

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN: AVES ISLAND

1. INTRODUCTION

A Risk Assessment Study and Disaster Management Plan including emergency evacuation during natural and manmade disasters for the proposed ecotourism project in Aves Island, Middle Andaman is briefly presented here. The DMP will be based on the identification of various potential hazards during the construction and operational stages of the project and assessing the kinds of risks possible. The DMP includes indicative procedures for emergency evacuation during natural and man-made disasters.

The DMP deals with anticipating impacts of hazards, responses to alerts, deciding on the emergency procedures to be used and the actions (both on-site and off-site) that need to be carried out in case of an emergency.

Thus, it aims at

- Protecting visiting tourists as well as the support staff on the site
- Protecting property as well as minimizing damage to the environment
- Rendering help to person at site to provide him/her relief in the case of accidents
- Restoring the affected area as soon as possible if necessary
- Reviewing the event and strengthen the DMP and response for future emergencies

2. SITE INFORMATION

2.1. Site Location

Aves Island is situated on the eastern side of Mayabunder Teshil in North & Middle Andaman District, lies between 12°54'4.52'' to 12°55'09.02'' N Latitude and 92° 55'52.51'' to 92° 56'13.07'' E Longitude. The total geographical area of the island is about 20 ha (0.20 km²) with perimeter of 1.87 km. Aves island has a plain topography in the northern side whereas the southern side has a hilly area with a maximum elevation of 24m. This Island is known for its beautiful sandy beaches. The island is covered by coconut plantation and forest. Coral reefs occur all around the island from a depth of 4 meters to 14 meters, except at the southern end, where the seabed is covered mainly by rocks. On the eastern and northern sides, Acropora and Porites dominate the coral reefs while on the western side coral reefs are dominated by Porites. The reef flat contains mainly rocks, sand and dead coral heads. Mangrove plants were sparsely distributed. The island was not much damaged during the earthquake occurred on 26thDecember 2004 that lead to the Indian Ocean tsunami.

2.2. Basic Details About Site

The basic data required for due consideration while assessing hazards was taken from the Form 1 and the Infra note for Aves Island as well as the Draft IIMP.

The project is developing ecotourism at Aves Island with the provisioning of Luxury tents (50 keys) in an area of 2.75 ha with built up area of 5000 sqm. The project is on PPP mode by ANIIDCO. Apart from 50 luxury tents, other structures will include structures for kitchen,

reception, lounge area, store room, staff quarters. Other structures for infrastructure such as DG shed, desalination plant, STP plant will also be provided on site. Temporary site will be provided for construction workers on the island during construction phase.

Currently the only route to the island is the sea route. A floating jetty is proposed on Aves island. Paver block footpaths and other pathways will be developed within the site.

Influx of people in construction phase is expected to be 30-50 persons (approx) temporarily. During operation phase, it is estimated that project will have about 175 persons at full occupancy including tourists and staff.

3. HAZARDS IDENTIFICATION & RISK ASSESSMENT

For the ecotourism project, the Table gives a potential summary of hazards that could impact the project during construction as well as operation of ecotourism site

POTENTIAL HAZARD	PROBABLE IMPACTS
MAN MADE	
Berthing accidents	Impact on jetty (mooring, structure) Injury to passengers as well as personnel
Fuel/oil spills, leaks	Impact on aquatic (marine) environment, tarballs and oil slick on beach, impact on coral reefs
NATURAL	
Earthquake / tsunami	Whole Andaman falls in Seismic Zone V, hence it is prone to earthquakes. Damage to buildings, collapse of tents and equipment, inundation of jetty; injuries to tourists and personnel
Tropical Storms, Cyclones, Heavy Rain	The area is also prone to Cyclone. This can result in flooding of tents/ campsite; sweeping out to sea of tourists and personnel; injuries, illnesses due to water contamination
OTHERS	
Fire	Fire outbreaks can vary in size and location, can cause extensive damage
Medical	Can occur at any time especially due to falling debris during construction; operational procedures

Thus, it can be seen that the risk is mainly due to earthquake and cyclones. While earthquakes cannot be predicted, cyclones can be predicted and occur largely during certain seasons. Since it is a high risk area, it is advisable that tourism is highly restricted during the cyclone seasons as it will also involve transport by sea which may be rough during the season and result in boat capsizing which may result in loss of lives.

