



Initial Environmental Examination:

Subproject: Enhancing Management Effectiveness, Nusa Penida, Bali Indonesia

Document Stage: - Draft for review

Project Number: Grant 0379 - INO

March, 2022

January, 2022

**INO: CORAL REEF REHABILITATION AND
MANAGEMENT- CORAL TRIANGLE INITIATIVE
(COREMAP-CTI) PROJECT**

Indonesia: Coral Reef Rehabilitation and
Management: Coral Triangle Initiative Project
(INO- COREMAP-CTI) – Nusa Penida

Initial Environmental Examination



Abbreviations

ADB	- Asian Development Bank
AMDAL	- <i>Analisis Mengenai Dampak Lingkungan Hidup</i> or Indonesian Environmental impact Assessment system
ANDAL	- Analisis Dampak Lingkungan or Environmental Impact Assessment
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 Program
CTI	- Coral Triangle Initiative
CTC	- Coral Triangle Center (Project Implementation Partner)
DG	- Directorate General
EARF	- Environmental Assessment and Review Framework
EIA	- Environmental Impact Assessment
EMU	- Environmental Management Unit
GEF	- Global Environment Facility
Gol	- Government of Indonesia

Ha	-	Hectare
ICCTF	-	Indonesia Climate Change Trust Fund
IDR	-	Indonesian Rupiah
Km	-	Kilometer
LPSTK	-	<i>Coral Reef Resource Management Agency (Lembaga Pengelola Sumberdaya Terumbu Karang)</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
PIU	-	Project Implementation Unit
PMO	-	Project Management Office
POKMAS	-	Community groups
Rp	-	Rupiah
SPPL	-	Statement of readiness to manage and monitor the environment
TIA	-	Trans Intra Asia (Project Implementation Partner)
UKL	-	Environmental Management Plan (UKL)
UPL	-	Environmental Monitoring Plan (UPL)
UPT	-	Technical Implementing Unit
USD	-	United States Dollar

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EXECUTIVE SUMMARY

1. The Coral Reef Rehabilitation and Management Program Coral Triangle Initiative (COREMAP CTI) is funded by Asian Development Bank (ADB) consists of three marine protected areas (MPA) in Lesser Sunda seascape, Nusa Penida, Bali Province and Gili Mara and Gili Balu in West Nusa Tenggara (NTB) province.
2. **Scope of impacts.** Initial Environmental Examination and impact of the subproject on the land, biodiversity, water and air was assessed in the June – September 2021 by the project implementation consultants. The infrastructure will be constructed on the government owned land (property of Bali Province, under use of UPTD Nusa Penida and Klungkung Regency). The construction of subproject infrastructure have positive impact or will support function of the Marine and Fisheries Agency in Klungkung District, Bali attn. Technic Implementation Unit, MPA Nusa Penida (UPTD, Nusa Penida). Construction of the mangrove tracking and bird watching tower will support the ecotourism activities in the complex of Nusa Ceningan harbor.
3. **Legal and policy framework:** The Initial Environmental Examination (IEE) is conducted following the requirements of the relevant policies and laws of Government of Indonesia and ADB's safeguard policy statement (SPS 2009). The overall objective of these-above mentioned policies is to ensure that impacts of the environmental, if any, are screened and avoided. If the identified impacts are not possible to be avoided, suitable measures will be prepared and conducted.
4. **Project description and scope:** The representative subproject in MPA Nusa Penida is construction of a surveillance tower and an Information Centre in Batununggul, mangrove tracking and bird watching tower in Ceningan Harbour complex. The design of the information centre is $5 \times 6 \text{ m} = 36 \text{ m}^2$ and the surveillance tower is $5 \times 5 \text{ m} = 25 \text{ m}^2$ with height of the tower is 12 m. For the wooden bird watching tower, the design is height 7m, with capacity is 8 persons on top of the tower and integrated with the wooden mangrove tracking which

length 100m and width 1,5m. The subproject aims to support ecotourism activities and community surveillance patrol in MPA Nusa Penida.

5. **Environmental Impact.** The IEE concludes that there is no identifiable significant environmental impact is the project deemed environmentally sensitive. Impact arising the construction and operational phase of the project are minor, localized and acceptable, providing that the set of mitigation measures set out in the environmental management plan (EMP) are incorporated in the design, implementation, and monitored properly. Key impacts include:

- The construction point of mangrove tracking and bird watching is located in the mangrove area and does not have any terrestrial ecological or biological (flora fauna) endemic, endangered biodiversity.
- Impacts on the terrestrial and shallow water marine ecosystem and their environmental such as mangrove area resulting from the project construction activities are expected to be minor.
- The construction point of the subproject infrastructure does not impact any terrestrial or marine conservation and protected area,

sites of cultural, customary of heritage significant nor any national or international endangered or protected species (sunfish).

- Impacts on the environmental associated with the coastal ecosystem resulting from the physical dredging of the area and subsequent increased short lived sedimentation has a low impact on the marine fauna and flora due to the scarcity of resources located within and adjacent to the project area of influence.
- Proactive management of all pre-construction, construction and operational activities will ensure limited disturbance to the daily business activities undertaken within the subproject infrastructure surrounding and community activities.

6. **Environmental management Plan.** The contractor for construction of the subproject infrastructure will refer to the Statement of Readiness to manage and monitor environment (SPPL) in form of Letter of Commitment to the Environmental Management infrastructure in Nusa Penida. then the Environmental Management Plan (EMP), which provides a set of mitigation and operational phases and implementation to avoid, reduce, mitigate or compensate for adverse environmental impact. Additionally, the contractor/project

Implementation Partners will prepare the construction EMP (CEMP) of code of construction practices document (CoCP).

7. **Implementation arrangement.** Project Implementing Agency (IA) is Indonesia Climate Change Trust Fund (ICCTF). The IA engaged the Project's Consultant to implement the COREMAP CTI Project including the development of subproject infrastructures (surveillance tower and information center, mangrove tracking and bird watching tower) in Nusa Penida. The project consultant, PT Trans Intra Asia a (TIA) with its joint venture Yayasan Bahtera Nusantara (Banur) and Coral Triangle Centre (CTC) are responsible to construct the subproject infrastructures and conduct engagement to environmental examination.

8. **Implementation schedule:** This Environmental management plan will be

implemented along the construction of subproject infrastructures. It is planned that the social management plan will be conducted from February 2022 up to September 2022.

9. **Monitoring and evaluation:** The subproject is category B for Initial Environmental Examination (IEE), therefore, it is not required the external monitoring experts to perform of external environmental performance on the subproject infrastructure. During the subproject implementation, Bappenas ICCTF will conduct internal monitoring and evaluation on Environmental Examination to ensure the development of the subproject infrastructure COREMAP CTI in Nusa Penida in compliance with ADB's SPS and the relevant Government's laws and regulations.

1

INTRODUCTION

10. 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 a sector Grant.
11. 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 3 effective Marine Protected Area (MPA) models that can be replicated across the country for sustainable coral reef management. The Project will help to move the MPAs to the next higher stage by increasing and evaluating their management effectiveness.
12. 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.

13. Based on these criteria, the feasibility study for the project preparation will appraise representative (core) subprojects, for a national level MPA and for a subnational MPA. The core subprojects may include: (i) enabling infrastructure for private sector participation in ecotourism development (e.g., Information Centre, Digital Information board etc.); (ii) alternative livelihood-related infrastructure (fish ponds, fish cages, fish processing etc.) and (iii) MPA governance (e.g., management board, academic paper for endemic species, management plans, threatened species management plans, application for Tourists Management System, coral monitoring and database systems, monitoring and surveillance operations).
14. This Initial Environmental Examination (IEE) Report focuses on the environmental assessment of the management and livelihood interventions for Nusa Penida MPA (KKPD) as a

sample subproject, and is limited to infrastructures and livelihood, as these project interventions have potential for environmental impacts.

B. Objective of the IEE

15. The environmental assessment was undertaken collaboratively by the national consultant and project proponent through intensive communication with representative local government in the project sites, interviews/consultation and focus-group discussions with officials or representatives from project stakeholders such as the regencies, cities and municipal governments, villages, and district/field offices of national government agencies, including the Ministry of Marine Affairs and Fisheries (MMAF), National Development Planning Agency (BAPPENAS), Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah or BAPPEDA).
16. The IEE has been prepared based on the Environmental Assessment and Review Framework (EARF) developed by the ADB and endorsed by Government of Indonesia (GOI). The IEE also follows the guidelines of the Ministry of Environment and Forest (MoEF) and in accordance with the Safeguard Policy Statement 2009 (SPS 2009) of ADB and will be disclosed in the websites of the ADB and the implementing agencies. This document shall serve as the base

of environmental assessment of the proposed sub-project to be implemented by the executing agency and guideline for environmental management activities on-site.

17. The IEE report aims to provide guidance on safeguard screening, assessment, institutional arrangement and process to be followed for components of the project, where design takes place after Bappenas ICCTF approval. This report also fulfils the requirements of IEE under the provisions of the Project Implementation Consultant.

C. Scope of this report

18. The scope of this report and the subsequent IEE is specific to the sub-project. It does not provide any assessment for any other/future developments or activities at the location or anywhere else within other project areas. Should any further development be planned as result of either this Project or other related work, additional planning

and assessment to the requirements of the Government of Indonesia (GOI) must be carried out specifically in relation to that proposed development.

D. Structure of the Report

19. The IEE Outline consists of:

- Policy , Legal and Administrative Framework
- Description of the Project
- Description of the Environment (Baseline)
- Anticipated Environmental Impacts and Mitigation Measures
- Information Disclosure, Consultation and Participation
- Analysis of Alternatives
- Information Disclosure, Consultation and Participation
- Grievance Redress Mechanism
- Environmental Management Plan
- Conclusion and Recommendation

2

POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

ADB Safeguard Policy Statement

20. This sector grant 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.
21. **The Project** is categorized as Category B for Environment under ADB's Safeguard Policy Statement (SPS) 2009, due to the project's emphasis on conservation of marine and coastal resources and the localized impacts for which mitigation measures can be readily designed and implemented. This is equivalent to Indonesia's requirement for Environment Management Effort/ Environmental Monitoring Efforts (UKL-UPL). This rating will be enforced through selection criteria of subprojects to ensure that no subproject interventions under any component will exceed this rating. The purpose of this IEE is to provide sufficient information and analyze impacts of the proposed subproject to the existing environmental

elements. In addition, this document also provides mitigation plan to minimize negative environmental impacts of the subproject.

Environmental Regulatory Framework in Indonesia

22. **Government of Indonesia.** The policy, legal, and administrative frameworks relevant is Minister Regulation of Forest and Environment, No. 4 year 2021 concerning The list of business and/ or activities which mandatory to have Environmental Impact Assessment, Environmental Management and Environmental Monitoring or Statement of Readiness to Monitor and Manage the environmental
23. The Government Regulation No. 22 Year 2021 concerning Implementation of Environmental Protection and Management
24. The Omnibus law in Job creation (Law No, 11/2020) required a permit to utilize the protected area, and have to conduct the impact assessment. The Act also

stated the Coastal and small islands Ecosystem is coastal area and small island with uniqueness and being conserved to sustainable coastal and small islands management. Coastal ecosystem consists of mangrove, seagrass and coral reef. Then, the protected and conservation means to protect the ecosystem from adverse impact of the environmental and social elements.

