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Coral Triangle Center Foundation

Empowering Communities for Dugong Conservation in the Lease Islands

Indonesia

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2. **Grant title:** Empowering Communities for Dugong Conservation in the Lease Islands
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8. Project background

Dugongs (Dugong dugon) are herbivorous charismatic marine mammals that depend heavily on seagrass (Marsh et al., 2002; Shaw, 2016; IUCN, 2021). With a body mass of roughly 400kgs, Dugongs can grow up to three meters in length and live up to 70 years. The seagrass ecosystems in Maluku, North Maluku and West Papua are highly potential as the habitat of Dugongs (MMAF, 2021).

The Lease islands in Central Maluku are identified as important habitat, feeding and social areas of Dugongs (de Iongh et al., 1998). Situated in the Inner Banda Arc Sub-seascape, at the very bull's eye of Coral Triangle, this archipelago keeps the Buru Marine corridor which is essential as a migration route for Cetaceans. Lease islands is also part of the Haruku-Saparua Waters Key Biodiversity Area (KBA), home to some endemic species to Wallacea.

Covering 67,484.19 hectares, Lease islands was announced as a new marine protected area (MPA) in Indonesia through the Ministerial Decree of Marine Affairs and Fisheries (MAF) No. 47 of 2021. Coral Triangle Center (CTC) took part in facilitating the establishment of the Lease islands MPA through the USAID Sustainable Ecosystems Advanced (SEA) project in 2017-2021. This MPA consists of three major islands of Haruku, Saparua and Nusalaut, and one small island of Molana (see Figures at bottom of this document). It is home to 55 genera of corals, 568 reef fish species, five seagrass species, 19 mangrove species and Cetaceans (Abrahamsz et al., 2017; Kahn, 2017; Ihsan et al., 2018).

Being listed as Vulnerable on the IUCN Red List of Threatened Species, Dugongs are prone to extinction due to anthropogenic disturbances and their slow rate of reproduction (Waycott et al., 2005; IUCN, 2021). It is one of species listed as Appendix of the CITES which the species is prohibited to trade of the species and its part(s). Dugongs are protected by the Indonesian regulation of Government Decree No. 7 of 1999 and renewed through the Minister of Environment and Forestry Regulation Decree No. P20 Year 2018. The Government of Indonesia released a National Plan of Action for Dugong conservation and its habitat (seagrass) for period of 2018-2022. Although the Provincial Government of Maluku has set several MPA conservation targets in Lease islands, including coral reef, seagrass, mangrove and Dugongs (MAF Maluku, 2020), no customary laws exist at grass-roots level to particularly save Dugongs to date.

In Lease islands, recognized threats to Dugongs include habitat and environmental degradation, coastal water pollution and bycatch of traditional fisheries (Nontji et al., 2012; Ihsan et al., 2018). Only a few records about Dugongs' population in Lease islands are available to date. The latest relevant data was from the study on Dugongs and seagrass beds in 1992–1993, where 22 to 37 individuals were seen around Lease islands (de Iongh et al., 1995). Anecdotal records described locals and researchers often encountered Dugongs in the water of Porto, Booi, Mahu, Ihamahu, Itawaka, Noloth, Abubu and Ameth villages (MAF Maluku, 2020). Dugong feeding preferences and foraging behavior are still not fully understood, especially in the intertidal zone. Dugongs are known to consume almost all seagrass species (Adulyanukosol & Poovachiranon, 2006).

Data about seagrass in Lease islands, on the other hand, are more up-to-date. The total area of seagrass meadows in Lease is 835.84 hectares with five dominant species, namely *Cymodocea serrulata, Cymodocea rotundata, Thalassia hemprichii, Enhalus acoroides and Halophila ovalis* (MAF Maluku, 2020). The highest seagrass density (> 70%) can be found in Porto and Siri Sori Amalatu villages with notes on Dugongs' feeding trails (Ihsan et al., 2018). These findings align with previous research that highlights the preference of Dugongs over seagrass following the order: *Halophila ovalis > Halodule uninervis > Cymodocea rotundata > Cymodocea serrulata > Thalassia hemprichii* (de Iongh, 1997; Nontji, 2015). Intertidal seagrasses are considered more nutritious compared to subtidal meadows due to higher nitrogen contents and higher digestibility (Lanyon, 1991; de Iongh et al., 1995; Preen, 1998; Yamamuro & Chirapart, 2005; and Sheppard et al., 2007). Existing data about seagrass ecosystems and feeding trails brings up the opportunity to advance the conservation in Lease islands.