4. DISASTER MANAGEMENT PLAN

Construction Phase:

During the construction phase, the Construction Manager will be the emergency coordinator. The construction manager will ensure that all construction is as per the appropriate building codes for cyclone and earthquake prone areas.

The Construction Manager shall ensure that all personnel are aware of earthquake hazard and are trained in responding to an earthquake to ensure minimal injuries to personnel. First aid kit and medical supplies should be maintained and either the manager or at least one of the construction crew should be provided training in first aid and CPR and should be able to swim. The Manager should also have emergency communication equipment to be able to communicate with the district HQ and Coast Guard. It is advisable to install a satellite telephone for such purposes.

During the construction phase, all personnel shall use personal protective equipment (PPE) and be aware of and trained in safety procedures during construction to ensure that accidents and injuries are minimised.

Operation Phase:

Since the island is small and caters only to tourists, the Manager of the Resort may be designated as the Emergency Coordinator. The emergency coordinator has to prepare a detailed DMP based on the locations of the various activities on site and the space available for storage of emergency equipment and regularly update the DMP based on changing activities and learning from any accidents. He/she has to ensure that requisite resources are always available to tackle an emergency situation. The emergency coordinator will have to create a chain of command for response during an emergency. He/she has to liaise with the authorities at the district HQ, the Coast Guard and hospitals/trauma care centres. The emergency coordinator has to ensure that his/ her team is trained in basic safety response.

The DMP can be divided into disaster preparedness and response. Included under preparedness are Mitigation Measures to be undertaken and the Early Warning Systems. Response includes emergency supplies as well as communication systems and training requirements.

4.1. Mitigation

Structural mitigation: Since the islands are both cyclone and earthquake prone, design of all structures should conform to the appropriate construction codes.

Tourism season: Tourism should be encouraged only during the non-monsoon (safe) seasons. During the monsoon/ cyclonic weather, tourists should not be permitted to travel to remote islands as rough weather could result in boat capsizing and injuries/loss of life.

Early Warning Systems: Cyclone prediction is now well advanced and carried out by the IMD. Early Warning is available up to a week in advance. Hence, the resort manager/emergency coordinator should be in touch with the appropriate officials and track weather bulletins to take proactive action in case of the development of a cyclone in the Andaman Sea/ Bay of Bengal whose track is along the island.

4.2. Response

Communication systems:

Satellite phone is the best way to communicate in case of emergencies and hence should be installed in the resort. For further details, BSNL may be contacted. This is for communication between the resort and District HQ in case of an emergency situation that requires evacuation of tourists and personnel. Within the island, walkie talkie systems should be made available so that resort personnel can quickly contact resort manager (and vice versa) in case of an emergency situation.

Supplies:

a) Medical Supplies: Sufficient number of Emergency Medical Kits should be available with the resort manager. These should include basic supplies and medications. An indicative list is available at <https://www.mayoclinic.org/first-aid/first-aid-kits/basics/art-20056673>

b) Food Supplies: Sufficient tinned foods and water should be separately stored for emergencies and should be periodically renewed.

c) Waterproofs and Emergency Tents: since the island is prone to earthquake, spare tents should be always available in a separate storage area so that they can be used during emergency situations when the tents are damaged.

Training:

a) First Aid: All personnel operating the resort should be trained in basic First Aid. At least one trained paramedic should be always available as first responder in case of a medical emergency and should be able to guide his/her team to respond in the event of a disaster (e.g. earthquake) striking the island causing injuries to tourists/ resort personnel.

b) All tourists should be advised on what to do in case of an earthquake. This could be done by screening a short film while travelling to the island as well as illustrative posters inside the tents.

c) Resort personnel should know swimming and elements of Cardiopulmonary resuscitation (CPR).

Evacuation:

Constant communication between Resort Manager and District HQ as well as Coast Guard and Shipping company/ Boat Operators must be maintained especially during the cyclone season for emergency evacuation of tourists by boats/ helicopters.