.g. when fisherfolk turn on their motorboats within the area of newly planted mangroves).
Solid waste management	Coastal areas in both Mati and San Isidro benefit from tourists that explore and enjoy their beaches. However, this also leads to the accumulation of solid waste in these areas. This can lead not only to water pollution but also the destruction of newly-planted seedlings and young mangrove plants.
Ecotourism	Established mangrove forests within the areas of Mati and San Isidro have huge potential for ecotourism activities, but these opportunities are not yet clear to fisherfolk and coastal communities.
Alternative livelihood opportunities	Given that most fisherfolk and coastal communities rely on fishing with is mostly a seasonal livelihood, these communities will need to engage in other livelihood opportunities that should contribute to their main livelihoods and communities.

As such, topics for the capacity development activities have been identified as follows:

- **Mangrove forest management** Mangrove farmers in Mati City have more experience and knowledge in mangrove reforestation than in San Isidro. For this reason, this module will provide for the sharing of lessons learned by mangrove farmers in Mati City to those in San Isidro and will also allow for the review of key principles such as proper mangrove zonation and seagrass protection.
- **Coastal ecosystem management** This topic will be localized to be more relatable and relevant to fisherfolks and mangrove farmers in that it will focus not only on the importance of coastal ecosystem management, but also on the direct benefits that communities will experience if they lead this process. This will also include topics on disaster risk reduction to support resilience-building of coastal communities.
- Solid waste management This topic will focus on the short-term and long-term benefits that coastal communities can get from managing their solid waste but also present the opportunity to earn extra income through the opportunity with Envirotech.
- **Ecotourism** This topic will focus on possible environment-friendly livelihood opportunities that can be engaged in by fisherfolk communities that can help them earn extra income.
- Alternative livelihood opportunities Mangrove forests can also provide alternative livelihood opportunities to fisherfolk such as aqua silviculture. This training can be provided by DOrSU-RIC XI and BFAR and can be explored by the fisherfolk associations within the areas of mangrove forests.

As shown in **Part 8: Budget**, mangrove farmers will be compensated for the tasks leading up to the planting of the mangrove seedlings. Mangrove farmers through their associations (women's

association and mangrove association) will consolidate their efforts in the collection of seeds, gathering of seedlings in the mangrove nurseries, monitoring of seedlings and planting of seedlings. They will take charge of the costs involved to carry out these tasks and will be paid according to the fees laid out in the Budget. This is the working business model that has been employed by Mama Earth Foundation and DOrSU-RIC XI in all their previous mangrove reforestation projects in the areas.

Beyond the proposed Project, the DOrSU-RIC XI through the RIC XI shall take full responsibility of overseeing the mangrove forests as Mati City and San Isidro are within their areas of coverage in university research and extension support. Mama Earth Foundation will continue to support these areas through their other initiatives in the areas.

BUDGET

All budget items (supplies and services) that will be purchased or engaged in the project will be done so within Mati or San Isidro, or in Davao City should these items be unavailable in the project areas.

The budget line on equipment includes maintenance costs for existing equipment owned by Mama Earth Foundation and DOrSU-RIC XI. The equipment shall be operated and maintained by Mama Earth Foundation as they have the means to effectively and adequately use, store and maintain this equipment beyond the proposed project.

FUNDING

After the completing of the project, Mama Earth Foundation and the DOrSU-RIC XI will continue to co-finance the mangrove forest maintenance and continue the expansion of mangrove forests in the area through their private and other institutional donors. No part of the project is or shall generate income for ongoing project funding nor is microcredit a part of the project.

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PART 11: ANNEXES

COMMUNITY OVERVIEW

Philippines: The Philippines, located in Southeast Asia, is an archipelagic nation comprising a total of 7,641 islands, which can be generally grouped into three primary geographical regions: Luzon, Visayas, and Mindanao. To the west, the Philippines is bordered by the South China Sea, to the east by the Philippine Sea, and to the south by the Celebes Sea.