Dugongs play important roles in coastal ecosystems and human cultures. A healthy population of Dugongs indicates a good condition of seagrass (Shaw, 2016). Healthy seagrass will secure the dietary needs and fishery livelihoods of coastal communities and protect coasts from the impacts of storms and climate change (MMAF, 2021). Communities in Lease islands respect Dugongs and other marine megafaunas. Between 2016 and 2018, three Dugongs were stranded and died in Lease islands, but not being killed (MMAF, 2021). Dugong hunting practice reportedly occurred only in Aru Islands, Southeast Maluku, where 545 to 1,020 Dugongs were killed during the 1970s (Compost, 1980). The number declined to 29–36 Dugongs in 1990 (Moss & van der Wal, 1998).

Seagrass meadows, on the other hand, are critical components of coastal and marine ecosystems, providing some of the most economically important ecosystem services of any marine habitat (Costanza et al., 1997; Orth et al., 2006). Seagrass additionally support numerous charismatic species, including species of turtle, dugong, and seahorse (Hughes et al., 2009). Seagrass beds also represent an important cultural, economic, and ecological resource, with many traditional ways of life intricately associated with them for food, recreation, and spiritual fulfillment (de la Torre-Castro & Ronnback, 2004). Regardless, seagrass beds are experiencing rates of loss that may be as high as 7% of their total global area per year (Orth et al., 2006; Waycott et al., 2009).

Whilst many people are aware of the importance of coral reef fisheries, the examination of fin-fish fisheries in seagrass meadows is often neglected, as is the role of seagrass meadows in supporting coral reef fisheries. As well as being exploited at low tide, seagrass meadows make ideal net-fishing areas (Fortes, 1990; Tomascik et al., 1997; de la Torre-Castro & Ronnback, 2004; and Nordlund, 2007). Seagrass ecosystems support abundant fish and invertebrates, including species that have important economic value to the community such as snappers (Lutjanidae), rabbitfish (Siganidae), parrotfish (Labridae) (Latuconsina and Ambo-Rappe, 2012), and are also important habitats for sea cucumbers (Florent et al., 2021; Wisesa et al., 2018). Their location in the shallow water means that they are readily accessible, usually in all weather conditions. Additionally, in Eastern Indonesia, seagrass meadows within an area of highly productive fringe and atoll reefs represent the preferred fishing areas for most fishers (Cullen, 2007).

People living in this region have long applied local wisdom and traditional mechanisms, such as Sasi, as well as administrative law Peraturan Negeri (village law) to protect and manage natural resources. While Sasi prohibits the extraction of specific commodities for a certain period (Renjaan et al., 2013), the Peraturan Negeri can ban such practices in full (Mernisi & Supriyono, 2019). To bring a sense of ownership from local communities and key stakeholders in Lease islands towards Dugongs and their key

habitat, the integration of a conservation strategy and management plan with village laws is crucial. The reinforcement of regulations will guarantee law enforcement and local participation in the protection of Dugongs and seagrass ecosystems.

Baileo is a confirmed local organization that has successfully protected coastal ecosystems based on Sasi in Lease Islands. In 2016, Baileo focused on the conservation of Gosong Maluku (Eulipoa wallacei) bird in Haruku village, which is Vulnerable on the IUCN Red List of Threatened Species (Baileo, 2020; IUCN, 2021). Within a year, Baileo was able to involve Kewang (local customary institutions) in drafting a Peraturan Negeri in Haruku and raising awareness about the protection of Gosong Maluku (Mernisi & Supriyono, 2019). Although the population of the bird remains unknown, the project increases its survival rate (CEPF, 2017). CTC recognizes the Baileo for their best practices to be replicated for protecting different species and its habitats in other areas of Lease islands, such as in Ihamahu village in east Saparua whose government is known to be supportive of any environmental-themed policies.

