



Initial Environmental Examination:

Subproject: MPA Management Effectiveness and Livelihoods Improvement in
Bintan District MPA, Indonesia

Document Stage: Pre-Fact Finding - Draft for Consultation / Comments
Project Number: TA-7183
July 2013

INO: Coral Reef Rehabilitation and Management: Coral Triangle Initiative (COREMAP-CTI) Project

The Initial Environmental Examination is a document of the borrower. The views expressed herein do not necessarily represent those of the ADB Board of Directors, Management, or staff, and may be preliminary in nature.

CURRENCY EQUIVALENTS

(as of 11 March 2013)

Currency Unit – IDR
 IDR 1.00 = \$ 0.00001032
 \$1.00 = IDR 9,687

ABBREVIATIONS

GLOSSARY

ADB	- Asian Development Bank
BAPEDAL	- Environmental Impact Control Agency (<i>Badan Pengendalian Dampak Lingkungan</i>)
BAPEDALDA	- Local Environmental Impact Control Agency (<i>Badan Pengendalian Dampak Lingkungan Daerah</i>)
BAPPENAS	- National Development Planning Agency (<i>Badan Perencanaan Pembangunan Nasional</i>)
BKKPN	- National Marine Conservation Center (BKKPN) of Kupang
BPLHD	- Local Environmental Management Agency (<i>Badan Pengelolaan Lingkungan Hidup Daerah</i>)
Bupati	- District Mayor
COREMAP	- Coral Reef Rehabilitation and Management Project
CT	- Coral Triangle
CTI	- Coral Triangle Initiative
DG	- Directorate General
DPL	- Marine Protected Areas (<i>Daerah Perlindungan Laut</i>)
GEF	- Global Environment Facility
GoI	- Government of Indonesia
ha	- Hectare
IDR	- Indonesian Rupiah
KKJI	- Directorate for Conservation of Area and Fish Species (<i>Direktorat Konservasi Kawasan dan Jenis Ikan or KKJI</i>)
km	- Kilometer
LIPI	- National Science Agency
LKKPN	- National Marine Conservation Areas (<i>Loka Kawasan Konservasi Perairan Nasional or LKKPN</i>) of Pekanbaru
LPSTK	- <i>Coral Reef Resource Management Agency (Lembaga Pengelola Sumberdaya Terumbu Karang)</i>
MCSI	- Directorate General of Marine, Coast and Small Islands (<i>Kelautan, Pesisir Dan Pulau-Pulau Kecil or KP3K</i>)
MMAF	- Ministry of Marine Affairs and Fisheries (<i>Kementarian Kelautan dan Perikanan or KKP</i>)
MoU	- Memorandum of Understanding
MPA	- Marine Protected Area (<i>Kawasan Konservasi Laut Daerah or KKLD</i>)
NGO	- non-governmental organization
PES	- Payment for ecosystem services
PKBL	- Partnership and Environment Development Program

PMO	-	Project Management Office
POKMAS	-	Community groups
Rp	-	Rupiah
SOE	-	state owned enterprise
SOP	-	Standard Operating Procedure
UPT	-	Technical Implementation Unit
USD	-	United States Dollar

CONTENTS

	Page
CONTENTS	III
I. INTRODUCTION.....	1
II. DESCRIPTION OF THE PROJECT.....	2
A. OVERVIEW OF THE SECTOR LOAN.....	2
B. DESCRIPTION OF THE SUBPROJECT	3
III. DESCRIPTION OF THE ENVIRONMENT	5
A. PHYSICAL RESOURCES.....	6
B. ECOLOGICAL RESOURCES.....	6
C. ECONOMIC DEVELOPMENT.....	6
D. SOCIAL AND CULTURAL RESOURCES.....	8
IV. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES.....	8
A. SCREENING AND CATEGORIZATION OF SUBPROJECT COMPONENTS	8
B. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	10
1. <i>Project Location/Design Stage</i>	10
2. <i>Construction/Establishment Stage</i>	11
3. <i>Operation/Maintenance Stage</i>	12
V. INSTITUTIONAL REQUIREMENTS AND ENVIRONMENTAL MONITORING PLAN	12
VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE.....	16
VII. FINDINGS AND RECOMMENDATION	17
VIII. CONCLUSIONS.....	17

I. INTRODUCTION

1. The Coral Reef Rehabilitation and Management Program: Coral Triangle Initiative Project (COREMAP-CTI, the Project) aims to manage coral reef resources, associated ecosystems and biodiversity in a sustainable manner for the welfare of coastal communities. The design of COREMAP-CTI reflects a phased and incremental approach. The first or initiation phase known as COREMAP Phase I (1998–2004) represented the pilot phase leading to the design of COREMAP Phase II (COREMAP II). The second or acceleration phase, COREMAP II (2004–2011) represented the initial implementation phase. The proposed Project is the third and final phase which intends to (i) complete remaining gaps in Phase II; (ii) “institutionalize” Phase II interventions; and (iii) build a “model” of coral reef rehabilitation and management program in Indonesia for replication and up-scaling in new areas. “Institutionalization” will mean integrating community-based activities within local Government functions and policies, and facilitate learning networks and institutional partnerships across regional and national institutions for project sustainability. The Project will follow a project financing modality for sector loan.

2. COREMAP-CTI will be aligned with Indonesia’s National Plan of Action (NPOA) for the Coral Triangle Initiative (CTI), and aims to manage coral reef resources, associated ecosystems and biodiversity in a sustainable manner for increasing the incomes of coastal communities in Indonesia. Building upon Phase II interventions, the Project will deliver 10 effective MPA models that can be replicated across the country for sustainable coral reef management. MPAs in Phase II were in MPA initiation stage (“red” category) or the MPA established stage (“yellow” category). The Project will help to move the MPAs to the next higher stage(s): MPA managed minimally stage (“green” category), or MPA managed optimally stage (“blue” category) by increasing and evaluating their management effectiveness

3. The selection of subprojects within this sector modality will be based on the following key criteria: the subproject (i) contributes directly to environmentally sound non-consumptive resource utilization across the MPAs (e.g., environmentally-responsible tourism); (ii) supports development of sustainable fisheries (e.g., enhancing fish market facilities, fish landing sites, fish catch monitoring and catch regulation); (iii) contributes to fostering alternative livelihoods that reduce fishing pressure or provides non-traditional gainful employment within the sector; and (iv) enhances effectiveness, governance, and financial sustainability of co-managed MPAs. Subprojects will be formulated and implemented using a community-driven development (CDD) approach, which give the communities a role in the selection of subprojects and participate in the development of coral reef management plans and policies, as well as in the involvement in the design, implementation and monitoring of infrastructure and livelihood activities.

4. Based on these criteria, the feasibility study for the project preparation will appraise three representative (core) subprojects, one for a national level MPA and two for subnational MPAs. The core subprojects may include: (i) enabling infrastructure for private sector participation in ecotourism development (e.g., mooring buoys, jetties, village roads, solid waste management, water supply, sanitation, electricity supply, telecommunications etc.); (ii) fisheries productivity-related infrastructure (e.g., hatcheries, fish markets, fish landing sites, fishing ports, etc.); (iii) alternative livelihood-related infrastructure (fish ponds, fish cages, fish processing etc.) and (iv) MPA governance (e.g., management board, spatial plans, management plans, financing plans, threatened species management plans, coral monitoring and database systems, monitoring and surveillance operations).