25. The supporting letter from Regional Secretary of the Province of Bali No., B.22.523.32/1315/UPTD.KKPB/Diskelkan dated 13 September 2021 agreed on the utilization of local government property land to build the subproject infrastructure of COREMAP CTI Project.

Table 1 Comparison between ADB and Indonesian Environmental Safeguard System

ADB Project Categories	Indonesian Project Categories (AMDAL system)
<p>Category A: Projects with potential for significant adverse environmental impacts that are irreversible, diverse, or unprecedented. Therefore, requiring an environmental impact assessment (EIA) including environmental management plan (EMP) is required.</p>	<p>AMDAL: Projects with potential for substantial impacts on the environment requiring Environmental Impact Analysis or AMDAL report and environmental management and monitoring plan (RKL-RPL)</p> <p>The criteria and scale of the project that trigger an Amdal are defined in the MOEF regulation No. P.4/2021.</p>
<p>Category B: Projects judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for category A projects, and requiring an initial environmental examination (IEE) including environmental management plan (EMP).</p>	<p>UKL-UPL: Projects not required to have AMDAL are obliged to have Environmental Management Efforts/Plan (UKL) and Environmental Monitoring Efforts/Plan (UPL) as stipulated in the MOEF regulation No. P.4/2021.</p>
<p>Category C: Projects unlikely to have adverse environmental impacts. No EIA and IEE required, but environmental implication of the project need to be reviewed.</p>	<p>SPPL: Projects that do not require AMDAL or UKL-UPL are obliged to submit a 'statement of management and environmental monitoring ability' or SPPL</p>

26. **Relevant International Agreement** - The Government of Indonesia is signatory to a number of international conventions, treaties, agreements and Memorandum of Understanding (MOU's) that relate to terrestrial, coastal and marine species habitats and environmental issues which signify the interest in the protection of global and Pacific environments for the benefit of future generations.
27. **The international instrument on Water quality and Marine** – The Government of Indonesia is signatory to a United Nation Convention on the Law of Sea (UNCLOS 1982). This instrument govern extensive marine issues including maritime zone, marine pollution, Research, the protection and preservation of the marine environment, and dispute resolution on the maritime delimitation.

ADB safeguard policy

28. The ADB's Safeguard Policy Statement 2009 (SPS) has the objectives to (i) avoid adverse impacts of projects on the environment and affected people; (ii) where possible; minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and (iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.
29. Safeguard policies are the cornerstone of the assistance provided to developing countries by their development partners. The safeguards included within the ADB's policy relate to the environment, involuntary resettlement, and indigenous peoples. The environment safeguard requires due diligence which entails addressing environmental concerns, if any, of a proposed activity in the initial stages of project preparation.
30. A category B determination of a project is judged to have some adverse environmental impacts all of which are of low significance and through due diligence manageable with no long term significant effect on the environment.

3

DESCRIPTION OF THE SUBPROJECT

Project Location Plan

31. **ed for project.** Low coastal community awareness and inadequate institutional capacity to manage land and marine-based pollution, the 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.
32. **Location.** The Project will be implemented in areas of three districts in two provinces in Bali and West Nusa Tenggara. Additional project activities will focus on MPA management effectiveness at three national MPAs: KKPD Nusa Penida in District Klungkung, Province of Bali and Gili Balu in West Sumbawa District and Gili Matra in North Lombok District of West Nusa Tenggara province.
33. **Magnitude of Operation.** The ADB-financed portion of the project would cover (MPAs) in Province Bali and West

Nusa Tenggara (NTB) as Indonesia Super Premium Tourism Destination.

Proposed Main and Supporting Activities

34. Description of Project Components. The Project has four major components or outputs:
 - Output 1: Coral reef management and institutions strengthened. This component will focus on strengthening and institutionalizing capacities developed under COREMAP II.
 - Output 2: Ecosystem based resources management developed. This component will strengthen MPA management effectiveness and biodiversity conservation.
 - Output 3: Sustainable marine-based livelihoods improved. This component will promote sustainable livelihoods and income-generating infrastructure.
 - Output 4: Project coordination and management.
35. The Nusa Penida is one of the tourist attractions visited by many tourists while in Bali. This island offering a lot of amazing natural beauty. One of the

things that can be done in Nusa Penida apart from enjoying the beauty of the beaches is diving or snorkeling to see manta ray and sunfish (mola-mola). Because Nusa Penida is one of the most crowded tourist attractions and must be visited when visiting Bali, a tourist information center must be built to provide deeper information about Nusa Penida so that it can provide to visitors.

36. Various types of impacts are predicted to arise as a result of the planned subproject infrastructure activities development. Environmental Management and Monitoring efforts that need to be done in an effort to increase the positive impact and minimize the negative impacts that will occur can be described in this document.
37. The biodiversity and fishery resource is under threat and some coral reefs have been damaged from destructive fishing practices. Overfishing of some species has placed them in an endangered

category and the government has taken steps to carry out surveys and draft a management plan. This national MPA requires establishment of biodiversity inventory and monitoring, stock assessments and monitoring, management support, capacity building, awareness raising and empowerment of local people to co-manage the resource and establish environmentally responsible tourism.

38. The outcome of the subproject is to enhance management effectiveness of Marine Protected Area (MPA) Nusa Penida, achieving the blue level status. The main outputs are: (i) management plan implemented; (ii) biodiversity conservation and ecosystem-based fisheries management enhanced; (iii) basic infrastructure for management operations provided; and (iv) financial sustainability and livelihoods enhanced
39. The basic infrastructures of the subproject in Nusa Penida, Bali are listed in Table 2 below:

Table 2 interventions Subproject intervention in Nusa Penida

Infrastructure	No, of units	Location
Information Centre	1	Dinas KP, Batununggul
Information signage	1	Dinas KP, Batununggul
Security and Remote Surveillance Post	1	Dinas KP, Batununggul
Mangrove tracking	1	Ceningan Harbour complex
Bird Watching	1	Ceningan Harbour complex

Source: COREMAP CTI CTI and PT. TIA , 2020

40. **Project Phase.** The Project is proposed to be implemented within two years from 2020 to 2022, with the Directorate of Marine Fisheries Bappenas, and Indonesia Climate Change Trust Fund (ICCTF) as Executing Agency and Implementing Agency (EA/IA).

41. Table below presents the work volume include quarry sources will use in the subproject infrastructure as follow:

Table 3 Work Volume of subproject components

No	Infrastructure	Work volume		
		Quarry resources	Wood*	Other material
1	Information Centre	52,5 m ³	105 m ³	
2	Surveillance post	155 m ³	1,456 m ³	
3	Mangrove Tracking and Bird watching	622 m ³	5,083 m ³	

Note: * The wood is certified yellow balau wood (Bangkirai-local)

42. **Implementation Schedule.** The schedule of implementation for subproject infrastructures are shown in Table 4 below.

Table 4 Schedule of Implementation

Type of Interventions	Unit	Physical Target	Implementation Schedule				
			Q-2 2021	Q-3 2021	Q-4 2021	Q-1 2022	Q-2 2022
Detailed Engineering Design							
Information Centre	1	Unit					
Information Signage	1	sets					
Security and Remote Surveillance Post	1	Unit					
Mangrove tracking	1	Unit					
Bird Watching	1	Unit					

4

DESCRIPTION OF THE ENVIRONMENT (BASELINE DATA)

Physical Environment

43. **Climate.** Climate condition in Nusa Penida is dry season in April to October and rainy season in October to April, with temperature ranging from 27° C to 39°C and the average rainfall is 1562,67mm per year.
44. **Wind-wave Climate.** The waters of Nusa Penida include the Alur Laut Kepulauan Indonesia (ALKI – Indonesian Archipelago Sea Channel). In 2014, The condition is influenced by Indonesian Throughflow (ITF) currents from the Pacific Ocean to the Indian Ocean. This condition affects the distribution of plankton, fish abundance, and the structure of coral reef communities. The waters of Nusa Penida are known to have quite strong currents. The water temperature in Nusa Penida ranges from 25°C-28°C.
45. **Geography and Geology.** Nusa Penida District is part of Klungkung Regency, Bali Province. This district has an area about 20,300 hectares consisting of 3 main islands, namely Nusa Penida, Nusa

Ceningan and Nusa Lembongan. Nusa Penida District has a coastline about 70 km out of 90 km owned by Klungkung Regency. The boundary coordinates of the MPA Nusa Penida are:

Batu Nunggal : 115°34'37.10" East longitude – 8°39'14.43" South latitude.

Batu Abah : 115°39'41.36" East longitude – 8°46'25.54" South latitude.

Sekartaji : 115°35'32.37" East longitude – 8°51'39.59" South latitude.

Sakti : 115°26'6.53" East longitude – 8°45'46.33" South latitude.

Lembongan : 115°24'13.28" East longitude – 8°41'5.82" South latitude.

Jungut Batu : 115°26'42.52" East longitude – 8°38'34.63" South latitude.

46. **Topography,** landscape of Nusa Penida is sloping up to hills along the coastal villages in northern area of the island with ground slope is 0-3% from the height 0-268m above the sea level; meanwhile in the southern area, the ground slope is 3-8%, and in the Nusa Ceningan Island where the mangrove tracking and bird tower will be built, the ground slope is 8 – 30%.

47. **Air Quality.** Air Quality Index (AQI) Nusa Penida, Klungkung is 38 (good), pollutant in PM_{2,5} is 18 μ g/m³, and PM₁₀ is 11 μ g/m³, and humidity is 79% (IQAir, 2022)
48. **Water quality.** The salinity level in Nusa Penida is 32.75psu – 34 psu (COREMAP-CTI – GP7, 2022). Source of environmental water from spring, ground water and has marine waters with biodiversity. The environmental water quality is influential on environmental sustainability and tourism in Nusa Penida Tourism Area. Influential parameter the index of sea water pollution, well water and spring water in Nusa Penida are turbidity parameter, free ammonia (NH₃-N) dissolved residue (TDS) and total coliform, respectively.
49. **Transportation.** The MPA Nusa Penida is located in the Nusa Penida district and is relatively easy to reach. This archipelago district is located no more than 15 nautical miles from the main island of Bali. MPA Nusa Penida can be reached from 5 places, namely Sanur, Bena Harbor, Kusamba, Tanjung Bena and Padang Bai. There are many transportation facilities including public transportation that take passengers to and from the Nusa Penida every day in the morning, afternoon and evening. MPA Nusa Penida can be reached in about 40 minutes by using a double engine speedboat of 85 PK. There is a ferry port in Nusa Penida where the Roro ship from Padang Bai (Karangasem) rests.