Davao Oriental: Davao Oriental, situated in the southeastern region of the Philippines, consists of two congressional districts encompassing 10 municipalities and one city. Covering a vast area of 5,164 square kilometers, Davao Oriental is the largest province in the Davao Region, accounting for roughly 32.82% of the region's total landmass. The province is inhabited by approximately 517,000 residents and boasts a significant pool of capable professionals and skilled laborers.

Municipality of San Isidro: San Isidro, a 3rd class municipality situated in the southwestern region of Davao Oriental, recorded a population of 33,664 individuals as per the 2020 census. Approximately 30% of its residents are members of the indigenous Mandaya and Kalagan communities. The municipality's agricultural sector primarily relies on coconut cultivation and copra production. However, there are ongoing initiatives aimed at diversifying into value-added coconut products, including coco-oil (utilized as a fuel additive) and coco-coir. Notably, the local government's vigorous anti-illegal fishing measures have led to a reduction in dynamite fishing and the establishment of fish sanctuaries in the waters of San Isidro.

Mati City: Mati, officially known as the City of Mati and sometimes referred to as Mati City, is a 5th class city serving as the capital of Davao Oriental province in the Philippines. It is administratively divided into 26 barangays, with two of them being the focus of this community assessment. As of the 2020 Census, Mati City's population stands at 147,547. The primary sources of income for its residents are agriculture and agro-industries, with key exports including bananas, pineapples, coconuts, and fish. Additionally, Mati's tropical environment and picturesque beaches hold significant potential for tourism as a major revenue stream, especially if further developed. The presence of copper in the city's outskirts also

contributes to its economic prosperity $\begin{bmatrix} 1 \end{bmatrix}$.

COLLECTING COMMUNITY ASSESSMENT DATA

When you conducted the assessment, who in the community did you speak to? At least two different community representatives and beneficiaries who are not involved in Rotary (such as teachers, doctors, or community leaders) should be included in the discussions.

The following persons participated in the community assessment conducted on June 2023:

- Ulrich Kronberg, President of Mama Earth Foundation, Inc.
- Dr. Lea Angsinco Jimenez, Director of the Regional Integrated Coastal Resource Management Center (RIC-XI) at Davao Oriental State University
- Chris Clarke, PhD candidate from University of Amsterdam, conducting research on Mati City's ecotourism opportunities
- Caroline Acera, President of Mati City Women's Association
- Members of the Mati City Women's Association and Guang-guang Mangrove Association

Key informant interviews were conducted for Ulrich Kronberg, Dr. Lea Angsinco-Jimenez, Chris Clarke, and Caroline Acera. A focused group discussion was conducted for members of the Mati City Women's Association and Guang-guang Mangrove Association.

TARGET POPULATION

The Project aims to directly benefit fisherfolk communities in the areas of Barangays Badas, Dahican, Mangihay and Mamali in Mati City and Barangays Bato-Bato, Bitaogan and Manikling in the Municipality of San Isidro, all of which are in Davao Oriental, Mindanao, Philippines. The Project will have the potential to expand to adjacent barangays in the gulf-facing municipalities of Davao Oriental, particularly as their municipalities hear about the benefits of mangrove reforestation. Indirect beneficiaries will be the adjacent municipalities and cities in Pujada Bay and the gulf areas of Davao Oriental, which are also within the protected area network of the province.

Mama Earth Foundation Inc. has been supporting local government units in Davao Oriental to expand their mangrove forests for the past decade. They worked with the Regional Integrated Coastal Resource Management Center (RIC-XI) in Davao Oriental State University (previously the Davao Oriental State College of Science and Technology). To date, their partnership has provided for the planting of almost 700,000 mangroves in Mati City, through various individual and institutional donors.