In partnership with Baileo, CTC will implement a project called “Kalesang Dugong” to empower local authorities, communities, and other related stakeholders in protecting Dugongs and their habitat. The project will be piloted in four target villages namely Ihamahu, Mahu Porto, and Booi in Saparua island, known as Dugong’s hotspots and habitats (de Iongh et al., 1995; Ihsan et al., 2018). The project will increase the score of MPA effectiveness through EVIKA, which reached 32.76 in 2021 or is being managed at the minimum level. Eventually, the aforementioned activities will reduce threats and factors to the overall coastal and marine ecosystems in Lease islands.

In April 2018, the USAID SEA Project, through CTC, conducted scientific surveys to build on existing data from the region and support the establishment of the MPA. CTC and USAID are now supporting the Provincial Government of Maluku, local government officers, community members, and other stakeholders to continue developing the already-initiated MPA. Through facilitating new policies and programs that support marine conservation, and supporting local communities, including local surveillance groups (Pokmaswas) to move away from destructive fishing practices and reduce pressure on marine ecosystems, CTC and the USAID SEA Project are building up the MPA to support ecosystems and local livelihoods. The USAID SEA Project and CTC, along with other partners, also strengthened community-based sustainable marine conservation and eco-tourism projects and advocating for positive behavior change. By providing holistic, community-led projects, USAID and CTC aimed to support both ecosystems and local communities to thrive.

The “Kalesang Dugong” project will provide updated data and information about the population, distribution, and observation of Dugongs, as well as about seagrass ecosystems, through advanced biophysics surveys and regular resource use monitoring (RUM) surveys. CTC will make sure all compiled data and information from these surveys will be disseminated to the community and transferred to local stakeholders in Lease Islands MPA. Within two years, this project will also result in the development of a citizen science mechanism to support the existing database systems at all levels. At the end of the project, the data will be analyzed, and a technical report will be produced including recommendations that will be used by the MPA management unit for Dugong management in the Lease Islands. The database system will be connected to the monitoring system in the Lease Islands MPA, so that the MPA management unit can regularly analyze the data for consideration in dugong conservation in the Lease Islands MPA.

CTC and Baileo also aim for capacity-building, good governance, and awareness-raising among targeted groups of local fishers, community groups, Indigenous Peoples, women, youths, private sectors, and

MPA personnel on promoting the protection of Dugongs and seagrass ecosystems. In the past, CTC had implemented public campaigns about the MPA in general and trained some local champions dubbed as "Pejuang Laut" to facilitate community mobilization and behavioral change. In 2018 the CTC conducted an ecological and socioeconomic baseline survey in the Lease Islands (Ihsan et al., 2019) and a repeat survey in 2020 (Currier et al., 2021) whose data were used in designing the zoning system and management plan of the Lease Islands MPA.

The "Kalesang Dugong" project may be the only opportunity left as there have been no initiatives taken in Maluku to protect Dugongs in the last decades. Losing out on the opportunity does not only mean putting Dugongs on the brink of extinction but reducing the vital ecological services and functions from coastal ecosystems to local peoples. CTC and Baileo are the right organizations to run the project considering our experiences and good track records in the past with all related key stakeholders in the Lease Islands MPA. The Theory of Change of this overall project design can be found on Appendix 1-4.

Establishment of the Lease Islands Marine Protected Area

Prior to the formal government declaration of the Lease Islands MPA in 2021, there were several steps.

1. Beginning in early 2019, CTC conducted community training and outreach activities in 22 villages to raise awareness on the benefits of MPAs and the basic principles for sustainable management of marine resources. Records of these meetings are available.

2. August 2019: a formal MPA working group was created with government, NGOs, universities, and community groups.

3. August 2019: Working group leads biophysical data collection of the sea area and a socioeconomic survey of affected communities.

4. September 2019: draft zoning and management plan.

5. September 2019: first public consultation (23 villages).

6. October 2019: revision to draft zoning and management plan based on first consultation.

7. October 2019: second public consultation.

8. November 2019: revision of zoning and management plan based on second consultation.

9. November 2019: submission of zoning plan by the Working Group to the Governor of Maluku province.

10. November 2019: submission of MPA plan from Maluku Governor to Ministry of Marine Affairs and Fisheries.

The Lease Islands MPA falls under the control of the provincial government of Maluku. Formally, the MPA is under the supervision of Cabang Dinas Gugus Pulau VII. Complaints are directed to this office or to the Maluku provincial Marine Spatial Management office.