Ecological Resources

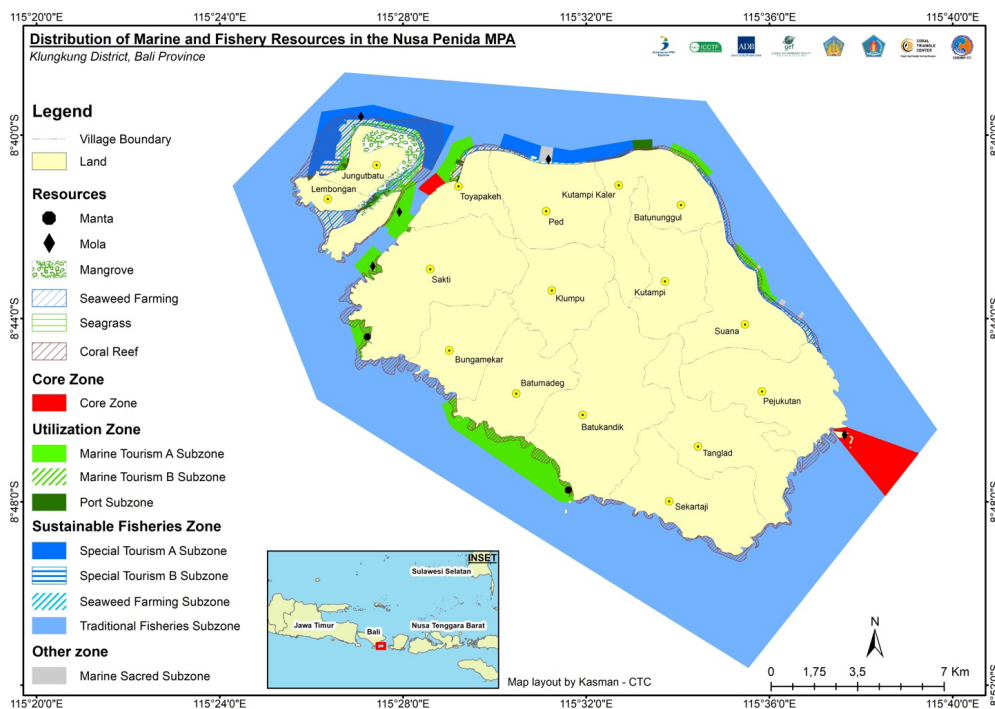


Figure 1 Distribution of Marine and Fisheries resources in the Nusa Penida MPA

50. The figure 1 above is Marine Protected Area (MPA) Nusa Penida refer to Directorate General Decree No, 24 Year 2014 and Regulation of Head of District of Klungkung Regency No. 12 Year 2010.
51. In period June – December 2021, CTC and TIA as the implementer of initiated the coral reef and mangrove rehabilitation program by holding coordination meetings with the local government from the provincial to district levels which aimed to gather various inputs, strategic issues and directions from relevant stakeholders. Figure 1. The Map of distribution of marine and fishery resources in the Nusa Penida MPA.
52. Marine Biodiversity. Nusa Penida district which has three main islands, namely Nusa Penida, Nusa Ceningan and Nusa Lembongan, are surrounded by fringing reefs with an area of 1.600 hectares.
53. CTC started identifying coral reef rehabilitation sites by conducting a coral health survey at the Nusa Penida MPA on August 9-15, 2021. There was monitoring of coral reef health at 14 survey points representing each zoning and the division of observers.
54. The survey results indicate 43% of the average live hard coral cover in the Nusa Penida MPA or moderate category. This value increased by 9.83% compared to the average value of live hard coral cover in 2020. As additional information, CTC has been monitoring coral health annually at the Nusa Penida MPA since 2010.
55. CTC started identifying the location of mangrove rehabilitation by carrying out a baseline survey on 5-9 July 2021, on two main islands which become the habitat for mangrove forests in the Nusa Penida MPA, namely on Nusa Ceningan Island and Nusa Lembongan Island. Based on satellite data, the total mangrove area reaches 217.5 ha on Lembongan Island and 9.5 ha on Ceningan Island. The widest habitat of natural (not planted) mangroves is in Jungut Batu Village.
56. Data were collected in 21 plots spread over the Nusa Ceningan and Nusa Lembongan which is divided into two different administrative areas, namely Lembongan Village and Jungut Batu Village. Although the mangrove forest in Nusa Ceningan is not as wide as in Nusa Lembongan, we collected data there to see the general condition and profile of its mangrove forest which is a potential location for the mangrove track and bird watching towers.
57. Domestic waste also (plastic baskets, mineral bottles, sacks, ropes used for seaweed cultivation, etc.) threatens to damage mangroves in Nusa Lembongan and Nusa Ceningan. But it has been still relatively small. Another potential cause of mangrove damage tends to come mostly from land rather than the sea. These causes include changes in land-use

patterns for other purposes, especially for mangrove areas close to roads, such as tourism facilities and houses built by the private sector and the government. The survey team also collected data for the mangrove canopy analysis using *hemispherical photography* method which developed by LIPI. The method used in this research is descriptive. According to Nazir (2005), descriptive research is research that aims to describe a situation in a certain area or conditions in the present. Data were collected through plot sampling (Mueller-Dumbois and Ellenberg, 1974) and determination of plot locations was carried out by purposive sampling method. Overall, the method of collecting mangrove data in the study refers to the Guidebook for Monitoring Mangrove Community Structure in Indonesia-LIPI (Dharmawan et al. 2020). Based on the analysis, the mangroves in Nusa Ceningan have the lowest average canopy cover value of 73.6% which is in the medium category. Meanwhile, the mangroves in Nusa Lembongan overlooking the strait have a higher average value of 78.3% and are in a good category. The average value of canopy cover in the mangrove forest of Jungut Batu Village has the highest value

among other observation points, which is 80.1% and is in a good category as shown in the table below. Based on the survey, field observations and discussions with the community during a baseline survey, massive damage to mangrove forests was only found on Nusa Ceningan Island where the Klungkung Regency Government converted the forest into a port and pond construction site. While in other locations, such as in Lembongan and Jungut Batu villages, most of the damage to mangroves occurred due to land conversion for roads, plantations, salt ponds, and public facilities (garbage disposal sites) but still on a small scale. We identified mangrove rehabilitation sites in general based on the analysis result of the mangrove canopy where the location with an average coverage of 64.2% in plots A1, A2, and A3 located in Ceningan was the main target locations for rehabilitation. In addition, others are in Lembongan at the survey point code C1 with an average cover value of 56.7% and in Jungut Batu at the survey point code G1 with 69.5% coverage. Details and a summary of the potential locations for mangrove rehabilitation are in the following table below:

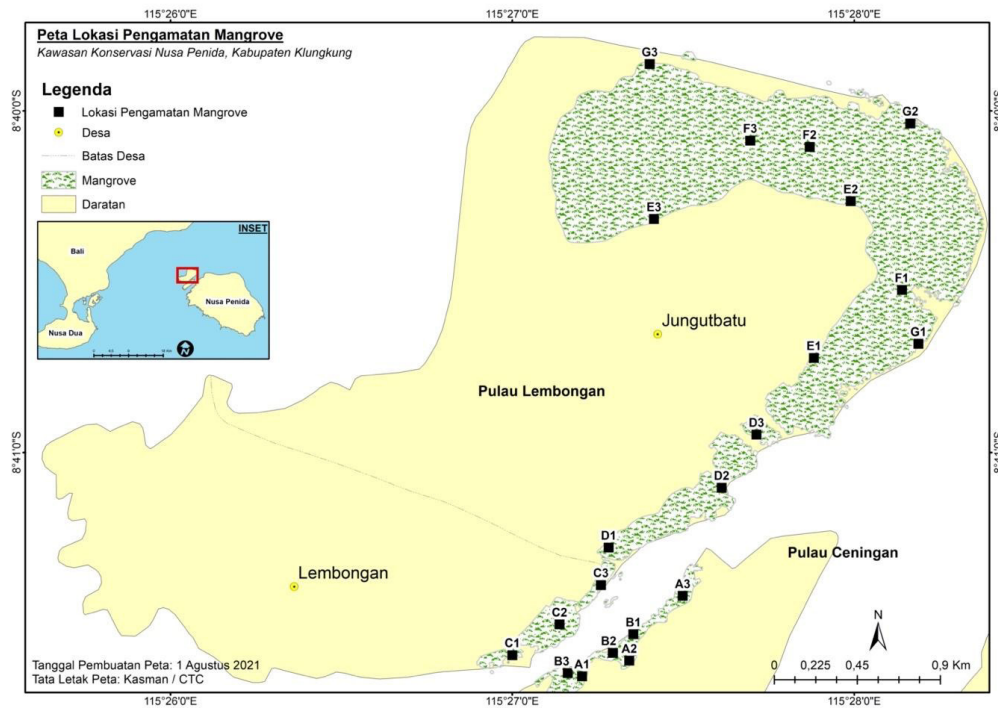
Table 5 Survey location and mangrove species/genus to plant

No.	Survey Point Codes	Locations (Figure 29)	Mangrove Species/Genus to Plant
1	A1, A2, A3	Ceningan	<i>Rhizophora, Sonneratia,</i>
2	C1	Lembongan	<i>Rhizophora, Xylocarpus, Calophyllum inophyllum, Avicennia lanata,</i>
3	G1	Jungut Batu	<i>Xylocarpus, Calophyllum inophyllum, Avicennia lanata,</i>

Source: Coral Triangle Center (CTC), 2021

58. We will carry out species selection in the in-situ nursery process for several species found in Lembongan and Ceningan. As for species enrichment, we will try to bring in seeds from several species which according to previous research were found in Nusa Lembongan and Nusa Ceningan but we did not find during the survey in July 2021.

Figure 2 Location for mangrove planting in Nusa Lembongan - Nusa Ceningan



Source: Coral Triangle Centre (CTC), 2021

59. In the waters of Nusa Penida there are 567 species of fish. Groups of fish found in the waters of Nusa Penida are reef fish, pelagic fish and bottom fish. Marine mammals such as whales and dolphins also sometimes cross the ocean of Nusa Penida, even in the west of Nusa Lembongan, dugongs appear several times to the surface. In the ocean of Nusa Penida, there are at least 2 types of turtles, namely the green turtle and the Hawksbill turtle. Several beaches in Nusa Lembongan and Nusa Ceningan are suspected of being the location for turtles to lay eggs.
60. Deep sea fish such as Mola-Mola (sunfish) appear in the waters of Nusa Penida around July-September every year. Several locations in Nusa Penida ocean are cleaning stations for Mola Mola fish, such as Crystal Bay (Sick Village), Ceningan wall (Lembongan Village), Batu Abah (Pejukutan Village), and Sental (Ped Village). These locations become favorite dive sites when Mola-Mola arrives. The waters of Nusa Penida are also home to manta rays. This fish is often found in groups of 3-4 fishes Unlike sunfish, which has a season of emergence, manta rays can be found all year round in the waters of Nusa Penida. The location where manta rays are usually found is known as Manta Point. This dive site is located around Batu Lumbung (Batu Kandik Village).

61. **Climate Change.** Coral reef are fragile ecosystem and highly vulnerable to overfishing, destructive fishing practices, pollution, and natural factors. Climate change is one of the natural factors that impacted coral reefs. Bali is one of the popular area in Indonesia that part of Coral Triangle Initiative. The study in Nusa Penida confirms the difference about level of coral reefs destruction in time of observation. The data was analyzed by LANDSAT 7+ and LANDSAT 8 OLI.

62. In December 2021, Nusa Penida, Bali just hit by flood due to the heavy rain. The flood destroyed various infrastructure in the tourism area in crystal bay, Village of Suana, Village of Ped which are the area of the Project COREMAP CTI in Nusa Penida.

Social

63. **Social Economic Resources.** In Nusa Penida district, there are 5 high schools 10 junior high schools and 52 elementary schools. Currently, there is a distant class university which is being carried out at the Nusa Penida district office to accommodate Nusa Penida high school graduates to reach the undergraduate level of education.