Project beneficiaries have been identified based on the following criteria:

- Existing partnership communities of Mama Earth Foundation, Inc. and Davao Oriental State University- Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI): It was crucial to consider areas where Mama Earth Foundation and Davao Oriental have established relationships and networks would be able to continue supporting communities beyond the project duration.
- Areas declared as protected areas: The Pujada Bay Protected Landscape and Seascape was declared as a protected area under the National Integrated Protected Areas System (NIPAS) through Presidential Proclamation No. 431 in 1994. The gulf towns in Davao Oriental are coastal LGUs within the Davao Gulf which has marine protected areas (MPA) within the Davao Regional MPA Network of the Davao Integrated Development Program (DIDP), through Resolution No. 2 series of 2018 issued by the DIDP Executive Board.
- Coastal communities with high dependence on fishing as livelihoods: The coastal communities within Pujada Bay and the gulf areas of Davao Oriental are highly dependent on fishing, with some of them engaging in overfishing or illegal fishing activities that contribute to the destruction of marine biodiversity. As part of the advocacy efforts of the Davao Oriental State University- Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI), these coastal communities are being supported with community education on fishing activities that will support the protection of marine biodiversity and sustain the fishing livelihoods of communities.

COMMUNITY STRENGTHS, NEEDS, PRIORITIES, AND PROJECT DESIGN

In both areas, members of the Mati City Women's Association and Guang-guang Mangrove Association have mentioned the need for regular sources of income so that they are able to provide for their families. Fishing activities, which also include *pagpanginhas* or the gleaning of shellfish, are only regularly done from the months of May to September, during the season of *habagat* or the southwest monsoon. With the changing climate and resulting erratic weather patterns, particularly heavy rains and stormy weather, even the prime fishing months may not bring regular income to them. When they are unable to fish, they resort to mangrove planting through Mama Earth Foundation, as the process of gathering mangrove seeds up to the time mangrove seedlings are put into the nursery ideally happens from September to April. Mangrove planting became an alternative source of income for these fisherfolk when Mama Earth Foundation and Davao Oriental State University- Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI), began their partnership and expansion of mangrove forests in Davao Oriental. Members of the Associations participated in awareness-raising sessions on the importance of mangrove forests in protecting against coastal erosion and storm surges, but also, they were trained in the other critical marine life that interact with mangroves to produce more fish and shellfish. In addition, when engaged in mangrove planting activities, members of the Associations are paid monthly, which allows them to provide

for their families during the lean months of fishing. However, not all members are able to appreciate mangrove planting as an alternative means of income because the number of mangroves that need to be planted varies every year, depending on the funding that Mama Earth Foundation receives from their donors. For this reason, some members need to engage in other income-generating activities such as street sweeping, driving public utility tricycles, and engaging in tourism-related services such as laundry and cleaning in hotels or resorts.

These Association members recognize the importance of maintaining and expanding mangrove forests in their communities. This is why many of them remain active members of their Association, monitoring the growth of the mangroves that they plant and the mangrove seedlings in the nurseries. Many of them have developed the necessary skills and knowledge from gathering mangrove seeds, to planting and maintaining seedlings, to the right way to plant mangroves (e.g. without disturbing sea grass). They also learned about the proper zonation of mangroves and that not all mangroves would be viable to every area. They have mentioned their willingness to plant more mangroves and their hope that there will be more support for such initiatives in their communities.

The members of the associations have a willingness to support the sustainability of their livelihoods by protecting mangrove forests. They already have a basic knowledge of the importance of maintaining coastal ecosystems which allow them to be more deliberate in engaging in fishing practices that will not be harmful to these ecosystems.

The communities, particularly those assessed, have more than a decade of experience planting and maintaining mangrove forests, and they can share this know-how with fellow fisherfolk. Through their existing partnership with Mama Earth Foundation Inc. and Davao Oriental State University- Regional Integrated Coastal Resource Management Center (DOrSU-RIC XI) they can regularly plant mangroves, albeit not in the same quantities every time. **Over the last two years they have planted over 2 million mangroves though in various locations. (https://maliziamangrovepark.de/?lang=en)**

The communities where these Associations are present will need to deepen their knowledge on coastal ecosystem management which includes proper mangrove zonation and non-intrusion on seagrass beds, because through time, some community members forget about these. Communities also need to learn the connections between coastal ecosystem management and solid waste management. The reason for this is that many mangrove areas have been observed to be dumping ground of plastic and other solid waste. Communities also need to relate these two with the opportunities of ecotourism in their areas.