5. This IEE Report focuses on the environmental assessment of the management and livelihood interventions, as a sample subproject, and is limited to infrastructures and livelihood, as these project interventions have potential for environmental impacts.

6. The environmental assessment was undertaken by the ADB consultant team through field visits between May 26, 2013 and June 7, 2013 in the project sites, interviews/consultation and focus-group discussions with officials or representatives from project stakeholders like the regencies/municipalities/cities, villages, and district/field offices of national government agencies like the Ministry of Marine Affairs and Fisheries (MMAF), National Development Planning Agency (Badan Perencanaan Pembangunan Nasional or BAPPENAS), Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah or BAPPEDA), National Science Agency (*Lembaga Ilmu Pengetahuan Indonesia or LIPI*), National Marine Conservation Areas (LKKPN), National Marine Protected Area (*Kawasan Konservasi Perairan Nasional*), Marine Protected Area (*Kawasan Konservasi Laut Daerah or KKLD*), Directorate for Conservation of Area and Fish Species (*Direktorat Konservasi Kawasan Dan Jenis Ikan or KKJI*) and others. Collection of secondary data such as the regency profile/statistics, maps, and management/development plans were also done.

II. DESCRIPTION OF THE PROJECT

A. Overview of the Sector Loan

7. **Type.** This sector loan project is associated with environment and natural resources. It is multi-component, and related to investment in capacity building, coastal and fishery management, and livelihood development.

8. **Category.** The Project is categorized as Category B under ADB guidelines due to the project's emphasis on conservation of marine and coastal resources

9. **Need for project.** Low coastal community awareness and inadequate institutional capacity to manage land and marine-based pollution, insufficient institutional framework to effectively manage marine protected areas (MPAs), and persistent poverty in coastal areas have resulted in 70% of Indonesian coral reefs becoming degraded. The Government of Indonesia plans to address these root causes of resource and environmental degradation by undertaking this project.

10. **Location.** The Project will be implemented in existing COREMAP Phase II areas of seven districts that include at least 57 existing project villages in three provinces in Sumatra (North Sumatra, West Sumatra and Riau). Additional project activities will focus on MPA management effectiveness at three national MPAs: Bintan in Bintan District in Riau Islands province, Pulau Pieh in Pariaman District in West Sumatra province, and Gili Matra in North Lombok District of West Nusa Tenggara province.

11. **Magnitude of Operation.** The ADB-financed portion of the project would cover three national and seven sub-national marine protected areas (MPAs) in primarily eastern and western part of Sumatra Island. ADB plans to prepare three representative (core) subproject areas, one for a national level MPA and two for subnational MPAs.

12. **Proposed Schedule of Implementation and Project Proponents.** The Project is proposed to be implemented within five years from 2013 to 2018, with the MCSI-MMAF as the Executing Agency (EA).

13. **Description of Project Components.** The Project has four major components or outputs:

- (i) **Output 1: coral reef management and institutions strengthened.** This component will focus on strengthening and institutionalizing capacities developed under COREMAP II. Significant key targets under this output are (i) Number of community development extension workers deployed (30% are women), (ii) Number of villages implementing coastal management regulations, (iii) Number of joint monitoring and surveillance patrols undertaken, and (iv) Number of DGMCSI, DGCF, Secretariat General and LIPI staff obtaining postgraduate qualifications.
- (ii) **Output 2: ecosystem based resources management developed.** This component will strengthen MPA management effectiveness and biodiversity conservation. Identified targets are (i) Number of district spatial plans prepared, (ii) Number of person days of training conducted, (iii) Number of regulations adopted for protecting threatened and endangered species, and (iv) Number of MPA and threatened species management action plans developed.
- (iii) **Output 3: sustainable marine-based livelihoods improved.** This component will promote sustainable livelihoods and income-generating infrastructure. Targets under this output are (i) Number of eco-friendly infrastructures installed, (ii) Number of demonstration models for enterprises installed (30% women's participation), (iii) Number of households provided with livelihood financial and/or input assistance, (iv) COREMAP-CTI project villages financed from PES contributions undertake Pokmas activities (WB), and (v) Number of operational Sustainable Enterprise Alliances.
- (iv) **Output 4: project coordination and management.**

B. Description of the Subproject

14. The Bintan Regency is internationally considered to be an attractive tourist destination for South East Asians entering Indonesia through Singapore and through Hong Kong. In some areas it has high conservation value based on its levels of endemic fauna and also being the natural habitat of the dugong, which is under serious threat. The Bintan Regency (District) Kepulauan Bintan covers 88,038.54 km² of which the total land area is only 2.21% or 1,946.13 km². One of the areas with the highest coral diversity is the group of Tambelan islands with an area of about 90.96 km² and is the farthest subdistrict in Bintan Regency and located in the middle of the Natuna Sea, bordering the South China Sea.

15. Under COREMAP-CTI Phase III, Bintan District MPA plans to undertake an investment over \$4.2 million and IDR 4.95 billion over a period of five years (2014-2018) to enhance management effectiveness and environmentally sound tourism. The Bupati has declared the seriously threatened dugong to be a flagship of Bintan and efforts support by GEF and UNEP previously have achieved the establishment of a seagrass sanctuary on the eastern side of Bintan island.

16. The outputs to achieve improved management effectiveness are: i) Institutional strengthening; ii) Biodiversity and ecosystem assessments regularly updated; iii) MPA infrastructure operational and local livelihoods enhanced; and iv) Project management and monitoring. Tourism based revenue streams, including fees and charges to flow towards increasing financial sustainability of MPA operations. In particular, Women's groups that have done exceedingly well under COREMAP II, such as POKMAS Bandeng in Malang Rapat village are to receive continued support to expand, diversify, and link up to external markets, thus boosting revenues for the members of the POKMAS.

17. In addition, it is estimated that investments will generate incremental benefits for at least 300 households involved in tourism related activities and mariculture by 2018. Furthermore, by 2018, coral reef and ecosystem health is expected to evidence enhancement of live coral cover in protected zones increasing to above the average of 50%, reduction in coral damage from destructive fishing practices and maintenance of density of coral reef fish and mangroves where these currently appear (baseline of 2010-2014).

18. Under COREMAP- CTI III, the investments are to be sourced from an ADB loan, GEF grant, and the Government of Indonesia. Investments in Bintan are expected to contribute to overall objectives of COREMAP-CTI Phase III. By 2018, it is expected that baselines of biodiversity and ecosystem health will be updated and monitoring data uploaded on a website, nature based tourist numbers increased and tourism revenue streams consolidated, and dugong management plan implemented. Investments under COREMAP-CTI III are expected to leverage private sector funding under CSR and, if possible, a PES to maintain dugong habitat and increase population numbers.