64. The main livelihoods of the people in Nusa Penida are seaweed farming, marine tourism, fisheries and animal husbandry. Other livelihoods such as

agriculture, trade, as well as the private sector and government. There are about 100 fishermen in Nusa Penida district. The villages with the highest number of fishermen are Batununggul and Suana. Fishing locations by fishermen are generally at a depth of 40 - 200 meters and the furthest distance is about 5 miles from the mainland, even to Lombok. The catch of fishermen in general is tuna (*Thunus albacarez*), languan (Giant Trevally/Languan/*Caranx ignobilis*), kokak/grouper (Serranidae), shark (*charcharhinus melanopterus*), skipjack (*Katsuwonus pelamis*) and others. The fishing area for export fish such as kokak is in the East of Nusa Penida and South of Nusa Penida, while the location for catching fish for own consumption such as tuna is in the North and West of Nusa Penida.

65. The marine biodiversity of Nusa Penida has brought economic benefits and environmental services to Nusa Penida District, Klungkung Regency and Bali Province. Coral reefs, mangroves, manta rays, sunfish, sea turtles, dolphins, sharks and whales is an attractive attraction for marine tourism. There are more than 20 dive sites in the waters of Nusa Penida with several favorite dive sites such as Crystal Bay, Manta Point, Ceningan Wall, Blue Corner, SD-Sental, Mangrove-Sakenan, Gemat Bay, and Batu Abah. There are 3 major cruises in Nusa Penida, each of which has a

pontoon such as Bali Hai, Bounty and Quick-Silver, which brings an average of 200 tourists per day (CTC, Resources use monitoring report, 2018). Other marine tourism in Nusa Penida are surfing, snorkeling, sailing, fishing, flying fish, Para-Sailing, kayaking and sea-walker. There are 6 dive base operators in Nusa Lembongan and Nusa Penida. It is estimated that around 200,000 tourists come to visit Nusa Penida every year. The peak number of visits to Nusa Penida (peak-season) is August - September, while the lowest month (low-season) is January - February.

66. **Social Cultural Resources.** The majority of the people of Nusa Penida are Balinese Hindus. There is Muslim villages from 16 villages, namely Toyapakeh village. The Toyapakeh people used to have their ancestors from Java and Lombok. By the 2020 the total population in Nusa Penida is 57.370 people. (Nusa Penda dalam Angka, 2021). The population is around 50,000 people who inhabit 3 islands in the Nusa Penida sub-district.
67. There are several large temples in Nusa Penida such as Batu Medau Temple and Giri Putri Temple. In addition, there is a central temple on the island of Bali located in Nusa Penida, namely the Sad-Khayangan Ped temple. The people of Nusa Penida carry out *Nyepi Segara* (traditional custom event) every year to respect the sea and give the sea a

chance to rest. *Nyepi Segara* is also a form of implementing the teachings of *Tri Hita Karana* (god), especially maintaining a balance between humans and nature.

68. **Customary** rules in Nusa Penida are set forth in awig-awig (customary law) resulting from a mutual agreement (pararem). In Lembongan Village, there are awig-awig related to the coast and the sea such as the prohibition of mangrove logging and sea sand extraction.
69. **Community Health.** Health Center (Puskesmas) or sub-health centers (Pustu) are very vital health facilities so that these facilities are spread evenly in each village as well as Posyandu. The number of puskesmas/pustu is one facility in each village, while the number of posyandu varies the most in Sakti Village and Ped Village as many as 10 posyandu.
70. **Community Security.** No number of security breaches were reported to the police in 2021. However, the cases of COVID-19 in Bali and especially Nusa Penida led to various control measures including prevention.
71. **Gender Context.** Based on the BPS, 2020, the population of subdistrict Nusa Penida district in 2020 is estimated to be around 57,370 people, consisting of a male population of 29,036 people and a female population of 28,334 people.

5

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

72. **Screening and Categorization of subproject components.** Table 5 presents prediction and assessment of the project likely positive and negative direct and indirect impact, identifies mitigation measure and any residual negative impact that cannot be mitigated.

Table 6 Screening subproject components

Component	Impact	Mitigation	Residual impact
Information center	<p><i>Positive.</i> The center will provide various information concerning interesting attraction around Nusa Penida including to visit sunfish</p> <p><i>Negative.</i> Mass tourism might be occurred, especially to visit <i>sunfish</i> in the Nusa penida</p>	The tourism management system should be applied to balance the total visitor and the carrying capacity	The existence of charismatic species may be more exploited
Surveillance post	<p><i>Positive.</i> The Community surveillance group will be facilitated and extend monitoring area.</p> <p><i>Negative.</i> Need sustainable financing to support the surveillance patrol activities</p>	The management authority, UPTD Nusa Penida should develop innovative sustainable financing for surveillance patrol activities	To ensure the Continuity of the surveillance patrol activities under the proper SOP of the sea patrol
Tracking mangrove	<p>Positive. To introduce the mangrove ecosystem to community and build awareness to protect the ecosystem</p> <p>Negative. Increasing littering around the infrastructure</p>	the management authority, UPTD Nusa Penida collaborate with Nusa Ceningan's community to manage the solid waste and control the visitor to keep the area clean	To ensure the environmental around the area is protected
Bird watching tower	<p>Positive. To introduce the bird species around the Nusa Ceningan and build awareness to conserve the habitat</p> <p>Negative increasing littering around the infrastructure</p>	the management authority, UPTD Nusa Penida collaborate with Nusa Ceningan's community to manage the solid waste and control the visitor to keep the area clean	To ensure the environmental around the area is protected

The ADB Rapid Environmental Assessment (REA) checklists for screening process, as applied to the Nusa MPA Effectiveness Subproject interventions as Attachment 2. The initial category/type of the subproject components, under ADB SPS 2009 and the Indonesian AMDAL regulations, just recent Minister Regulation of Environment and Forestry No. 4 dated, April 1, 2021.

73. The Consultant Team for Nusa Penida, PT TIA and CTC have been advised by the Environment and Forest Agency, and Marine and Fisheries Agency and Local Government of Province of Bali and Klungkung District to obtain the statement of readiness to manage and monitor the environment (SPPL). Currently, the Consultants is finishing the revised Detail Engineering Design (DED) for Information center and Surveillance Post.

Table 7 ADB category Environmental Approval

Subproject Intervention	ADB Category	Environmental Approval
Information Center Surveillance Post Tracking mangrove Bird Watching	B – IEE needed (integrated in this IEE)	SPPL (Statement of Readiness to manage and monitor Environment)

Table 8 Matrix of Environmental Management and Mitigation Efforts of the subproject interventions

No.	Impact Source	Types of Impacts	Environment management efforts			Mitigation Cost (IDR)	Environment management institutions
			Magnitude of Impact	Mitigation Effort	Location		
1.	Socialization of activity plans	The occurrence of negative public perceptions.	<p>Pre-Construction</p> <p>Medium, but after getting an explanation about the process of implementation of activities that will be carried out later and the handling that has been prepared to minimize the impact that will occur is expected the public began to understand and welcome the plan of this development</p>	<ul style="list-style-type: none"> Conduct direct socialization to the community to provide clear and transparent information related to the benefits, positive impacts and negative impacts of the project. Announce planned activities through print and electronic media. Put up a noticeboard at the location of the activity plan so that the public is aware of the development activities of Information Center Create harmonious social interactions with the community and groups that are active around the project site as well as participate in various social activities. Cooperation with Nusa Penida sub-district officials in dealing with social problems arising from project activities. 	Around the project area	Every day during pre-construction activities at the beginning and after the completion of DED ahead of construction	<p>A. Executor: CTC and PT TIA (Project Implementation Partner)</p> <p>B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p>
2	Land clearing for the mangrove tracking and bird watching tower	The occurrence of negative impact on the existence of mangrove ecosystem	<p>Medium, but to ensure the contractor will keep the existence of mangrove tree</p>	<ul style="list-style-type: none"> Conduct briefing to the contractor concerning clear procedure (SOP) on construct the pile for mangrove tracking as refer to The Management Plan and Zonation for MPA Nusa Penida, Klungkung District, Province of Bali (Marine and Fisheries Agency Bali, 2017) Put up a noticeboard at the location of the activity plan so that the public is aware of the development activities Create harmonious social interactions with the community and groups that are active around the project site as well as participate in various social activities. Cooperation with Nusa Penida sub-district officials in dealing with social problems arising from project activities. 	Around the project area	Once a week during construction phase	<p>Executor: CTC and PT TIA (Project Implementation Partner)</p> <p>B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p>
			Construction				

No.	Impact Source	Types of Impacts	Magnitude of Impact	Environment management efforts		Environment management institutions	
				Mitigation Effort	Location	Period	Mitigation Cost (IDR)
1.	Mobilization of equipment and materials, construction of physical buildings and demobilization of equipment and building materials.	<ul style="list-style-type: none"> Decreased air quality and noise 	<ul style="list-style-type: none"> small, impact will occur whenever there are activities (at any time) Small, because the volume of movement of project vehicles for the purposes of mobilization of equipment, and materials including disposal material in construction activities is carried out gradually and supervise this activity so that the use of vehicles with heavy loads can be selected. 	<ul style="list-style-type: none"> Material carrier vehicles use covers to reduce dust. Watering all the way in front of the project site and around the site periodically. Handing out masks to employees and the community in the vicinity of the activity site. Provide briefings and early warning about the symptoms of deterioration in air quality. Health check-up workers to the doctor or hospital Place clear signs to indicate the exit and entrance of the activity site. Arrangement of the operational schedule of material transport vehicles so as not to coincide with the peak time of general traffic. Regulation of material and material transport vehicle types Installation of warning signs for maximum load weight Socialize to the driver to always be careful, especially when crossing the exits and entrances of the activity site, and not parking carelessly Make road repairs in case of damage to the road traversed by vehicles transporting materials Make sure there is no disposal during construction and post construction 	The roads traversed by vehicles transporting equipment and materials around the project site.	Every day during construction activities, especially in the implementation of mobilization of equipment and materials.	<p>15,000,000</p> <p>A. Executor: CTC and TIA (Project Implementation Partner)</p> <p>B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office and Klungkung Regency Health Office.</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office and Klungkung Regency Health Office. DLH of Bali Province and Klungkung Regency Health Office</p> <p>15,000,000</p>

No.	Impact Source	Types of Impacts	Magnitude of Impact	Environment management efforts		Environment management institutions	
				Mitigation Effort	Location	Period	Mitigation Cost (IDR)
2.	Base camp operations, equipment and materials warehouses, and physical development.	Occurrence of aesthetic decrease	Medium, due to the plan to make emergency buildings that serve as a support for activities at the construction stage such as base camp, material warehouse, and management office if not managed properly can cause slums that decrease aesthetics.	<input type="checkbox"/> Placing basecamp, warehouse materials, equipment, and waste materials away from settlements and social activities. The construction worker will clean up the area at the end of the every stage of construction work <input type="checkbox"/> The branch and stick of the wood will be cleaned it up during the construction work and no mangrove trees will be cutted of during the construction, as part of the mitigation, the CTC will conduct mangrove rehabilitation action and planting 20,000 mangrove seed during the project implementation <input type="checkbox"/> Take the results of logging trees and roots as soon as possible to the recommended dump. <input type="checkbox"/> Provide good toilet facilities for male and female <input type="checkbox"/> The mangrove track will be built along the groundwater that would no sedimentation identified <input type="checkbox"/> Giving direction to the workers so they always pay attention to the cleanliness and aesthetics of the worksite environment <input type="checkbox"/> Technically manage all primary impacts that are technically inflicted as described on each impact. <input type="checkbox"/> Manage using a socioeconomic approach to all primary socioeconomic impacts as outlined in each impact. <input type="checkbox"/> Conducting ongoing socialization of activity plans, including Grievance Redress Mechanism (GRM) which will be managed by the Project Implementation Partner <input type="checkbox"/> The initiator takes a social approach to communities that may be directly affected	Across the project site area, equipment and materials warehouse, and base camp area.	Every day during construction activities	A. Executor: Initiator/organizer and contractor executing the activity. B. Supervisor: DLH Bali Province, Health Office and Klungkung District HygieneOffice, Nusa Penida Sub-District C. Report recipients: DLH Bali Province, Health Office and Klungkung District Hygiene Office, Nusa Penida
4.	Secondary impact if the primary impact is not handled properly	The occurrence of negative public perceptions	Medium, depending on the management and results of primary impact management that occurs.	<input type="checkbox"/> Technically manage all primary impacts that are technically inflicted as described on each impact. <input type="checkbox"/> Manage using a socioeconomic approach to all primary socioeconomic impacts as outlined in each impact. <input type="checkbox"/> Conducting ongoing socialization of activity plans, including Grievance Redress Mechanism (GRM) which will be managed by the Project Implementation Partner <input type="checkbox"/> The initiator takes a social approach to communities that may be directly affected	Around the project area	Conducted daily during construction activities	A. Executor Initiator/organizer of activities and contractors B. supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District. C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office, Nusa Penida
Operational Phase							