The project aims to address issues on mangrove reforestation and coastal resource management. Currently, while the local government units of the communities assessed are implementing strict rules related to the protected area status of these sites, there are still endeavors being pursued by big businesses that undermine these rules. For example, there are coastal areas in San Isidro where big businesses obtain sand for construction or mining purposes and thereby destroy the coastal ecosystems. Tourism activities in Mati City led to the accumulation of solid waste even along mangrove forests, and newly planted mangroves may not survive and grow as a result of this. Fishing is also a seasonal source of income, and fishing communities need alternative sources of income that are related to, or contribute to, fishing.

Train less experienced fisherfolk in San Isidro in proper mangrove planting processes: The project will engage fisherfolks experienced in mangrove planting (i.e. Guang-Guang in Mati) to correctly gather seeds from mangrove trees, plant mangrove seeds and set up nurseries for mangrove seedlings, plant mangroves along the coast, and monitor mangrove seedlings and trees' growth. This aims to increase the number of fisherfolk with the know-how for mangrove reforestation so that more coastal communities in Pujada Bay and gulf areas of Davao Oriental are supported. This will be done with the support of DOrSU-RIC XI and their students, as well as through Mama Earth Foundation Inc.'s foresters.

Information sessions with fisherfolk from more coastal communities on coastal ecosystem management, solid waste management, ecotourism and alternative livelihood opportunities: To support the government's efforts in protecting the coastal areas in Pujada Bay and gulf areas of Davao

Oriental, fisherfolk and communities living in the coastal communities will need to be trained on the importance of protecting the coastal ecosystems, including the importance of managing their solid waste. Training on these must be linked to benefits to their lives and livelihoods so that they can appreciate the need to become more active participants in protecting their coastal ecosystems. Similarly, given that livelihoods is a major consideration for most coastal communities, it will also be helpful to host discussions on possible ecotourism opportunities and alternative livelihood opportunities that come as a result of protecting their coastal ecosystems. Examples of these are kayaking along mangrove forests and further developing their mangrove sanctuaries, which has been done in many other areas in the Philippines.

Link the project with other ongoing environmental initiatives that support the objectives of this project: Ongoing initiatives in these Davao Oriental areas include Mama Earth Foundation's collaboration with Envirotech Waste Recycling Inc., a company that reuses recyclable materials such as plastics in the production of tables, school chairs, garbage bins and bricks, among others. Mama Earth has begun training several people's organizations on collecting and sorting the waste which is then paid an amount of PHP 5.00/kg. Another initiative that is beginning in Pujada Bay is rrreefs which restore coral reefs to support sea turtle colonies and other marine wildlife in Pujada Bay. This aims to support the ridge-to-reef initiatives in the area, where mangrove ecosystems, seagrass ecosystems and artificial reef ecosystems are interconnected. The rrreefs will train and engage local fisherfolk who can support these activities.

Oversight: The project will be overseen by Mama Earth Foundation Inc. with the support of Davao Oriental State University- Regional Integrated Coastal Resource Management Center(DOrSU-RIC XI)

Financial responsibilities: The funding for the project will be managed by Mama Earth Foundation, Inc. The goal is to create a sustainable model that can continue to support the community in the long term.

Expected behavior change: The project aims to promote sustainable and responsible practices among the community members, particularly on coastal resource management. The initiatives in this project hope to support the sustainability of livelihoods in Pujada Bay and gulf areas of Davao Oriental, so that they will not resort to livelihood practices that will potentially damage the environment but instead ensure that the next generations will be able to benefit from these same livelihoods and even lead to the creation of more livelihood opportunities.