19. This environmental assessment will be limited to MPA infrastructure that needs upgrading to effectively manage the zoning and reach its management effectiveness targets and small scale livelihood improvement on a CDD basis that may be requested by the villages. These infrastructures are listed in Table 1 below. Table 1. Infrastructure for MPA and livelihood improvement for Bintan subproject

Infrastructure
A. MPA infrastructure:
1) Border UPT office
2) Border Area Information Center
3) Surveillance post and surveillance tower
4) Guest House and Homestay
5) Mini laboratory
6) Water Well Drilling and Water Installation
7) Information and communication infrastructure
8) Sanitation and waste management
9) Fisheries infrastructure
10) Research Facilities and infrastructure
B. Livelihood
1) Alternative Livelihoods development activities (CDD approach-livelihood models)
2) Support to Women Fish Processing Group "Pokmas Bandeng" (TA and equipment)

20. **Implementation Schedule.** The schedule of implementation for infrastructures are shown in Table 2 below.

Table 2: Schedule of Implementation of Subproject Interventions

Type of Interventions	Unit	Physical Target	Implementation Schedule				
			Year 1	Year 2	Year 3	Year 4	Year 5
INFRASTRUCTURE							
Detailed Engineering Design							
MPA Infrastructure							
Alternative Livelihoods							
Support to Women Fish Processing Group							

III. DESCRIPTION OF THE ENVIRONMENT¹

21. Bintan Island is located in the South China Sea at about 0°-1° N latitude and 104°-108 E longitudes. It is 10 km east of Batam Island, near Singapore. Bintan Regency includes 240 islands, with 201 islands remain uninhabited. It covers a land area of 1 946 sq. km and sea area of 86,092 sq. km. The region is located adjacent to the western edge of the Coral Triangle (CT), renowned for its globally outstanding marine biodiversity.

22. Bintan Regency consists of 10 subdistricts, and 51 villages. These subdistricts, with their corresponding land area, number of villages and capital, are listed in the table below. Gunung Kijang is the largest subdistrict.

Table 3. Bintan regency subdistricts and their area, number of villages and capital

Subdistrict (Kecamatan)	Area (Sq. Km) (Luas Kecamatan)	Villages	Capital (Ibu Kota Kecamatan)
Teluk Bintan	185	6	Tembeling
Seri Kuala Lobam		5	Teluk Lobam
Bintan Utara	219.25	5	Tanjung Uban
Teluk Sebong	408.34	7	Sebong Lagoi
Bintan Timur	461	4	Kijang
Bintan Pesisir		4	Kelong
Mantang		4	Mantang
Gunung Kijang	503.12	4	Kawal
Toapaya		4	Toapaya
Tambelan	169.42	8	Tambelan
Total	1,946.13	51	

-included in main subdistrict. Source: Bintan in Figures 2011

23. Some of the environmental issues and concerns in the Subproject that were elicited during the field visits are: illegal and destructive fishing, overfishing, coral bleaching, coral

¹ Mostly sourced from 'Bintan in Figures 2011', Katalog BPS: 1102001.2102. BPS Bintan Regency.

destruction, illegal sea turtle egg and meat collection, mining in southern part of the island, and pollution from big ships docked near Batam island.

A. Physical Resources

24. Topography and geology. Bintan is part of the continental shelf called “Paparan Sunda”. The islands formed in this area are formed by erosion landslide in the pre tertiary era. The land is generally flat to hilly. The only mountain can be found in Teluk Bintan, which is the Gunung Bintan with a height of 380 m.

25. Land. The potential area for paddy, crops, vegetables, and fruits are 1,050 ha, 3,994 ha, 7499ha, and 12,780 ha, respectively. Forest area comprises 4,490 ha.

26. Rivers/Lakes. Generally, rivers in Bintan are small and shallow. It is not used for transportation but for drainage only. The largest river, Sungai Pulaui, is being used to supply freshwater for the population in Tanjungpinang

27. Climate. The climate of Bintan is typical of the South China Sea with south monsoon winds from May through October, and north monsoon winds from November through April. It is tropically wet in general. The temperature ranges from 21.2 to 34.2 °C while the humidity ranges from 49 to 85%. The average atmospheric pressure is 1010.2 Mbs. The islands received an average of 273.6 mm of rainfall annually, with an average of 10 rainy days per month.

B. Ecological Resources

28. Forest/Vegetation. Bintan has few secondary forests of Dipterocarps left. This was due to the conversion of most forest lands to the cultivation of gambier ((*Uncaria gambier*), which decimated the forests for firewood before the 20th century. When the forests were gone, these gambier plantation were replaced by rubber plantation, which were eventually abandoned due to water logging problem. Along the coastlines, among the mangrove species that can be found belong to the genera of *Avicennia*, *Rhizophora*, and *Sonneratia*.

29. Wildlife/Biodiversity. Various species of sea animals and plants are found underwater. From squids to snails, from various fish to oyster – several marine species including dolphins and sea turtles are found. Bintan Island was one of the locations where sea turtles were found in large numbers in the past. Hawksbill turtle (*Eretmochelys imbricata*) and green turtles (*Chelonia mydas*) have been recorded in Bintan. In terms of reef fish biodiversity, Bintan has mostly: Gobies (*Gobiidae*), wrasses (*Labridae*), damselfishes (Pomacentridae), groupers (Serranidae), cardinalfishes (*Apogonidae*), blennies (*Blenniidae*), butterflyfishes (*Chaetodontidae*) and parrotfishes (*Scaridae*). In the forests, various animals can still be found like Silver leaf monkey (*Trachypithecus cristatus*), sunbirds (*Nectariniidae*), and unknown species of eagles and kite birds.

C. Economic Development

30. Agricultural crops. In the year 2011, Bintan regency has 60 hectares of rice paddy that produced 145 tons of rice; 246 hectares that produced 87.5 tons of maize; 135 hectares that produced 2,251 tons of cassava; 5,714 hectares that produced 8,761 tons of rubber; 5,168

hectares of farm that produced 6,112 tons of coconut; 1,107 hectares that produced 1,107 tons of oil palm; 400 hectares that produced 100 tons of cloves; and 40 hectares that produced 28 tons of pepper. It has also produced different kinds of fruits like mangos, rambutan, nangka, papaya, banana, pineapple, orange, durian, guava, sepadile, slacia, lanza, mangistan, bengkoang, water melon, dragon fruit as well as different vegetables like beans, chilly, small pepper, cucumber, cabbage, spinach, mustard, string bean, celery, petai, jengkol, squash, and bitter melon.

31. Livestock. The regency recorded 1,039 cows, 3,500 pigs, 1,048 goats, 2,524,200 broiler chicken, 267,500 layers, 196,451 hens and 7,977 ducks in the year 2011. They produced 25,470 tons of cow meat, 49,770 tons of pork, 1,113,250 tons of poultry meat, 1,670 tons of goat meat, 104 million pieces of chicken eggs and 477 kg of duck eggs.

32. Fishery. The regency has 9,933 marine cages (budidaya laut), 7,260 hectares of brackish ponds and 176 hectares of freshwater ponds. About 21,442 tons of fishery products were produced in 2010 by 240 fishing groups and 8 cooperatives. The regency has 3 ice factories, 3 cold storages, and 39 dockyards.