Possible negative effects of the CEPF-funded project

This grant will be strengthening the management of an existing MPA. In so doing, people who currently use the area, illegally, will be advised that their activities are illegal and that they may be reported to law enforcement authorities. Further, this grant will institute the use of additional traditional "open-close" systems, which will constrain fishing activities. We emphasize that limitations are within MPA boundaries, already agreed to per consultations named above.

9. Indigenous People affected

The Lease Islands MPA consist of Saparua Island, part of Haruku Island, Nusalaut Island, Molana Island, and Pombo Island. There are 26 villages in the Lease Islands MPA. All of them are managed with the Adat system, including 4 of this project's target villages, namely Ihamahu, Mahu, Porto, and Booi. Total population of the four target villages are 5,963 persons with almost equal percentage of male and female composition (2,964 male and 2,992 female).

Table 1. Villages and general profile of Lease Islands MPA

Island name	Haruku Island	Saparua Island	Nusalaut
Village number	2	17	7
Sub-districts/Kecamatan	Pulau Haruku	Saparua and Saparua Timur	Nusalaut
Population (2020)	3,559	36,022	5,780
Male and female composition	~50% and ~ 50%	Male 17,881 (49.6%) and Female 18,141 (50.4%)	Male 2,874 (49.7%) and Female 2,906 (50.3%)

Source: Kecamatan Pulau Haruku dalam Angka (2021), Kecamatan Saparua Timur dalam Angka (2021), Kecamatan Saparua dalam Angka (2021), Kecamatan Nusalaut dalam Angka (2021).

The head of the village is called Raja, and the village itself is called *Negeri* instead of *Desa.* The Grand Council of *Saniri* monitors and evaluates Raja in managing *Negeri.* The line of succession is restricted to the persons of a specific family (Marga). The warning system is applied to those violating Adat rules. *Kewang* plays a role in monitoring and enforcing land and sea resource utilization rules. Those living in the four target villages can speak and read Bahasa Indonesia well. Almost half of the target villages population attended high school.

In terms of ethnology, the population of the Maluku islands is a mixture of various races such as the Austronesian Race, Polynesia, Malay-Deutro, and Melanesia. Today's Maluku population consists of multiple tribes of Indonesian people who migrated to this area since the Colonial era. Even if reviewed further back since the ancient Nusantara Emporium, many ethnic groups and even races from various countries and continents have come to this region (Ambon, Saparua, Haruku, and Nusalaut). There are four (4) big migration groups; among them are

1. Tuni groups that come from Seram and surround;
2. Wakan group that comes from the south and southeasts such as Banda and Kei Islands;
3. Moni group that comes from the North such as Halmahera, Ternate, Sula, and islands surround;
4. Mahu groups come from the west, such as Java, Bali, and others (Wattimena, 2016).

However, only a few lived in the Lease Islands. Lease Island people believe their origin is Alifuru which comes from Nunusaku in Seram Island. They are the majority ethnic/people in Lease islands, which may reach more than 90%, and the rests are Kei, Tionghoa, and Jawa (Winata, 2020).

Table 2. Four target village area and total population

Village Name	Area (km^2)	Total Population
Ihamahu	12.1	1,509
Mahu	6.55	719
Porto	23.5	2,808
Booi	8.2	927
Total	**50.35**	5,963

Source: Kecamatan Saparua Timur dalam Angka (2021), Kecamatan Saparua dalam Angka (2021)

Literacy rate in Central Maluku District was reported as 99.15% based on Maluku Province Statistic (2014). Almost everyone in Saparua Island can speak Bahasa Indonesia well. Majority of people living in Saparua Island went to elementary school and received education until high school. Equal opportunity is given to male and female sexes in education, occupation, and leadership. Although majority of civil servants are male, but growing number of female leaders are taking top position in some *Negeri* in the Lease Islands. Majority of Saparuan (more than 75%) are seasonal fishers. In Porto Village there are only 11 fishermen and Ihamahu only 67 fishermen (Wenno, 2012).

10. **Participatory implementation**

As noted in Section 8, the stakeholders gave free, prior and informed consent to the creation of the Lease Islands marine protected area via the public and participatory processes described there.