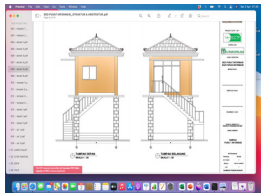
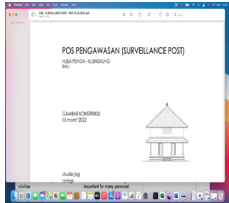

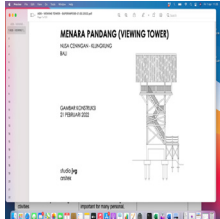
No.	Impact Source	Types of Impacts	Magnitude of Impact	Environment management efforts		Mitigation Cost (IDR)	Environment management institutions
				Mitigation Effort	Location		
1.	Operational of Information Center	The occurrence of negative public perceptions	Medium, regarding their place to do their current activities so as not to change later after the construction of the Information Center	<input type="checkbox"/> Conduct inspection of Information Center building to comply with the planned DED. <input type="checkbox"/> Cleaning or returning the land used for base camp, where the material hoarding as it was originally. <input type="checkbox"/> The mangrove tracking and bird watching will be part of the Ceningan Ecotourism Park managed by the Government of The Klungkung District <input type="checkbox"/> Provide sufficient maintenance funds on a regular basis so that in the event of immediate damage can be addressed / repaired by GRM which will be managed by Project Implementation Partner	Around the project area	every day during operational / post-construction activities and incidental in case of damage to the Information Center for a year	A. Executor: Organizer. B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District C. Report Recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida

6

ANALYSIS OF ALTERNATIVE

74. The Table 9 presents the examination analysis of alternative to the proposed project as follow:

Table 9 Analysis of Alternative of the subproject infrastructure

Item	No project	With project	Design of the Subproject infrastructure
Information center	As a well-known tourists destination, the potential coastal resources would not being aware by the visitors including mangrove, sunfish (mola-mola), birds species in MPA Nusa Penida	The information center will provide various documentation material regarding the wonderful natural resources Nusa Penida, including conservation and rehabilitation activities which is implementing by the community	
Sureveillance post	There is no surveillance and monitoring on illegal activities in MPA Nusa Penida activities including marine pollution and pollution of the plastic debris	The Pokmaswas will oversee community activities on the sea and coastal area in MPA Nusa Penida	
Tracking mangrove	There is no facilities to enjoy the beauty of mangrove ecosystem and there is no added value for the visitor	Improve facilities on the tourism attraction in the MPA area which have value on natural conservation and economy of community	
Bird watching	There is no facilities to enjoy the beauty of biodiversity of bird and also to oversee the community on the illegal activities	It provides an intimate connection between people and their natural environment. Birdwatching is important for many personal, societal and conservation reasons.	

7

INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

75. **Consultation to date.** The consultant team conducted a series of public consultation to refine the project concept and design, selection criteria used, and sub-project component coverage. Series public consultant have been conducted with authorize agencies and representative community during June – December 2021. The table 8 shows the list of consultation event and number of participation with sex disaggregate data.

Table 10 List of public consultation

No	Activities	Issue	Date	Participants		
				M	F	Total
1	Coordination Meeting with Stakeholders of COREMAP-CTI Package 4 Nusa Penida Project and Community Meeting for Coral and Mangrove Rehabilitation Program in Nusa Penida	To determine location for subproject infrastructure in Nusa Penida	June 30 and July 2-3, 2021	77	23	100
2	Technical Guidance and Evaluation of EVIKA KK Nusa Penida	To introduce the monitoring tool for coastal ecosystem to the community	July 26-28, 2021	20	4	24
3	Community Meeting and Dissemination of Baseline Survey Results of Mangrove Ecosystem and Seaweed Cultivation in Nusa Penida Conservation Area	Building awareness to protect mangrove ecosystem and seaweed cultivation	August 30-31, 2021	64	18	82
4	Meeting with KWT Segara Caksu Lembongan	Disseminate potential livelihood activities for Community in Nusa Lembongan	September 2, 2021	6	10	16

5	Training on Resource Use Monitoring (RUM) in the Nusa Penida Conservation Area for the Gili Buana Community Surveillance Group (Pokmaswas) Lembongan Village, Klungkung Regency, Bali Province	Disseminate procedure of surveillance activities in Nusa Penida waters	September 7 – 10, 2021	13	0	13
6	COREMAP CTI-ADB Nusa Penida Monitoring and Evaluation Site Review	Coordination with customary group on the utilization of area for Surveillance Post in Batu Nunggul, Nusa Penida	September 10, 2021	20	9	29
7	Community Meeting and Socialization of Monitoring Post Development in Batununggul Village	Building agreement to move the boat park during construction phase of surveillance post	November 2, 2021	31	6	37
8	Community Meeting and Socialization of the Development of Mangrove Tracks and Bird Watching Towers in Nusa Ceningan	Building commitment on the five households that might be influenced during construction tracking mangrove	November 3, 2021	17	1	18
9	Training for RUM and the community surveillance group Baruna Jaya of Suana Nuasa Penida Village	Disseminate the SOP for surveillance operation activities to the community	November 24-27, 2021	26	4	30
10	Dissemination of Survey Results and Community Meetings for Coral Reef Rehabilitation Program	Building awareness to protect the coral reef ecosystem in Nusa Penida	November 29, 2021	34	4	38

11	FDG Study on Cost-Benefit Analysis and Economic Valuation of Coral Reef and Mangrove Rehabilitation Program	Building awareness on the coral reef and mangrove ecosystem for community	November 30, 2021	37	5	42	
12	Study Survey Cost-Benefit Analysis and Economic Valuation of Coral Reef and Mangrove Rehabilitation Program	Building awareness on the coral reef and mangrove ecosystem for community	December 1-5, 2021	295	87	382	
		Total			640	171	811

76. The draft IEE will be provided to the Bappenas ICCTF as well as to the Regency of Kepulauan Nusa Penida for comments and suggestions, as part of public consultation of the proposed Subproject. This final IEE will be made available to the public on ADB and ICCTF website. Subsequent the environmental approval (SPPL) is being proceed and will be developed in both the Bahasa Indonesia and the English languages and made available to the public on ADB and ICCTF website.

8

GRIEVANCE REDRESS MECHANISM (GRM)

77. The ICCTF-BAPPENAS/PIU together with representation from concerned NGOs (includes academic and research entities) will ensure a culturally appropriate grievance redress mechanism to receive and address, in coordination with provincial authorities, project related concerns and to resolve IP related disputes that may arise during project implementation. It is anticipated that all grievances related to benefits and other assistance will be resolved at the subproject and PIU level.

78. The grievance redress mechanism can be delivered through implementing partner as well as PIU. During this project preparation, the implementing partners develop the grievance redress mechanism that easily accessible to community and related stakeholders. The implementing partner will be able to solve the problem before proceeding to the PIU. However, there may be a need to escalate the grievance from the activity level to the project level due to vested interests. For this purpose, the PIU will have a team or channel to be a spokesperson and complaints manager for the whole project. The Flowchart 1 presents the grievances presented below

and the form is **Appendix 6**.

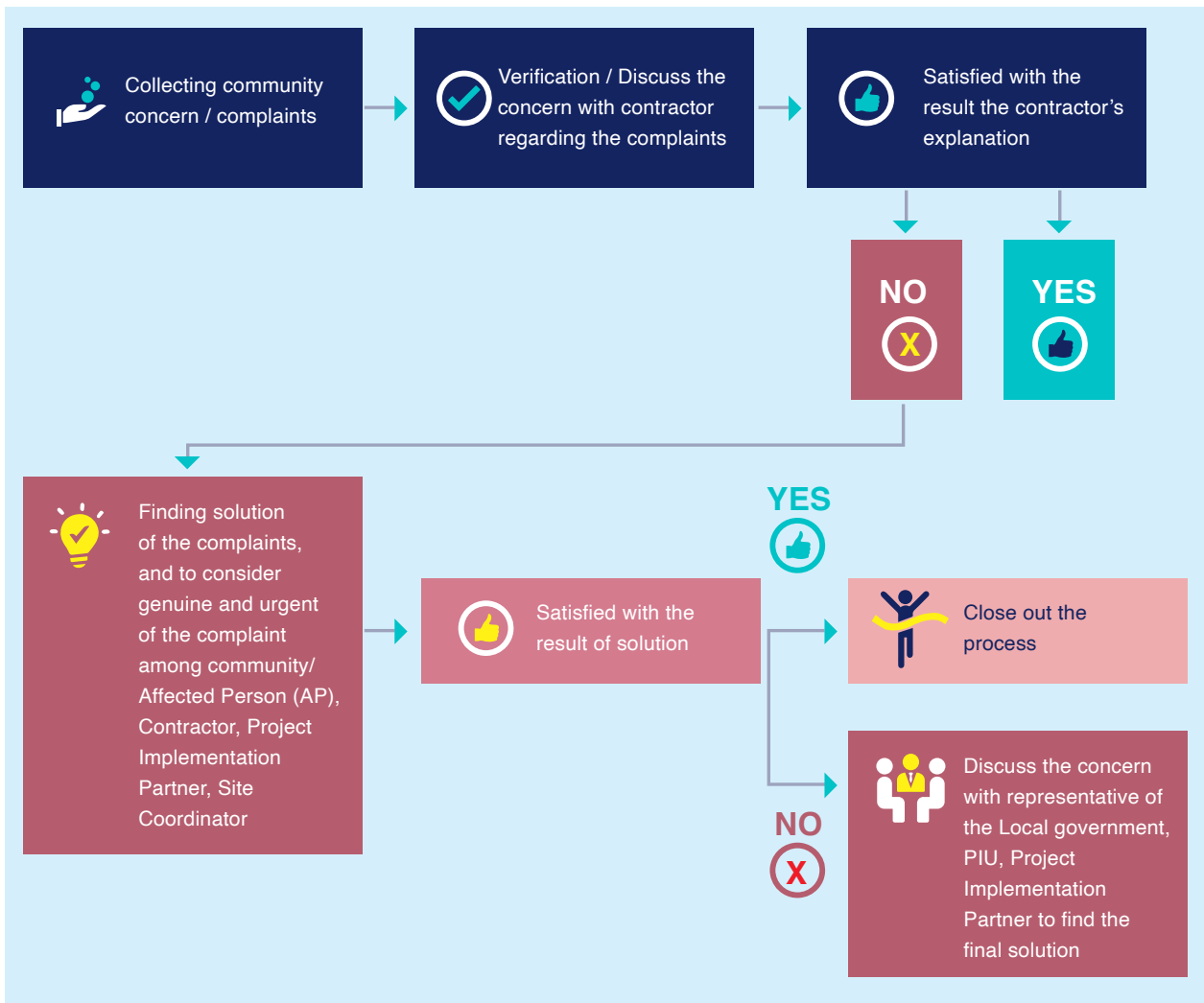
79. During the construction, when the community would like to express their concern due to disturbed by the construction activities, the process consists of following step:

- **Collecting the community concern/ complain**, in this stage, the affected community would address their concern through various media communication (form based, chat, or direct communication to the Project officer) that disturbed by the project construction activities.
- **Verification / discuss the concern with contractor regarding the complaints**, in this stage, the Project officer including site coordinator, project consultant, contractor and representative of village officer would check the validity of the community complaints or concern, the project team would response to verified the concern is not more than two days.
- When every party satisfied with the result with the contractor explanation, the process of complaints handling will be finished, otherwise go to following process

- **Finding the solution of the complaints, and to consider genuine and urgent of the complaint among community/ affected people (AP), contractor, Projet implementation partner, site coordinator.** When the concern or complaints from community is genuine and urgent to be solved, the project team with coordination with representative community leader and representative from local government will solve the complaints, with no more than 2 weeks
 - When every party satisfied with the result with the contractor explanation, the process of complaints handling will be finished, otherwise go to following process
 - **Close out the process.** When the complaints are solved and the community agreed with the process, the project team and representative of community leader will proceed the close out process with notification letter.
80. This grievance team is responsible for problem resolution and documentation of all grievance processes, from receiving, forwarding, responding, and closing of any grievance. This enables the PIU to track all grievances and take appropriate action. This channel or hotline number will be provided by both ICCTF-BAPPENAS and implementing partner. ICCTF-BAPPENAS has an email address (secretariat@icctf.or.id) for grievance redress on the existing ICCTF-BAPPENAS website (www.icctf.or.id).
81. At the village level affected IPs through their facilitator or representative may bring the complaints to the village leaders and/or customary leaders, then they may bring it to the officers in project's field office or sub-project site office.
82. The Site coordinator (s) and the project consultant, safeguards consultant(s) will assist affected community in registering their complaints with PIU, field office or sub-project site office, and preparing their specific grievance. The PIU Team Leader will consider the complaint and within 15 working days will convey a decision to the APs. These staff, along with local government district officials, will assist the Project Manager in reviewing and addressing the complaint. Project's district officer will record/file keeping the complaint.
83. The safeguards staff will facilitate communication between the affected IPs and the PIU in this process. If the affected IPs are not satisfied with the PIU's decision, they may then take the grievance to the provincial government level, who will have two weeks to consider the complaint and following this will either instruct the PIU to rectify the situation or dismiss the complaint. If affected IPs are still not satisfied with the decision, they may take the grievance to the Indonesia judicial system through the State Court.

84. The Grievance Redress Mechanism (GRM) has been disseminated during consultation with the community and will continue to disseminate to ensure the community aware to express their concern especially during the construction phase.

Flowchart 1. Flowchart of the Grievance Redress Mechanism (GRM)



9

ENVIRONMENTAL MONITORING PLAN (EMP)

Table 11 Environmental Monitoring Plan

No.	Impact			Environmental monitoring Plan				Environment monitoring institutions
	Impact Source	Types of impacts	Magnitude of impact	Monitoring	Location	Period	Monitoring cost (IDR)	
Pre construction Phase								
1.	Socialization of activity plans	The occurrence of negative public perceptions.	Medium, but after getting an explanation about the process of implementation of activities that will be carried out later and the handling that has been prepared to minimize the impact that will occur is expected the public began to understand and welcome the plan of this development	qualitative with direct observations and interviews about the perception and attitude of the community towards the development plan of Information Center	Around the project area	At the pre-construction phase is carried out routinely and incidentally every report when deemed necessary	5,000,000	<p>A. Executor: Organizer</p> <p>A. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p> <p>B. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p>
Construction Phase								

No.	Impact			Environmental monitoring Plan				Environment monitoring institutions
1.	Mobilization of equipment and materials, construction of physical buildings and demobilization of equipment and building materials.	<ul style="list-style-type: none"> Decreased air quality and noise Traffic disruptions 	<ul style="list-style-type: none"> small, impact will occur whenever there are activities (at any time) Small, because the volume of movement of project vehicles for the purposes of mobilization of equipment, and materials in construction activities is carried out gradually and supervise this activity so that the use of vehicles with heavy loads can be selected. 	<ul style="list-style-type: none"> Quantitative monitoring. The results of the analysis compared to the quality standard of air dust content of 230 µg/ Nm³ according to PPRI No. 49 of 1999 concerning Ambient Air Quality Standards and Indirectly received reports from contractors or village officials regarding air quality and noise disturbances Traffic disruptions can be observed in the field directly. Conducting structured interviews with the community around the location of the activity, then analyzed qualitatively. 	The roads traversed by vehicles transporting equipment and materials around the project site.	Routinely and incidentally when there are reports from the public about disturbances due to dust pollution, noise, and traffic	<p>5,000,000</p> <p>5,000,000</p>	<p>A. Executor: Initiator/organizer and contractor executing the activity.</p> <p>B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office and Klungkung Regency Health Office.</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office and Klungkung Regency Health Office. DLH of Bali Province and Klungkung Regency Health Office</p>

No.	Impact			Environmental monitoring Plan				Environment monitoring institutions
2.	Base camp operations, equipment and materials warehouses, and physical development.	Occurrence of aesthetic decrease	Medium, due to the plan to make emergency buildings that serve as a support for activities at the construction stage such as base camp, material warehouse, and management office if not managed properly can cause slums that decrease aesthetics.	<input type="checkbox"/> Visually, that is, there can be observed a direct decline in aesthetics in the field. <input type="checkbox"/> Conducting structured interviews with the community around the location of the activity, then analyzed qualitatively.	Across the project site area, equipment and materials warehouses, and base camp areas.	During the construction stage and incidentally carried out any protests or reports of aesthetic problems at the site of the activity.	5,000,000	<p>A. Executor: Initiator/organizer and contractor executing the activity.</p> <p>B. Supervisor: DLH Bali Province, Health Office and Klungkung District HygieneOffice, Nusa Penida Sub-District</p> <p>C. Report recipients: DLH Bali Province, Health Office and Klungkung District HygieneOffice, Nusa Penida Sub-District</p>
4.	Secondary impact if the primary impact is not handled properly	The occurrence of negative public perceptions	Medium, depending on the management and results of primary impact management that occurs.	Qualitatively with direct observations and interviews and indirectly by requesting reports from relevant parties as outlined in each primary impact that occurs.	Around the project area	During the construction stage is carried out routinely and incidentally any reports when deemed necessary.	5,000,000	<p>A. Executor Initiator/organizer of activities and contractors</p> <p>B. supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District.</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung District Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District.</p>
Operational Phase								

No.	Impact			Environmental monitoring Plan				Environment monitoring institutions
1.	Operational Information Center	The occurrence of negative public perceptions	Medium, regarding their place to do their current activities so as not to change later after the construction of the Information Center	Qualitative monitoring with direct observations and interviews on people's perceptions and attitudes towards Information Center building that have been built in their area.	Around the project area	During operational / post-construction activities and incidentally in case of damage to The Information Center building	50,000,000	<p>A. Executor: Organizer.</p> <p>B. Supervisor: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p> <p>C. Report recipients: DLH Bali Province, Bali Provincial Transportation Office, Klungkung Regency Transportation Office, Klungkung Regency PU Office, Nusa Penida Sub-District</p>

10

CONCLUSIONS AND RECOMMENDATION

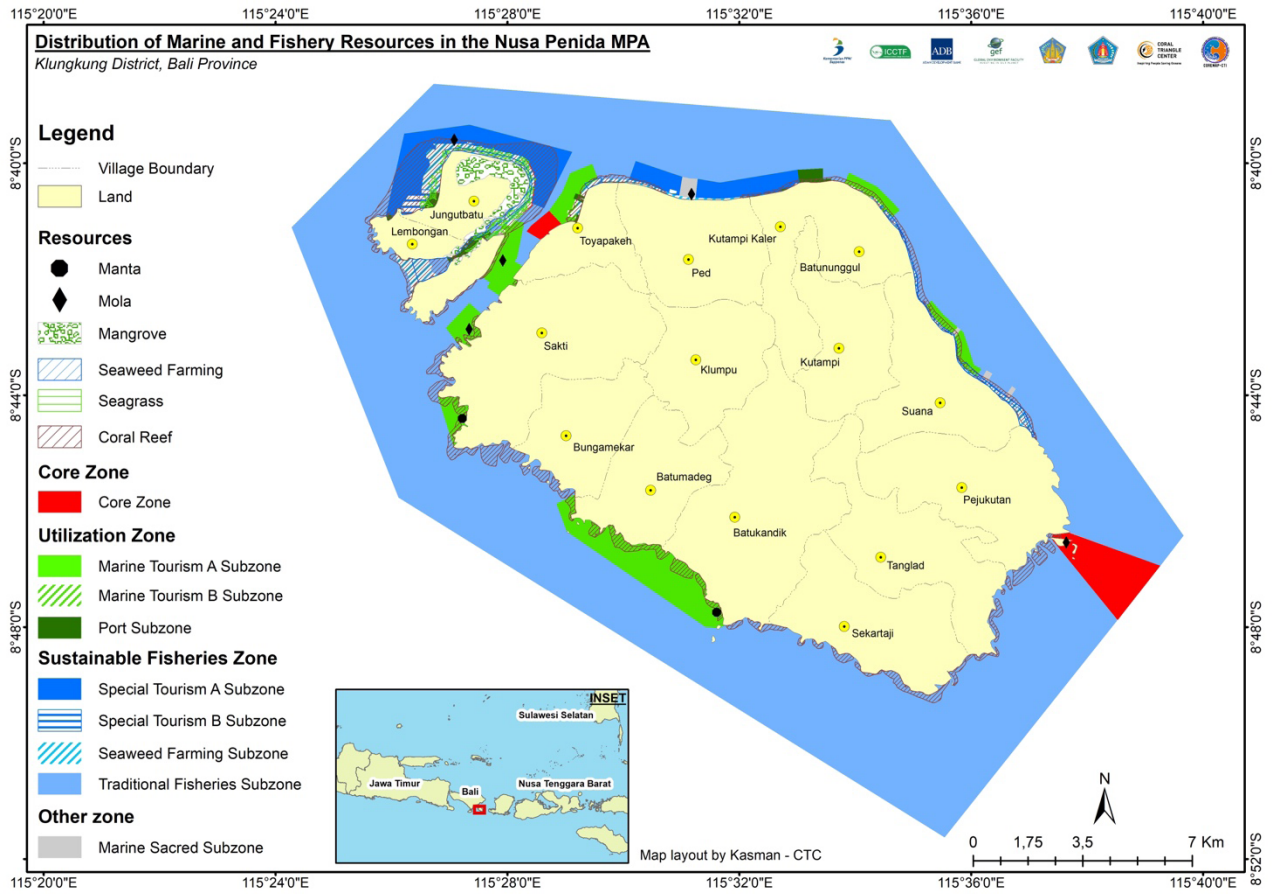
76. Based on the evaluation of the different interventions under Nusa Penida Subproject infrastructure, and its possible impacts on the environment, this IEE finds that the proposed Nusa Penida MPA Sub-project will create no significant adverse environmental impacts and substantial and positive environmental benefits are expected for improved MPA effectiveness. Some of negative impacts identified can be easily mitigated by adoption of specific measures as outlined in this report. This IEE, with the recommended institutional and monitoring program, is sufficient for the sub-project. The Environmental and Forest Agency of Klungkung District will issue the environmental approval after SPPL developed for specific interventions/activities under the subproject at the design stage. Additionally, the contractor prepare the Construction Environmental Management Plan (CEMP) or Code of Construction Practices (CoCP) for project with small construction activities.