33. Forestry. There are 4,490 hectares of protection forest (mostly located in Bintan Utara and Bintan Timur subdistricts) while there are no production forest, nature reserve, national park or nature reserve in Bintan.

34. Commerce, Trade and Industry. Bintan has 56 large industries that employ 14,111 people; 124 small industries that employ 450 people, and 94 medium industry that employ 4,787 people. Mining of bauxite is being extensively undertaken in 5 subdistricts covering 3,208 hectares by 14 companies, which produced 5.87 million tons in 2010. Granite is being mined by 4 companies and 2.3 million m³ were produced in 2010. About 158,760 m³ of sand were also mined by 5 companies. The value of export in 2010 is USD330 million while its import is valued at USD 955 million. There are 43 state banks, 33 private banks and 14 development banks operating in Bintan.

35. Tourism. There are 29 hotels (5 in Bintan Utara, 6 in Teluk Sebong, 4 in Bintan Timur, 12 in Gunung Kijang, and 2 in Toapaya), which have a total capacity of 1,932 beds or 3,354 beds, in Bintan Island. It received about 312,514 tourists from different countries in 2010 but most came from Singapore, Japan and South Korea. There are also 126 restaurants with have a total capacity of 4,843 seats. The major tourist destinations are Penyengat, Tanjung Pinang city, Raja Ali Haji Monument, the Colonial Graveyard, Chinese Pagodas, Banyan Tree Temple, and its many beaches and resorts.

36. Water Resources. The state-owned water company (PDAM) provided 2.5 million m³ of water to 17,095 customers, which are mostly households.

37. Communication. Mail/postal service is provided to 5 sites (Kijang, Tanjunguban, Trikora, Lobam, and Lagoi), which sent 4,809 domestic parcels and 114 international parcels, and received 5,470 domestic parcels, and 241,914 mails in year 2010. Television and radio stations are also available in Bintan.

38. Electricity. Electricity service is provided by 7 power stations of PT PLN (Persero) Cab. Tanjungpinang (State Electricity Company of Tanjungpinang) with 17 units of generators, which has a combined installed capacity of 6,286 Kwh. About 30.1 million Kwh were produced and 2.99 Kwh were sold.

39. Transportation. The regency is traversed by 596,632 km of roads, and registered 14,691 vehicles. There are three major sea ports: Sei Kolak Kijang Port, Tanjunguban Port, and Kijang Port. Kijang Port reported 9,011 passenger arrival and 5,639 passenger departures in 2010.

D. Social and Cultural Resources

40. Population. The population of Bintan in 2011 reached 142,300 with 73,885 males and 68,635 females, and the average population density was 73 persons/sq. km. This represented an increase of 2.1 % from population in the year 2010, which was 139,407. The total number of households was 36, 613, while average number per household was 4. The biggest population was in Bintan Timur (39,006) and the smallest population can be found in Mantang (3,896).

41. Health Facilities. As of 2010, Bintan has 1 hospital, 12 public health centers, 15 outlying health centers and 13 medical units. It has also 43 general doctors, 17 dentists, 160 paramedics and 2 child health specialists. It recorded a total of 104,275 patients on the same year.

42. Educational facilities. In 2011, there are an aggregate of 32 units of kindergarten school, 95 elementary school, 32 junior high school, 10 high school and 5 vocational schools in Bintan. It also listed 980 classrooms and 157 teachers as of 2011.

43. Economy. The Gross Regional Domestic Product (GRDP) of Bintan in 2011 was Rp 3.11 billion at constant 2000 price, with the manufacturing industry contributing the highest, at Rp 1.63 billion or 51% of the total GRDP. Per capita GRDP was Rp 31 million and the regional income per capita was Rp. 25.53 million, at current 2010 price. The growth rate was estimated at 5.56% in 2010. It was estimated that 10,500 people or 7.34% of the population fall below the poverty level on the same year.

44. Religion. The religions of people in Bintan consist of 85% Islam, 6% Protestant, 5% Buddhist, 3% Catholic, and 2%, other religions.

IV. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Screening and Categorization of Subproject Components

45. This report has been prepared in accordance with the ADB's Safeguard Policy Statement (SPS)², which became effective on 20 January 2010. SPS governs the environmental and social safeguards of ADB's operations. Environmental Safeguard Requirements 1 (SR1) of the SPS outlines the requirements that borrowers/clients are required to meet when delivering environmental safeguards for projects supported by the ADB. These requirements include assessing impacts, planning and managing impact mitigations, preparing environmental assessment reports, disclosing information and undertaking consultation, establishing a grievance mechanism, and monitoring and reporting. SR1 also includes specific environmental safeguard requirements pertaining to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resource.

² SPS is available at <http://www.adb.org/documents/safeguard-policy-statement?ref=site/safeguards/publications>

46. The ADB Rapid Environmental Assessment checklists (See ADB REA Checklists) screening process, as applied to the Bintan subproject interventions, results in the identification of the following potential impacts:

Table 4. Subproject infrastructure and potential impacts.

Infrastructure	ADB Checklist Used	Potential Impacts
MPA Office	Urban development	The MPA Office Complex may induce <ul style="list-style-type: none"> ▪ wastes generation; ▪ water resource problem; ▪ social conflicts between construction workers from other areas and local workers; ▪ noise and dust from construction activities; ▪ temporary silt runoff due to construction; ▪ water depletion and/or degradation; ▪ contamination of surface and ground waters due to improper waste disposal;
Surveillance post and surveillance tower	Urban development	<ul style="list-style-type: none"> ▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services. ▪ social conflicts between construction workers from other areas and local workers?
Fish processing: Kitchen Extension	Urban development	<ul style="list-style-type: none"> ▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services; ▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters; ▪ social conflicts between construction workers from other areas and local workers; ▪ noise and dust from construction activities; ▪ hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation; ▪ contamination of surface and ground waters due to improper waste disposal;

47. The Indonesian environmental assessment regulations are embodied in the AMDAL - *Analisis Mengenai Dampak Lingkungan Hidup* or the Indonesian EIA system. Based on the AMDAL project screening criteria shown above, a project categorized by the responsible agency into one of three types: (i) business and/or activity having substantial impacts requiring Environmental Impact Analysis (ANDAL)³; (ii) business and/or activity requiring Environmental Management Efforts (UKL) or Environmental Monitoring Efforts (UPL)⁴; and (iii) business and/or activity with no substantial impact and that does not require ANDAL nor UKL/UPL, but require a statement of readiness to manage and monitor the environment⁵.

³ Based on the 'positive list' of project/activities that requires EIA/ANDAL under Minister of Environment Regulation No. 11/2006 and Article 23 of the Environmental Protection and Management Law (Law 32/2009).

⁴ Based on Article 43 of Law 32/2009.

⁵ Based on Article 35 of Law 32/2009.

48. The initial category/type of the subproject components, under ADB guidelines and based on the Indonesian AMDAL regulations, are presented in the table below.

Table 5: ADB and AMDAL Category of Subproject Intervention

Subproject Intervention	ADB Category	AMDAL Type ⁶
MPA Office	B ⁷ – IEE needed	UKL/UPL required
Surveillance post and surveillance tower	C ⁸ – No IEE is required	SPPL required
Fish processing: Kitchen Extension	C – No IEE is required	SPPL required

49. As a subproject with multiple interventions, an IEE (being of the highest documentary requirement) compliant with ADB requirements is followed. This IEE also substantially conforms with AMDAL guidelines.