This new work is a continuation. CTC and Baileo are already present in the communities and during the proposal process, we explained our intentions to community leaders and members, who agreed to this proposal. The work we will do expands and ensures the rights of stakeholders. There is no requirement that they join or agree with this project, and if they do not, the status quo will be maintained. Further, specific elements of this new project are fundamentally about participatory implementation. These include:

- Output 1.1 is to create a database on dugongs, where the database is accessible to local stakeholders.
- Output 2.1 includes written endorsements by traditional and village government leaders in four villages that indicate local support.
- Output 3.2 includes naming eight local champions from the four villages.
- Output 3.3 includes school-based and activities and community-based activities (beach clean-ups) to raise awareness.
- Output 3.4 is to raise community capacity to manage the MPA.

11. Criteria for eligibility of affected persons

Eligible “affected” persons include the people living in the four villages in the Lease Islands whose income is derived from coastal resources inside the MPA or who will be affected by imposition of a

traditional open-close fishing system. The total number of people estimated to be in this pool of "eligible persons" is approximately 200 people.

Those affected persons are from Ihamahu Village, Mahu Village, Porto Village, and Booi Vilage. Fishers of the Lease Islands only fish within their range of village area.

12. Measures to assist the affected persons

Anticipated "effects" are largely about limiting the ability of people to do things they are already not supposed to be doing: fishing in the MPA out of season; fishing with the illegal and or unsustainable gear; fishing without licenses. At the same time, imposition of customary rules for use of the MPA will lead to greater local empowerment.

If this project works as designed, people will actually have more access to the MPA under customary law than they do under administrative law. This will include creating sub-zones within the MPA for sustainable fishing and for tourism. As the MPA is better managed, the overall fishery should become more productive.

Based on the project design, there are no anticipated negative impacts. We are surveying dugong habitat and making traditional laws and systems stronger. These laws are more accessible and understandable to the communities than "modern" government laws. Nonetheless, it is conceivable that someone will be unhappy with traditional rules –although, in theory, people will have more access, not less. If someone is unhappy, we will ensure that they are able to participate in decisions (e.g., including finding ways to get them to meetings, and if not possible, to record their opinions), that they have an equal vote as others, and that they have the ability to contact all relevant project, customary, and government representatives.

13. **Conflict resolution and complaint mechanism**

CTC will ensure that local stakeholders are aware of the work and understand how to voice complaints if any. We will:

- Post information in Bahasa Indonesia at CTC's and Baileo's offices in Ambon and in the government's Cabang Dinas Gugus Pulau VII.
- Explain our activities at all stakeholder meetings.
- Create fliers and signs about the project's objectives and planned activities. These fliers will include contact information for CTC staff. We will distribute these fliers at all stakeholder meetings.

During all meetings and in general interactions with the public, CTC personnel will inform local people and other stakeholders that they have the right to raise a grievance at any time with CTC, local authorities, MPA personnel, or CEPF about any issue relating to the project. Before starting the project implementation, local communities will be informed of the objectives of the grant. They will be given telephone numbers and e-mails of contact persons at CTC, the provincial government, and CEPF. This information will also be put on all education materials that will be produced during this project implementation including posters, brochures, and booklets. Contact information of the Regional Implementation Team and CEPF will be made publicly available in Bahasa. Indonesia, as appropriate. If

CTC receives a grievance, it will communicate the grievance, together with a proposed response, to CEPF and the RIT within 15 days.