APPENDICES

APPENDIX 1

Location Map of Nusa Penida Islands Subproject Area



Source: Coral; Triangle Center (CTC), 2021

APPENDIX 2

ADB REA Checklists

Rapid Environmental Assessment (REA) Checklist

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES), for endorsement by Director, SDES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) 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: Indonesia / Coral Reef Rehabilitation and Management Program – Coral Triangle Initiative (COREMAP-CTI)

Sector Division: Environment, Natural Resources and Agriculture Division

Screening Questions	Yes	No	Remarks
A. Project Siting			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		v	
▪ Legally protected Area (core zone or buffer zone)	v		Nusa Penida is marine protected area (MPA) with core zone, fisheries zone, utilization zone and other zone and legalized under Minister of Marine Affairs and Fisheries Decree
▪ Wetland		v	
▪ Mangrove	v		Nusa Penida MPA has mangrove area in Lembongan island about 230 hectares.
▪ Estuarine		v	
▪ Special area for protecting biodiversity	v		Nusa Penida MPA has coral reef, mangrove and seagrass as well as charismatic species such as sunfish and manta ray

Screening Questions	Yes	No	Remarks
B. Potential Environmental Impacts			
Will the Project cause...			
▪ impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?		v	
▪ disturbance to precious ecology (e.g. sensitive or protected areas)?		v	
▪ alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?		v	
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?		v	
▪ increased air pollution due to project construction and operation?		v	
▪ noise and vibration due to project construction or operation?		v	
▪ involuntary resettlement of people? (physical displacement and/or economic displacement)		v	
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		v	
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?		v	
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		v	
▪ social conflicts if workers from other regions or countries are hired?		v	
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		v	
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	v		This project will be implemented during pandemic covid19. There is a risk for worker to be impacted by covid19. As anticipating the project will implement covid19 protocol
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		v	
▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		v	
▪ generation of solid waste and/or hazardous waste?		v	
▪ use of chemicals?		v	
▪ generation of wastewater during construction or operation?		v	

APPENDIX 3

Checklist for Preliminary Climate Risk Screening

Country/Project Title : Coral Reef Rehabilitation and Management Program –
Coral Triangle Initiative

Sector : Natural Resources and Agriculture Division

Subsector : Nusa Penida, MPA Effectiveness Subproject

Division/Department : Marine and Fisheries

Screening Questions		Score	Remarks ¹
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	Nusa Penida is small islands that located not too far from the Bali mainland (30 minutes by speedboat). The islands can be reached and accessible along the year although in the windy or big wave season
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Mostly the project activity will be implemented in the land, except for sunfish survey. The team also need to check the tide table when ding travel by boat from Nusa Penida to the mainland of Bali island
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Nusa Penida is dryland with limited rainy capacity. The temperature range is not too extreme between dry and rainy season. So, just need to adjust and consider using construction materials for dry weather.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	0	The Nusa Penida islands is dryland with limited capacity of rainy. So just need to choose construction materials for dryland situation for low maintenance of the project. The Nusa Penida located about 30 minutes by speedboat from Bali mainland, so its close and accessible along the year.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	No, it will more human resources capacity and annual maintenance to keep the output performance

¹ If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.


Result of Initial Screening (Low, Medium, High): ___ **Low** ___

Other Comments: _____

Prepared by: Darma (Bahtera Nusantara) _____

APPENDIX 4

Letter of utilization of Assets to support Subproject Infrastructure In Nusa Penida, Bali



பெர்தி க்ரங் குங்குங் தாலி
PEMERINTAH PROVINSI BALI
ආණ්ඩුපාලන විහාරය
SEKRETARIAT DAERAH

ආණ්ඩු පාලන විහාරය - තාලි (022235) / ආණ්ඩු පාලන විහාරය (022235) / 022235-022235
JALAN BASUKI RAHMAT DENPASAR - BALI (80235), TELEPON (0361) 224671
WEBSITE : www.baliprov.go.id

Denpasar, 13 September 2021

Kepada

Nomor : B.22.523.32/1315/ Yth. Kepala Dinas Kelautan dan
UPTD KKP/Diskelikan Perikanan Provinsi Bali


Sifat : Biasa di - Denpasar

Lampiran : -

Hal : Persetujuan Pemanfaatan Lahan dan Pengelolaan Aset COREMAP CTI-ADB di Nusa Penida


Menindaklanjuti Nota Dinas Saudara Nomor : B.22.523.32/1280 /UPTD.KKP/Diskelikan tanggal 2 September 2021 hal tersebut diatas pada prinsipnya kami menyetujui pelaksanaan kegiatan tersebut antara lain :

1. Bangunan Pos Pengawasan (1 unit) dibangun pada tanah Aset Pemerintah Provinsi Bali yang tercatat pada Dinas Kelautan dan Perikanan Provinsi Bali yang berlokasi di Desa Batununggul, Kecamatan Nusa Penida, Kabupaten Klungkung;
2. Bangunan *Tracking Mangrove* dan *Bird Watching Tower* (1 paket) dibangun di kawasan hutan mangrove yang terletak di Pulau Ceningan, Nusa Penida dengan berkoordinasi dengan Pemerintah Kabupaten Klungkung.
3. Bangunan Pusat Informasi Wisata (1 unit) dibangun di Kantor KKP Nusa Penida dengan memanfaatkan lahan yang tersedia sesuai peruntukannya;
4. Menerima kapal pengawasan/*speedboat* (1 unit) yang akan dihibahkan kepada Pemprov Bali melalui Dinas Kelautan dan Perikanan Provinsi Bali.
5. Sehubungan dengan 4 point tersebut diatas Saudara segera berkoordinasi dengan instansi terkait.



Bali
Sertifikat
Elektronik Dokumen ini telah ditandatangani secara elektronik menggunakan sertifikat elektronik yang diterbitkan oleh BSrE


Demikian disampaikan, atas perhatiannya diucapkan terima kasih.



Ditandatangani secara elektronik oleh :
SEKRETARIS DAERAH
Dewa Made Indra
NIP. 19670203 196022 1 004

Tembusan kepada Yth.

1. Gubernur Bali di Denpasar (sebagai laporan);
2. Bupati Klungkung di Semarapura;
3. Kepala BPRAD Provinsi Bali di Denpasar;
4. Kepala BPRAD Klungkung di Semarapura;
5. Direktur Eksekutif CTC;
6. Direktur Utama PT Trans Intra Asia;
7. Arsip.



Bali
Sertifikat
Elektronik Dokumen ini telah ditandatangani secara elektronik menggunakan sertifikat elektronik yang diterbitkan oleh BSrE

APPENDIX 5

Detail Engineering Design (DED) for Subproject Infrastructure

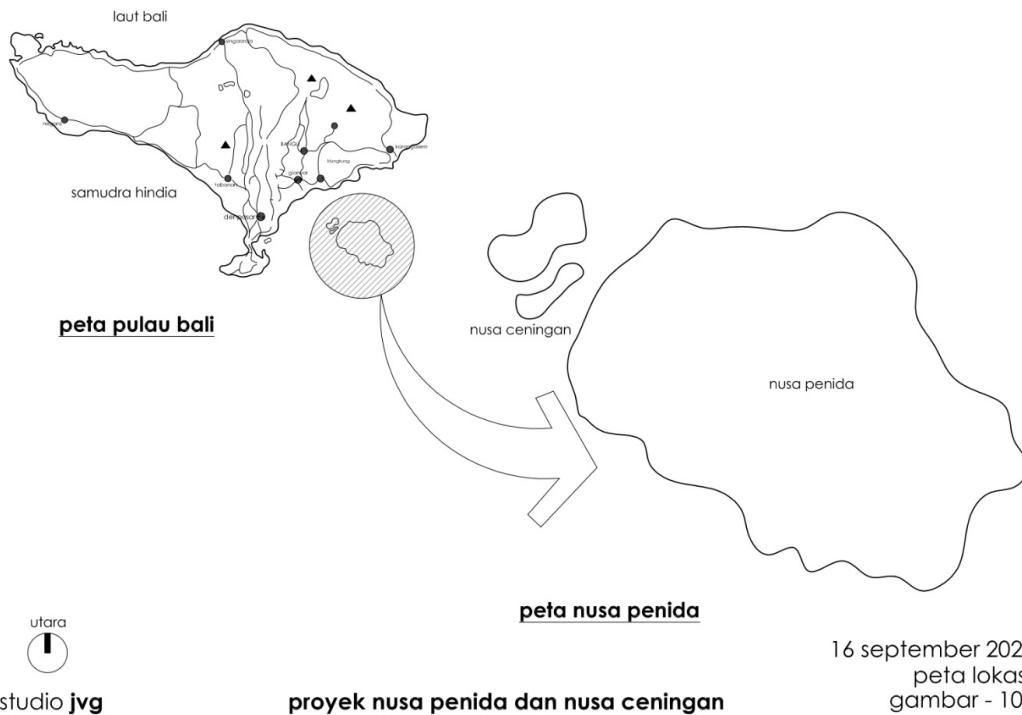
nusa penida & nusa ceningan klungkung-bali

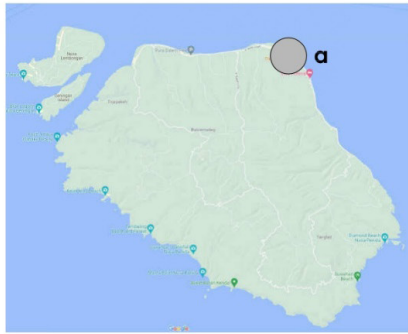
gambar konsep

- pos pengawasan (surveillance post)
- jalur mangrove (tracking mangrove)
- menara pengamatan burung (bird watching tower)