B. Potential Environmental Impacts and Mitigation Measures

50. The potential environmental impacts of the Subproject interventions and the corresponding mitigating measures are to be classified according to the different stages of the Subproject components (Design stage, Construction Stage and Operation Stage)

1. Project Location/Design Stage

51. By design, the subproject is located within the Marine Protected Area as it intends to rehabilitate, protect and sustainably manage this protected area. The Project interventions are designed to enhance the resources of the protected areas, and reverse environmental degradation.

52. *MPA Office.* The MPA Office is presumed to be of small-scale and therefore, the impact is not significant. This office is expected to improve the management effectiveness of the MPA. The following safeguards are recommended to be put in place during the design stage to avoid or prevent any negative environmental effect of the subproject:

- a. To discourage the influx of workers from other areas and social conflicts, local residents, indigenous peoples and women are given priority in hiring.
- b. The siting of the facility should be in compliance with the approved MPA zoning and management plan.
- c. The facility is to be located in an area where no live corals, seagrasses and mangroves or natural habitats would be affected.

⁶ Subject to the final determination by relevant environmental authority.

⁷ Category B- proposed project's potential environmental impacts are less adverse and fewer in number than those of category A projects; impacts are site-specific, few if any of them are irreversible, and impacts can be readily addressed through mitigation measures. An initial environmental examination (IEE), including an EMP, is required.

⁸ Category C- Projects unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are still reviewed (ADB Environmental Assessment Guidelines (2003)

53. *Security and Remote Surveillance Post.* This is presumed to be of small-scale, located in outer islands, and will be used for monitoring, control and surveillance purposes, and therefore produces general positive impacts to the marine conservation and the environment. There is no significant impact at this stage but additional safeguards are recommended such as:

- a. Hiring of local workers to avoid social conflicts.
- b. The siting of the surveillance post should comply with the approved MPA zoning and management plan

54. *Fish processing: Kitchen Extension.* This is just an extension of an existing kitchen and fish processing facility being used by Pokmas Bandeng in Malang Rapat, in addition to the procurement of equipment and tools to improve the diversity and quality of its products. No significant impacts are expected at the design stage. Local workers are to be hired to avoid social conflicts.

2. Construction/Establishment Stage

55. *MPA Office.* With the relatively small dimension of this complex, the impacts are temporary and minimal, and no significant environmental impacts at construction stage are anticipated which would require mitigating measures. All the same, additional safeguards to avert any adverse environmental effect during construction are to be adopted by the subproject, such as but not limited to:

- a. Noise and dust from construction activities can be further minimized by proper use and maintenance of construction equipment, in accordance with the owner's manual and compliant with government's standards;
- b. Temporary silt runoff maybe reduced by scheduling the drilling when the waves are calm;
- c. The contractor shall provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease.

56. *Surveillance post and surveillance tower.* Assuming this structure is of small size, no adverse environmental impacts are expected during the construction. However, as additional safeguards, it is recommended that:

- a. A waste management plan shall be implemented during the construction stage to prevent pollution of the surrounding environment;
- b. Construction activities shall be confined only on the project site, and due diligence shall be exercised so as not to spill activities to adjacent areas or surroundings.
- c. The contractor shall provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease.

57. *Fish processing: Kitchen Extension.* The impacts are expected to be minimal and temporary. Additional safeguard measures are recommended:

- a. Noise and dust from construction activities can be further minimized by proper use and maintenance of construction equipment, in accordance with the owner's manual and compliant with government's standards;
- b. The contractor shall provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease.

3. Operation/Maintenance Stage

58. *MPA Office.* The office is expected to attract unspecified number of visitors. Its operation will generate wastes, mainly solid wastes, and sewerage/sanitary wastes. The latter will be treated by the septic tank, which is part of the office' structures. The former will be treated under a waste management plan, where solid wastes are collected, segregated and disposed accordingly. There is also a need to identify and assess the water supply requirement of the office to portend any problems that may arise in the future like water depletion, contamination and degradation. A water conservation measure shall also be implemented.

59. *Surveillance post and surveillance tower.* The operation of these structures is expected to generate significant positive impacts to the environment. No adverse impacts are anticipated but additional safeguards are recommended like implementing a wastes management plan throughout the operation stage.

60. *Fish processing: Kitchen Extension.* The waste generated by kitchen operation consists of solid and liquid or sanitary wastes. Liquid wastes will be treated by the septic tank while solid wastes will be treated according to the waste management plan where solid wastes are collected, segregated and disposed accordingly.

V. INSTITUTIONAL REQUIREMENTS AND ENVIRONMENTAL MONITORING PLAN

61. The Directorate General of Marine, Coast, and Small Islands (DG of MCSI) of the Ministry of Marine Affairs and Fisheries (MMAF), as the Executing Agency (EA) of the COREMAP-CTI Project, has responsibility for project management and administration and will host the Project Management Office (PMO).

62. An Environmental Management Unit (EMU), which will be established in the PMO, will play a lead role in implementing the EARF provisions of Project, and will be responsible for ensuring that the environmental requirements and procedures of the government and ADB are complied with, including the preparation of business plan/project activities, Initial Environmental Examination (IEE), Environmental Management Program (Upaya Pengelolaan Lingkungan, UKL) and Environmental Monitoring Program (Upaya Pemantauan Lingkungan, UPL); other AMDAL requirements; and the corresponding mitigation measures, environment management plan are incorporated in every stage of the subproject/MPA activities. Please note that any activity which will require an ANDAL (EIA) by any environmental authority at a later stage will be dropped by the subproject.

63. The EMU will be manned by a local environmental management specialist and marine and coastal management specialist to ensure that an environmental management system, including mitigating measures, environmental monitoring, and the acquisition of government permits and clearances, is effectively implemented. Capacity-building activities and budget for

environmental management, in particular for training and equipment needs related to compliance monitoring, and water quality monitoring, are listed in Appendix 2. Note that the preparation of AMDAL studies and documents like UPL/UKL, if required by local environmental authority (BAPEDALDA or BPLHD), will be contracted to local consultants.

64. The Project partners (LIPI, CI, District Fisheries Office, LPSTK, Pokmas) will also assist in the implementation of environmental safeguards and in environmental monitoring in their area of responsibility.