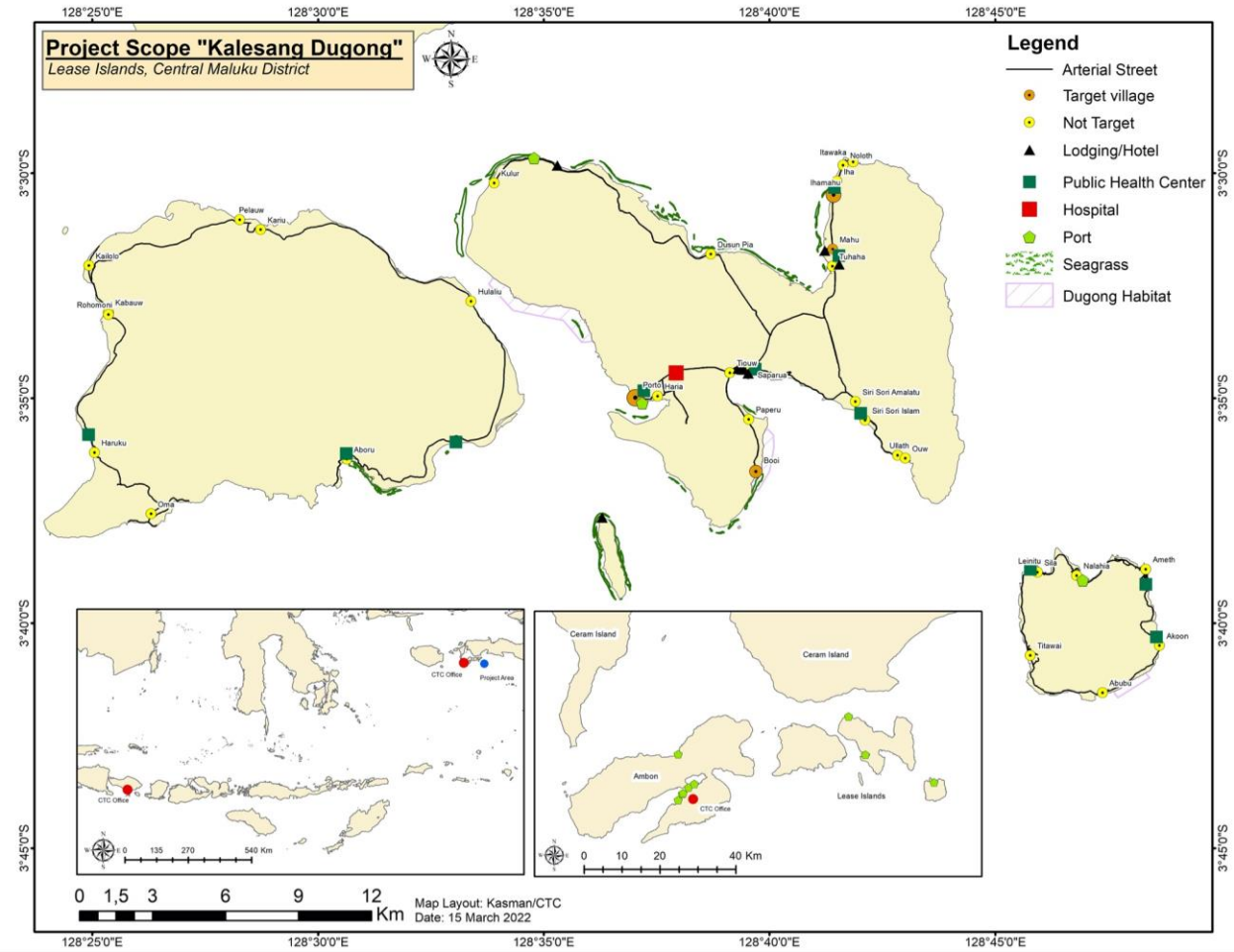
We will inform stakeholders that grievances should proceed in the order below. If the stakeholder is unsatisfied with the response at any step, they may proceed further.

