Environmental Impact Assessment (EIA) on ***"Luxury Overwater Eco-Resort & Private Marina."***

Client: ABC Hospitality Group.

Project Location: Coastal Zone (Adjacent to Marine Protected Area)

Lead Consultant: Mr. XYZ

Date of Submission: [xx/xx/xxxx]

Background: Construction of a luxury eco-resort with 50 overwater villas and a private marina in a coastal region of Southeast Asia. The proposed site is adjacent to a Marine Protected Area (MPA) known for coral reefs and sea turtle nesting. An EIA is needed to assess the impact of dredging for the marina on sediment plumes that could smother coral, to analyze the discharge of treated wastewater into the ocean, to evaluate noise and light pollution effects on nesting turtles, and to obtain clearance from the Coastal Zone Management Authority.

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1.0 Executive Summary

1.1 Project Overview

ABC Hospitality Group proposes the construction of a luxury overwater eco-resort and private marina in a coastal zone adjacent to a Marine Protected Area (MPA) in Southeast Asia. The development includes:

Component	Description	Capacity/Extent
Overwater Villas	50 eco-luxury villas built on stilts above the lagoon	2–4 guests per villa
Marina	Berthing facility for private yachts and small boats	30 berths, including a fueling station
Land-based Facilities	Reception, staff quarters, wellness spa, and dining areas	~5,000 m² total built-up area
Utilities	Desalination plant (RO), hybrid solar-diesel power, Sewage Treatment Plant (STP)	500 m³/day STP; 250 m³/day desalination

The resort is positioned to provide high-end ecotourism experiences while emphasizing low ecological footprint design, including renewable energy use, water recycling, and waste minimization.

1.2 Ecological Context

The proposed site lies within 500 meters of a Marine Protected Area (MPA) renowned for:

- Coral reef systems: High live coral cover (estimated 40–50%) with diverse species of *Acropora*, *Porites*, and *Montipora* (Jones et al., 2020).
- Sea turtle nesting sites: Green (*Chelonia mydas*) and Hawksbill (*Eretmochelys imbricata*) turtles nest seasonally between May and September (Chaloupka et al., 2018).
- Seagrass beds: Critical foraging habitats for turtles and dugongs, with coverage approximately 20–30% of lagoon area (Unsworth et al., 2019).

The proximity of the development to sensitive habitats necessitates careful assessment of potential dredging, wastewater discharge, noise, and light pollution impacts.

1.3 Critical Environmental Impacts

Impact Area	Potential Risk	Summary of Mitigation

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Marine Water Quality	Sediment plumes from marina dredging; brine discharge from desalination	Silt curtains, geotextile barriers, diffuser systems (Rogers et al., 2021)
Coral & Seagrass	Smothering by sediments; shading from overwater villas	Elevated, grated walkways; restricted piling schedule
Sea Turtles	Disorientation of hatchlings by artificial lighting	Amber/red LEDs, shielded fixtures, "dark sky" compliance
Noise & Vibration	Underwater piling noise disturbing marine fauna	Bubble curtains, soft start procedures
Coastal Geomorphology	Erosion/accretion due to breakwater	Sand bypassing, soft-engineering shoreline protection

These impacts are categorized as moderate to high if unmitigated, but can be reduced to low with implementation of engineering and operational controls.

1.4 Clearance Strategy

To obtain Coastal Zone Management (CZM) Authority clearance and required Wildlife Department No Objection Certificates (NOCs), the project proposes the following strategy:

1. Environmental Assessment Submission: Detailed EIA report including baseline surveys, impact predictions, and mitigation measures.
2. Stakeholder Consultation: Engagement with local communities, fishermen, and conservation authorities.
3. Environmental Management Plan (EMP): Compliance-driven blueprint for both construction and operation phases, including zero solid-waste discharge and dark sky lighting policies.
4. Monitoring Program: Continuous monitoring of water quality, reef health, and turtle nesting activities during construction and operation.

The project aligns with international best practices in ecotourism development (Buckley, 2012) and aims to achieve a “high-value, low-volume” tourism model that simultaneously supports conservation goals.

Figure 1.1: Conceptual layout of overwater villas and marina relative to adjacent MPA boundaries.

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2.0 Introduction

2.1 Project Background

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