Table 6. Main Environmental Responsibilities of Institutions

Level	Institution	Responsibilities
National/ Central	<u>Executing Agency:</u> Marine Coast, and Small Islands, MMAF	Overall Project management and administration
	<u>Implementing Agency:</u> National Marine Conservations Areas (LKKPN)	Technical planning and supervision of national MPAs, including MPA Bintan.
	Project Management Office (PMO)	<ul style="list-style-type: none"> ▪ coordinate overall planning and scheduling (particularly infrastructure related and consultants); ▪ overall supervision and monitoring; and preparation of consolidated monitoring reports; ▪ administer contracts; and submit reports
	Environmental Management Unit (EMU)	<ul style="list-style-type: none"> • Oversee implementation of the environmental management and monitoring plan, and ensure that institutional arrangements and responsibilities are followed; • Consolidate environmental performance and impact monitoring reports on behalf of the Project, for submission to the central, provincial and district environment units, relevant government ministries, and public information channels; • Advise the PMO on environmental aspects and impacts of projects, including those requiring corrective action during project implementation; • Assist the PMO in coordinating with the MOE, UPT-LKKPN-Pekanbaru and/or provincial/district environment agencies for the UKL-UPL compliance of projects; • Assist the PMO in drawing up terms of reference for the UKL-UPL teams/consultants, based on assessment scope agreed with the responsible local environmental agency; • Update the information system on the MPA's baseline environment conditions,
	National Science Agency (LIPI)	Undertake and document baseline surveys and monitoring data on biodiversity, ecosystem, and socio-economic aspects relating to project impacts.
Provincial	Provincial Coordinating Unit	Coordination and guidance, monitoring and reporting, and handling of issues between districts/municipalities.

Level	Institution	Responsibilities
	The MPA Field Area Management Office (Satker)	Responsible for day-to-day operation of MPA Bintan.
	Marine and Fisheries Resources Supervision (PSDKP), MMAF	Mainly responsible for monitoring and supervising fisheries surveillance
	District Fisheries Office in Bintan	On behalf of the district, responsible for: <ul style="list-style-type: none"> improving and strengthening management and utilization marine and fisheries resources to be optimal, effective, efficient and sustainable; empowering economic coastal and small islands communities; improving and strengthen surveillance and law enforcement for marine and fisheries sector; preparing database and resource potential data of marine and fisheries in Bintan; and improving quality and quantity marine and fisheries personnel.
	Non-Governmental Organizations (NGOs): Conservation International (CI)	Collaboration in: <ul style="list-style-type: none"> Raising public awareness and dissemination (“socialize”) activities and Monitoring biodiversity and ecosystem
Village [Desa]	LPSTK	<ul style="list-style-type: none"> Represents the village in MPA activities, including livelihood programs. Dispute settlement among the region/community Assist in environmental monitoring in MPA.
	Community groups (Pokmas)	<ul style="list-style-type: none"> Collaboration in fisheries surveillance and environmental monitoring of MPA Implement livelihood program

65. The potential environmental impacts, mitigation measures, institutional arrangement to implement the mitigation measures are summarized below.

Table 7: Summary of Environmental Impacts, Mitigation Measures and Institutional Arrangement

Stage/Intervention/ Environmental Impacts	Mitigation Measures	Institutional Arrangements
Project Location/Design Stage		
<ul style="list-style-type: none"> MPA Office Surveillance post and surveillance tower Fish processing: Kitchen Extension 		
impacts to coral reefs, mangroves and seagrasses	site selection criteria in EARF to be followed	EMU-PMO and District PIU's to coordinate and supervise
Construction/Establishment Stage		
<ul style="list-style-type: none"> MPA Office Surveillance post and surveillance tower Fish processing: Kitchen Extension 		

Stage/Intervention/ Environmental Impacts	Mitigation Measures	Institutional Arrangements
Potential impact to environment and marine ecosystems	Construction activity will be supervised so that impacts to surrounding is minimized including transfer of waste and debris into surrounding areas. Construction should not conducted during rainy days as there are potential for silt runoff.	EMU-PMO and District PIU's to coordinate and supervise
Operation/Maintenance Stage		
<i>MPA Office</i>		
Waste Generation (solid and sanitary)	<ul style="list-style-type: none"> • Solid wastes will be treated in accordance with approved Waste Management Plan (WMP), where solid wastes will be collected, segregated and disposed appropriately; • Compliance monitoring 	The WMP will be prepared and implemented by MPA Bintan Office, which will submit report on compliance to EMU-PMO; PIU/LKKPN will evaluate and approve the WMP, and supervise the implementation the WMP.
	Sanitary wastes will be treated in a septic tank unit, which is part of the complex structures.	MPA Bintan will ensure that the septic tank is operating well; and shall report any sanitation problem to PIU and EMU-PMO.
Water supply problem	identify and assess the water supply requirement of the complex	MPA Bintan to identify and assess the water supply of the complex, and report to PIU and EMU-PMO
	<ul style="list-style-type: none"> • water conservation measures • Compliance monitoring 	MPA Bintan to propose and implement water conservation measures, and submit report on compliance to PIU and EMU-PMO
<i>Surveillance post and surveillance tower</i>		
No significant impact	Nothing to mitigate but additional environmental safeguards are recommended	PIU to coordinate and supervise the implementation of additional environmental safeguards
<i>Fish processing: Kitchen Extension</i>		
Waste Generation (solid and sanitary)	<ul style="list-style-type: none"> • Solid wastes will be treated in accordance with approved Waste Management Plan (WMP), where solid wastes will be collected, segregated and disposed appropriately; • Compliance monitoring 	The WMP will be prepared and implemented by Pokmas Bandeng, which will submit report on compliance to EMU-PMO; PIU/LKKPN will evaluate and approve the WMP, and supervise the implementation the WMP.
	Sanitary wastes will be treated in a septic tank unit, which is part of the complex structures.	MPA Bintan will ensure that the septic tank is operating well; and shall report any sanitation problem to PIU and EMU-PMO.

Table 7: Summary of Environmental Impacts, Mitigation Measures and Institutional Arrangement (continuation)

66. Environmental monitoring will be integrated in the GIS-based monitoring and evaluation (M&E) decision support system (DSS) of the Project. At the subproject level, the items to be monitored include environmental impacts, mitigation and environmental safeguards implemented, and environmental parameters/indicators on the condition of the environment like Temperature, Salinity, Water flow, Chlorophyll, Turbidity, pH, Dissolved Oxygen (DO), Biological Oxygen Demand (BOD), Ammonia (NH₃ -N), Nitrite (NO₂ -N), Nitrate (NO₃ -N), Total Phosphate (PO₄-P), Mercury (Hg) Lead (Pb) Cadmium (Cd) , Fecal coliform, Oil and grease in water. Water sampling shall be undertaken every quarter and the results will be compiled by EMU-PMO for evaluation.

67. The Environmental Monitoring Plan describes the impacts that will be monitored, monitoring activities and frequency, monitoring party and the resources needed to carry out monitoring. These are presented below.

Table 8. Table 1: Environmental Monitoring Plan and Budget

Impacts to be Monitored and parameters	Monitoring Activity and Frequency	Monitoring Party	Resources and Budget
Preparation , surveys and permitting	UKL-UPL or SPPL documents	EMU-PMO and District PIU	Rp 50 million
Monitoring Water Quality (DO, BOD, pH, Coliform, Nitrogen, Sulfate, streamflow, Heavy metals, etc.);	Evaluation of Report that will be submitted by MPA Mentawai – once every year	District PIU, EMU-PMO and project proponents and consultants	Rp 100 million
Consultations	Document consultations	District PIU, EMU-PMO and project proponents and consultants	Rp 50 million

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

68. The ADB team conducted a series of public consultation to refine the project concept and design, selection criteria used, and sub-project component coverage.