16 september 2021

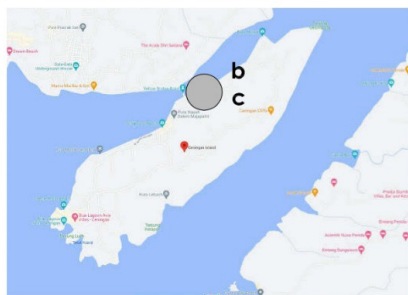
studio **jvg**





KETERANGAN

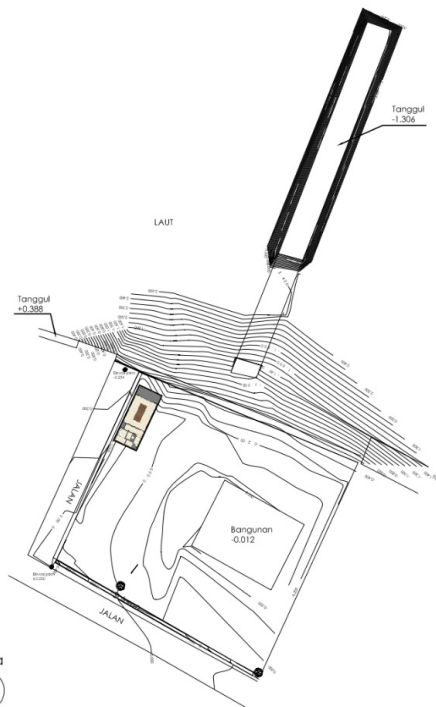
- a. pos pengawasan (surveillance post)
- b. jalur mangrove (tracking mangrove)
- c. menara pengamatan burung (bird watching tower)



studio **jvg**

proyek nusa penida dan nusa ceningan

16 september 2021
peta lokasi
gambar - 102



studio **jvg**

nusa penida-pos pengawasan (surveillance post)

16 september 2021
site plan
gambar - 103



KETERANGAN

- a. bentuk denah persegi, denah lantai 2 lebih lebar dari lantai 1.
- b. akses dari jalan existing, orientasi bangunan menghadap ke laut.
- c. struktur atap menggunakan kayu dengan plafon anyaman lampit.
- d. penutup atap menggunakan genteng, hanya area tangga dan kamar tidur menggunakan atap plat beton

studio jvg

nusa penida-pos pengawasan (surveillance post)

16 september 2021
perspektif 1
gambar - 104



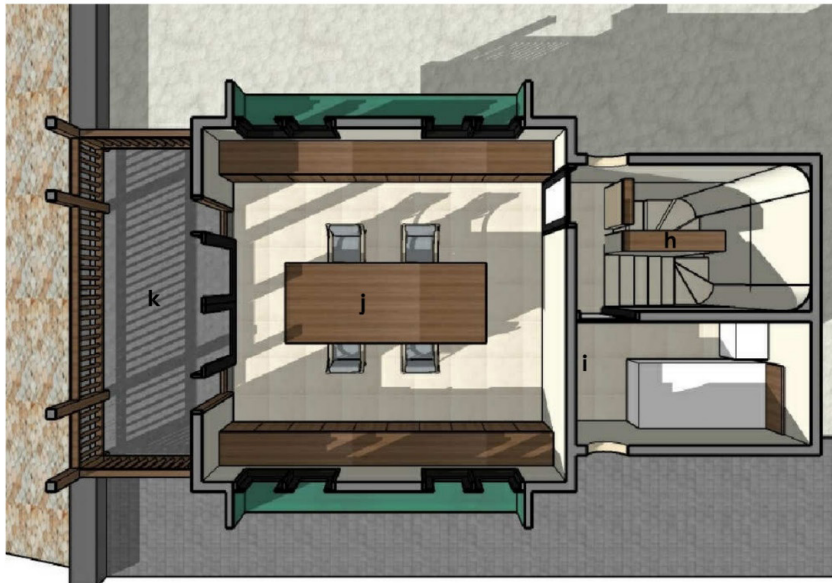
KETERANGAN

- a. ventilasi pada kamar mandi menggunakan ukiran paras jogja

studio jvg

nusa penida-pos pengawasan (surveillance post)

16 september 2021
perspektif 2
gambar - 105

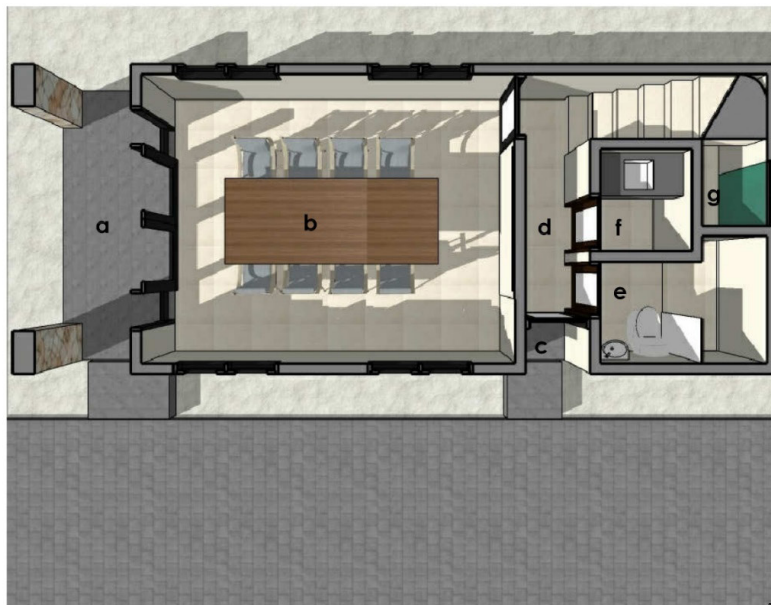


- KETERANGAN**
- h. tangga
 - i. ruang fidur
 - j. ruang komunikasi
 - k. balkoni

studio **jvg**

nusa penida-pos pengawasan (surveillance post)

16 september 2021
denah lantai 2
gambar - 107

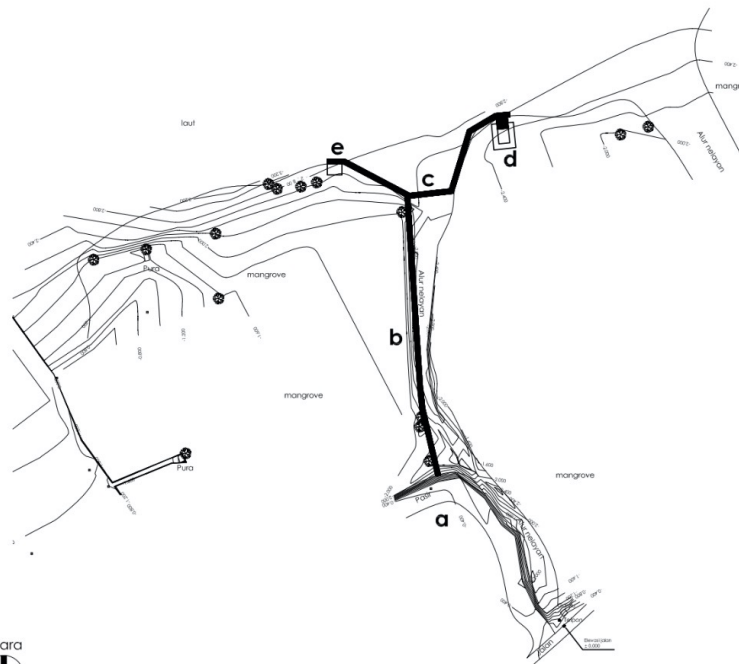


- KETERANGAN**
- a. teras
 - b. ruang serbaguna
 - c. pintu samping
 - d. lorong menuju tangga
 - e. kamar mandi
 - f. pantry
 - g. janitor

studio **jvg**

nusa penida-pos pengawasan (surveillance post)

16 september 2021
denah lantai 1
gambar - 106



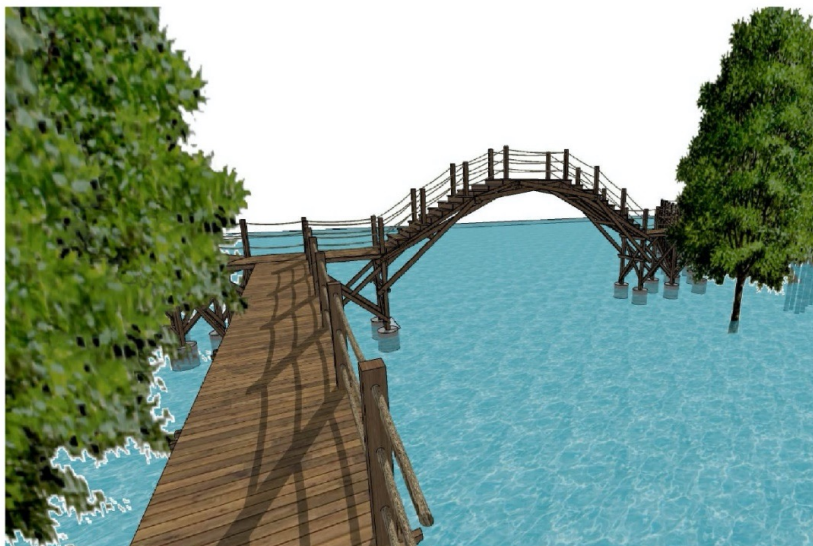
KETERANGAN

- a. lapangan (existing)
- b. jalur mangrove (tracking mangrove)
- c. jembatan (wooden bridge)
- d. menara pengamatan burung (bird watching tower)
- e. bale swaphoto

studio jvg

nusa ceningan-jalur mangrove & menara pengamatan burung

16 september 2021
site plan
gambar - 108



KETERANGAN

- a. jalur mangrove terbuat dari kayu ulin dengan lebar 1,5 m.
- b. balustrade terbuat dari tali kapal.
- c. pondasi menggunakan bus beton (cyclope).
- d. jembatan lengkung untuk memudahkan akses perahu nelayan.

studio jvg

nusa ceningan-jalur mangrove (tracking mangrove)

16 september 2021
perspektif 3
gambar - 109



studio jpg

nusa ceningan-jalur mangrove (tracking mangrove)

16 september 2021
perspektif 4
gambar - 110



KETERANGAN

- a. bale swaphoto, denah berbentuk persegi dengan atap alang-alang.
- b. terdapat 1 bangku untuk duduk

studio jpg

nusa ceningan-jalur mangrove (tracking mangrove)

16 september 2021
perspektif 5
gambar - 111



studio jvg

nusa ceningan-jalur mangrove (tracking mangrove)

16 september 2021
perspektif 6
gambar - 112



studio jvg

nusa ceningan-menara pengamatan burung (bird watching tower) gambar - 113

KETERANGAN

- a. tinggi menara pengamatan burung yakni 6 - 7 meter.
- b. denah berbentuk persegi dengan atap alang-alang (bentuk atap sama dengan bale swaphoto).
- c. terdapat 4 kolom utama yang difungsikan sebagai ruang untuk tangga.
- d. lantai menara dibuat cantilever pada setiap sisi.
- e. terdapat 2 bangku pada kedua sisi menara yang dapat menampung 6-8 orang pengunjung
- f. dek menuju menara dibuat lebar dengan bangku sebagai tempat bersantai sambil menunggu antrean naik ke menara

16 september 2021
perspektif 7
gambar - 113



KETERANGAN

- a. jalur mangrove, pada area akses tangga dibuat lebih lebar
- b. bangku untuk duduk menunggu antrian.
- c. ruang tangga
- d. 2 buah bangku, masing masing dapat menampung 4 orang pengunjung

16 september 2021
perspektif 8

studio jvg nusa ceningan-menara pengamatan burung (bird watching tower) gambar - 114

APPENDIX 6

Grievance Redress Mechanism (GRM) Form

Grievance Redress Mechanism (GRM) form

FORMULIR PENYAMPAIAN KELUHAN MASYARAKAT	
	Tanggal:
Nama
NIK
Lokasi Pembangunan
Keterangan	
Tindak lanjut	

(Tanda tangan Masyarakat Terdampak)

Indonesia: Coral Reef Rehabilitation and
Management: Coral Triangle Initiative Project
(INO- COREMAP-CTI) – Nusa Penida

Initial Environmental Examination