ENVIRONMENTAL ASSESSMENT (FOR ALL ENVIRONMENT AND WATER, SANITATION, AND HYGIENE PROJECTS)

The greatest environmental threats include mangrove deforestation, coastal erosion, and climate change. Economic development in Mati City and San Isidro has given rise to mining activities and sea sand extraction within the coastal areas. Climate change has also contributed to the change in weather patterns that resulted in decreased fishing yield of fisherfolk.

Mangrove reforestation and seagrass protection are relevant practices to these fisherfolk communities as these facilitate the breeding of fish and shellfish. The project aims to further support these practices and increase them especially among communities that do not yet practice them.

The project aims to increase the number of women and men within fishing and livelihood associations covered by the project to protect coastal ecosystems (through mangrove reforestation and community education on coastal resource management) and contribute directly to lowering of carbons in the atmosphere (through increased mangroves in the area).

A possible negative effect that may result from the project would be strained community relationships with big businesses that benefit from sea sand extraction and mining activities. This is especially possible in San Isidro, which has coastal areas that do not have mangroves planted yet. By law, any activity that will destroy mangroves, particularly newly planted ones, will have strict penalties. For this reason, clear

communication and coordination with local authorities will be important to ensure that any possible conflicts are managed well.

ANNEX B. DETAILED BUDGET BREAKDOWN

The following table shows the detailed budget breakdown summarized in Part 8.

Item	Unit	No. of Units	Cost/unit	TOTAL (PHP)	TOTAL (USD)
Personnel					
Mangrove planters	Mangrove	257.666	10 peso	2.576.666	Fees are inclusive of: - Collection of seeds, - Hauling costs - Planting of seedlings - Day-to-day monitoring of mangrove trees
woman association	Mangrove	257.666	1 peso	257.666	Contribution per mangrove for the association for the overhead of the association which is 300 people strong.
ME Forester (100% Project)	mangroves	257.666	7 peso	1.803.662	Full time project-based forester - GPS mapping of mangroves - Initial monitoring of mangrove nurseries - Secondary monitoring of mangrove seedlings - Monitoring of mangroves planted
Equipment					
Maintenance costs of technical equipment (GoPro, camera, drone)	lumpsum	1	2,000.00	Peso 2,000.00	Covers maintenance costs of drone, GoPro, cameras and cellphones

Testo 206-pH1 pH Meter,					Will be taken to the area (Mati
seawater/	units	1	10,000.00	Peso 10,000.00	monitoring and data collection.
Supplies					
Office supplies and notary cost	lumpsum	1	10,000.00	Peso 10,000.00	For monitoring activities and meetings and for registering the planted mangroves
Travel					
Fuel allowance of foresters	lumpsum	1	20,000.00	Peso 20,000.00	Covers gasoline for two motors/ 2 foresters for 21 days; The rest of the cost is covered by Mama Earth Org.
Transport allowance of DOrSU students	person-days	60	500	Peso 30,000.00	Covers 3 students for 20 days. The cost is for local motorized transport like trike from house to planting site.
Vehicle maintenance/gasoline	lumpsum			Peso 10,000.00	For truck and vehicle maintenance/gasoline used in project activities for transporting mangroves and planters during the year. The rest of the cost is covered by Mama Earth Org.
Project Management					
Mama Earth Foundation administration costs	lumpsum			Peso 30,000.00	Covers overhead costs, office rental, administrative and finance staff, management costs, notarial fees, bank transaction

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					costs and foreign exchange differences. The rest of the cost is covered by Mama Earth Org.
Monitoring and Evaluation					
ME Foresters (% level of effort)	person-days	42		Peso 10,000.00	Small Percentage of LOE and food allowances for 2 foresters x42 days. for the following activities: - GPS mapping of mangroves - Initial monitoring of mangrove nurseries - Monitoring of mangroves planted. The rest of the cost is covered by Mama Earth Org.
			TOTAL BUDGET	PHP 4.760.000	
					USD 85.000