69. Between May 27 and June 7, 2013, an ADB field team conducted meetings/interviews/consultation and focus-group discussions with officials or representatives of Directorate General of Marine Coast, and Small Islands (MCSI)-Ministry of Marine Affairs and Fisheries (MMAF), Directorate for Conservation of Area and Fish Species (*Direktorat Konservasi Kawasan Dan Jenis Ikan-KKJI*), Badan Perencanaan Pembangunan Nasional (BAPPENAS) or National Development Planning Agency, National Science Agency (*Lembaga Ilmu Pengetahuan Indonesia-LIPI*), Badan Perencanaan Pembangunan Daerah (Regional Development Planning Agency), National Marine Conservation Areas (LKKPN or *Kawasan Konservasi Perairan Nasional*), Marine Protected Area *Kawasan Konservasi Laut Daerah (KKLD)*, and from project stakeholders like the Kepulauan Bintan Regency, and some of its villages. They were briefed on the proposed project, and clarifications, questions and comments were raised.

70. Draft copies of the IEE will be provided to the MCSI-MMAF, KKJI and LKKPN as well as to the Regency of Kepulauan Bintan, for comments and suggestions, as part of public consultation of the proposed Subproject.

71. This IEE will be made available to the public subject to ADB's policy on public disclosure.

VII. FINDINGS AND RECOMMENDATION

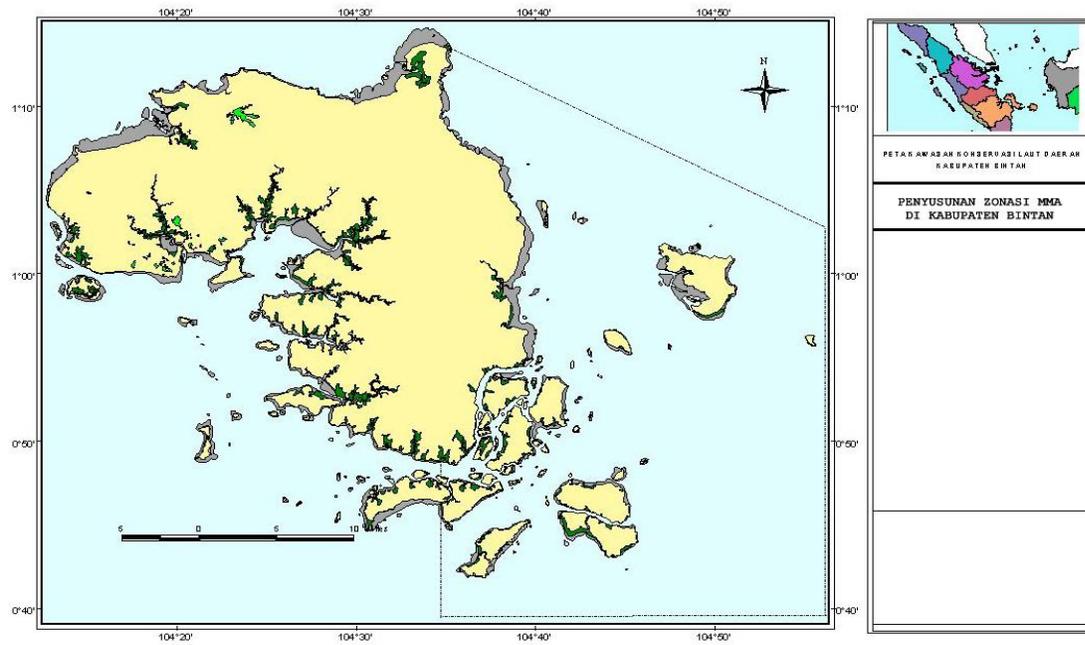
72. Based on the evaluation of the different interventions under Bintan Subproject, and its possible impacts on the environment, this IEE finds that their impacts on the environment are not significant, and that the potential adverse impacts can be easily mitigated by adoption of specific measures as outlined in this report, including additional environmental safeguards to confine the impacts below threshold level or at the minimum.

VIII. CONCLUSIONS

The proposed Bintan MPA Sub-project will not create any significant negative environmental impacts and positive environmental benefits are expected from an effective environmental management and improve in economic conditions. The Project will follow this example template of an IEE in implementing the environmental management and monitoring program for mentawai and using the environmental assessment and review framework, prepare the required national environmental documents.

APPENDIXES

Appendix 1: Location Map of Bintan Islands Subproject area



Appendix 2: ADB REA Checklists

Urban Development:
MPA Office Complex

Rapid Environmental Assessment (REA) Checklist

Instructions:

- This checklist is to be prepared to support the environmental classification of a project. It is to be attached to the environmental categorization form that is to be prepared and submitted to the Chief Compliance Officer of the Regional and Sustainable Development Department.
- This checklist is to be completed with the assistance of an Environment Specialist in a Regional Department.
- This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB checklists and handbooks on (i) involuntary resettlement, (ii) indigenous peoples planning, (iii) poverty reduction, (iv) participation, and (v) gender and development.
- Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures.

Country/Project Title:

Coral Reef Rehabilitation and Management: Coral Triangle Initiative (COREMAP-CTI)

Sector Division:

Environment, Natural Resources and Agriculture Division

Subproject:

Bintan MPA Management Effectiveness and Livelihoods Improvement Subproject

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting Is the project area...			
▪ Densely populated?		<input checked="" type="checkbox"/>	
▪ Heavy with development activities?		<input checked="" type="checkbox"/>	
▪ Adjacent to or within any environmentally sensitive areas?			
- Cultural heritage site		<input checked="" type="checkbox"/>	
- Protected Area	<input checked="" type="checkbox"/>		This is a project to support Bintan marine protected area. Its establishment and operation shall be guided by the Zoning and Management Plan of the MPA
- Wetland		<input checked="" type="checkbox"/>	
- Mangrove	<input checked="" type="checkbox"/>		The location of MPA station may be adjacent to mangrove areas but care will be done to avoid mangroves.
- Estuarine		<input checked="" type="checkbox"/>	
- Buffer zone of protected area	<input checked="" type="checkbox"/>		The project supports marine protected area