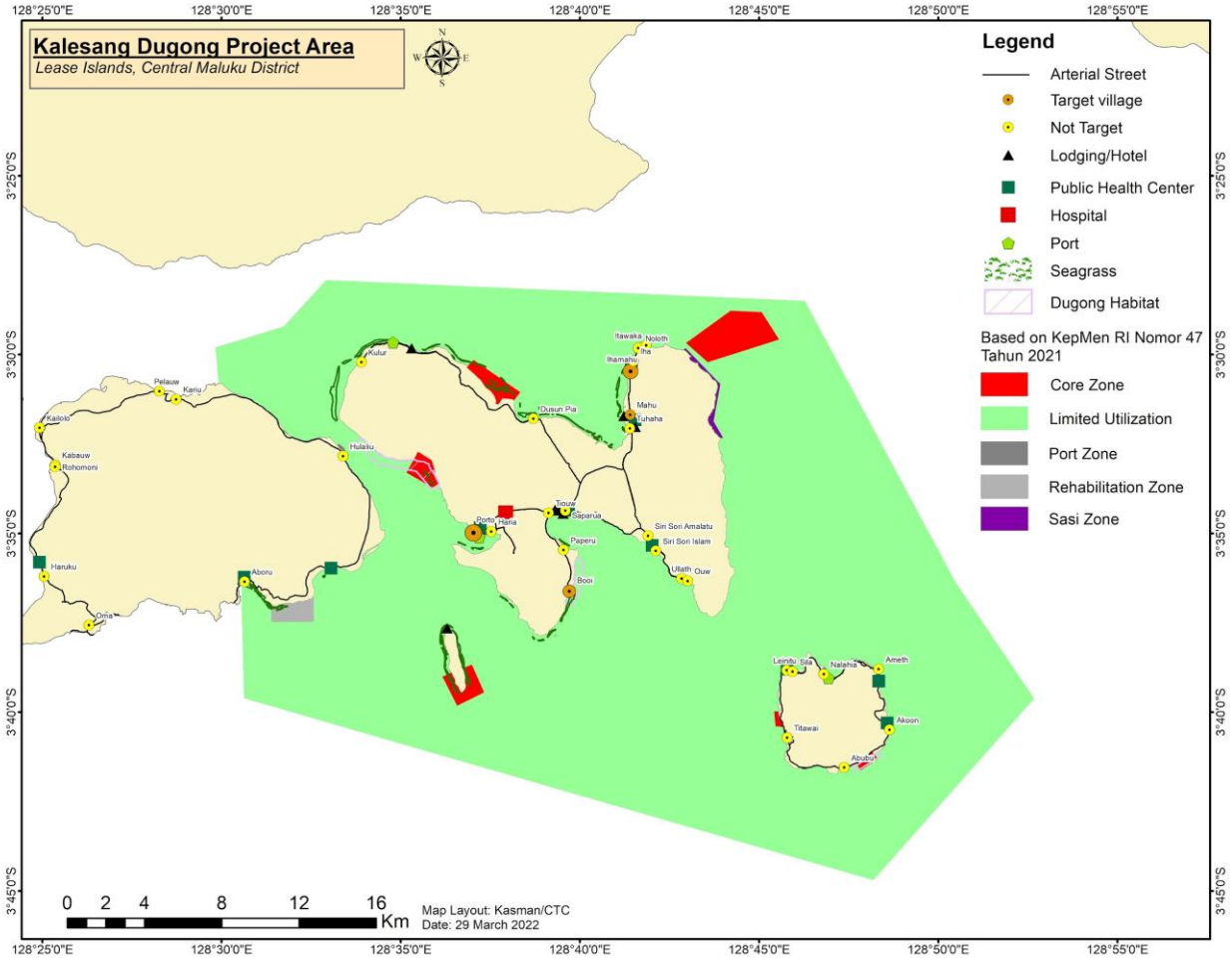
- Director, Coral Triangle Center, info@coraltrianglecenter.org, 62-361-289938
- RIT Team Leader, Burung Indonesia, info@burung.org; 0251-835-7222
- Conservation International Ethics Hotline: +1-866-294-8674 / secure web portal: https://secure.ethicspoint.com/domain/media/en/gui/10680/index.html

14. Implementation Arrangements

The project will be coordinated from CTC's and Baileo's office in Ambon. The primary field-facing personnel will be:

- CTC Maluku MPA Coordinator
- CTC MPA and Program Support Coordinator
- Baileo Project Manager




Kalesang Dugong Project Area
Lease Islands, Central Maluku District
Legend
Arterial Street
Target village
Not Target
Lodging/Hotel
Public Health Center
Hospital
Port
Seagrass
Dugong Habitat
Based on KepMen RI Nomor 47 Tahun 2021
Core Zone
Limited Utilization
Port Zone
Rehabilitation Zone
Sasi Zone
128°25'0"E
128°30'0"E
128°35'0"E
128°40'0"E
128°45'0"E
128°50'0"E
128°55'0"E
3°25'0"S
3°30'0"S
3°35'0"S
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3°45'0"S
0 2 4 8 12 16 Km
Map Layout: Kasman/CTC
Date: 29 March 2022
Kulur
Pelauw
Kariu
Kalolo
Kabauw
Rohomoni
Haruku
Aboru
Hulaliu
Dusun Pia
Itawaka
Noloth
Ihamahu
Mahu
Tuhaha
Porto
Hena
Touru
Saparua
Paperu
Booi
Siri Sori Amalatu
Siri Sori Islam
Ullath
Ouw
Leinitu
Sila
Nalahia
Ameth
Titawai
Akoon
Abubuk