SCREENING QUESTIONS	Yes	No	REMARKS
- Special area for protecting biodiversity	<input checked="" type="checkbox"/>		The project supports biodiversity conservation in the Coral Triangle
- Bay		<input checked="" type="checkbox"/>	
B. Potential Environmental Impacts Will the Project cause...			
▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.		<input checked="" type="checkbox"/>	
▪ deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?	<input checked="" type="checkbox"/>		The station may induce waste generation. Wastes will be collected, segregated and disposed in accordance with Waste Management Plan.
▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		<input checked="" type="checkbox"/>	
▪ dislocation or involuntary resettlement of people		<input checked="" type="checkbox"/>	
▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?		<input checked="" type="checkbox"/>	
▪ occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		<input checked="" type="checkbox"/>	
▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality, and pollution of receiving waters)?	<input checked="" type="checkbox"/>		Water sources will be assessed and water conservation measures will be practiced
▪ air pollution due to urban emissions?		<input checked="" type="checkbox"/>	
▪ social conflicts between construction workers from other areas and local workers?	<input checked="" type="checkbox"/>		Local workers will be given priority in hiring
▪ road blocking and temporary flooding due to land excavation during rainy season?		<input checked="" type="checkbox"/>	
▪ noise and dust from construction activities?	<input checked="" type="checkbox"/>		Temporary and minimal disturbance during working hours; maybe reduced by proper maintenance of equipment.
▪ traffic disturbances due to construction material transport and wastes?		<input checked="" type="checkbox"/>	
▪ temporary silt runoff due to construction?	<input checked="" type="checkbox"/>		Minimal and temporary impacts and no need for mitigating measure.
• hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		<input checked="" type="checkbox"/>	
• water depletion and/or degradation?	<input checked="" type="checkbox"/>		Water conservation measures will be practiced
• overpumping of ground water, leading to land subsidence, lowered ground water table, and salinization?		<input checked="" type="checkbox"/>	
• contamination of surface and ground waters due to improper waste disposal?	<input checked="" type="checkbox"/>		Waste management plan will be implemented
• pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		<input checked="" type="checkbox"/>	

Rapid Environmental Assessment (REA) Checklist

Urban Development:
Surveillance post and
surveillance tower

Country/Project Title: Coral Reef Rehabilitation and Management: Coral Triangle Initiative (COREMAP-CTI)

Sector Division: Environment, Natural Resources and Agriculture Division

Subproject: Bintan MPA Management Effectiveness and Livelihoods Improvement Subproject

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting			
Is the project area...			
▪ Densely populated?		<input checked="" type="checkbox"/>	
▪ Heavy with development activities?		<input checked="" type="checkbox"/>	
▪ Adjacent to or within any environmentally sensitive areas?			
- Cultural heritage site		<input checked="" type="checkbox"/>	
- Protected Area	<input checked="" type="checkbox"/>		This is a project to support Bintan marine protected area. Its establishment and operation shall be guided by the Zoning and Management Plan of the MPA
- Wetland		<input checked="" type="checkbox"/>	
- Mangrove	<input checked="" type="checkbox"/>		The location of MPA station may be adjacent to mangrove areas but care will be done to avoid mangroves.
- Estuarine		<input checked="" type="checkbox"/>	
- Buffer zone of protected area	<input checked="" type="checkbox"/>		The project supports marine protected area
- Special area for protecting biodiversity	<input checked="" type="checkbox"/>		The project supports biodiversity conservation in the Coral Triangle
- Bay		<input checked="" type="checkbox"/>	
B. Potential Environmental Impacts			
Will the Project cause...			
▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.	<input checked="" type="checkbox"/>		Minimal impact. Solid wastes will be collected, segregated and disposed according to Surveillance post..., page 2 Management Plan
▪ deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?		<input checked="" type="checkbox"/>	

SCREENING QUESTIONS	Yes	No	REMARKS
▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		<input checked="" type="checkbox"/>	
▪ dislocation or involuntary resettlement of people		<input checked="" type="checkbox"/>	
▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?		<input checked="" type="checkbox"/>	
▪ occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		<input checked="" type="checkbox"/>	
▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters?		<input checked="" type="checkbox"/>	
▪ air pollution due to urban emissions?		<input checked="" type="checkbox"/>	
▪ social conflicts between construction workers from other areas and local workers?	<input checked="" type="checkbox"/>		Minimal impact. Local workers will be given priority in hiring
▪ road blocking and temporary flooding due to land excavation during rainy season?		<input checked="" type="checkbox"/>	
▪ noise and dust from construction activities?	<input checked="" type="checkbox"/>		Minimal and temporary noise from civil works. Operations will be avoided at night.
▪ traffic disturbances due to construction material transport and wastes?		<input checked="" type="checkbox"/>	
▪ temporary silt runoff due to construction?		<input checked="" type="checkbox"/>	
• hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		<input checked="" type="checkbox"/>	
• water depletion and/or degradation?		<input checked="" type="checkbox"/>	
• overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		<input checked="" type="checkbox"/>	
• contamination of surface and ground waters due to improper waste disposal?		<input checked="" type="checkbox"/>	
• pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		<input checked="" type="checkbox"/>	

Urban Development:
(Fish processing/ Kitchen
Facility Expansion)

Rapid Environmental Assessment (REA) Checklist

Country/Project Title: Coral Reef Rehabilitation and Management: Coral Triangle Initiative (COREMAP-CTI)

Sector Division: Environment, Natural Resources and Agriculture Division

Subproject: Bintan MPA Management Effectiveness and Livelihoods Improvement Subproject

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting			
Is the project area...			
▪ Densely populated?		<input checked="" type="checkbox"/>	
▪ Heavy with development activities?		<input checked="" type="checkbox"/>	
▪ Adjacent to or within any environmentally sensitive areas?			
- Cultural heritage site		<input checked="" type="checkbox"/>	
- Protected Area	<input checked="" type="checkbox"/>		This is a project to support Bintan marine protected area. Its establishment and operation shall be guided by the Zoning and Management Plan of the MPA
- Wetland		<input checked="" type="checkbox"/>	
- Mangrove		<input checked="" type="checkbox"/>	
- Estuarine		<input checked="" type="checkbox"/>	
- Buffer zone of protected area	<input checked="" type="checkbox"/>		The project supports marine protected area
- Special area for protecting biodiversity	<input checked="" type="checkbox"/>		The project supports biodiversity conservation in the Coral Triangle
- Bay		<input checked="" type="checkbox"/>	
B. Potential Environmental Impacts			
Will the Project cause...			
▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.	<input checked="" type="checkbox"/>		Minimal impact. Solid wastes will be collected, segregated and disposed according to an approved Waste Management Plan
▪ deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?		<input checked="" type="checkbox"/>	

SCREENING QUESTIONS	Yes	No	REMARKS
▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		<input checked="" type="checkbox"/>	
▪ dislocation or involuntary resettlement of people		<input checked="" type="checkbox"/>	
▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?		<input checked="" type="checkbox"/>	
▪ occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		<input checked="" type="checkbox"/>	
▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters?		<input checked="" type="checkbox"/>	
▪ air pollution due to urban emissions?		<input checked="" type="checkbox"/>	
▪ social conflicts between construction workers from other areas and local workers?	<input checked="" type="checkbox"/>		Minimal impact. Local workers will be given priority in hiring
▪ road blocking and temporary flooding due to land excavation during rainy season?		<input checked="" type="checkbox"/>	
▪ noise and dust from construction activities?	<input checked="" type="checkbox"/>		Minimal and temporary impacts
▪ traffic disturbances due to construction material transport and wastes?		<input checked="" type="checkbox"/>	
▪ temporary silt runoff due to construction?		<input checked="" type="checkbox"/>	
• hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?	<input checked="" type="checkbox"/>		Minimal impact usually, depending on the process adopted.
• water depletion and/or degradation?		<input checked="" type="checkbox"/>	
• overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		<input checked="" type="checkbox"/>	
• contamination of surface and ground waters due to improper waste disposal?		<input checked="" type="checkbox"/>	Septic tanks will be constructed
• pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		<input checked="" type="checkbox"/>	

