

**RISK ASSESSMENT
&
DISASTER MANAGEMENT PLAN**

**Prepared for
Almas Ayurvedic Resorts, Purathur,
Malappuram.**

**at
Re. Sy. No.8/1B2, 8/1A9, 1A10 of Purathur Village
Taluk: Tirur
District: Malappuram
Kerala**

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RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

7.1. Introduction

A disaster is a sudden, calamitous phenomenon that can cause damage to life and property and destroy the economic, social and cultural life of people. Though often caused by nature, disasters can have human origins. Disaster management is the discipline of dealing with and avoiding both natural and manmade disasters. It involves preparedness, response and recovery in order to lessen the impact of disasters.

As the proposed resort will serve as the location for holidaying mostly, foreigners from Middle East countries a risk assessment for the operation stage and preparation of a disaster management plan is essential. This chapter covers the risk assessment, disaster management plan along with natural resource conservation plan. As the project does not involve any resettlement and rehabilitation of people, the resettlement and rehabilitation plan is excluded from the scope of the studies.

7.2. Disaster Management Plan in India

National Disaster Management Act (NDMA), came in to force on 23rd December 2005 envisages disaster preparedness facilities at national level, state level, district level and local level to combat on emergencies with designated members responsible with institutions having the flexibility to design their own plan based on the availability of manpower and operational pattern.

State Disaster Management Authority shall function as the apex decision-making body and facilitate, co-ordinate, review and monitor all disaster related activities in the state including capacity building. The Authority shall lay down the State Disaster Management policy and guidelines to be followed by the government departments and approve the State Disaster Management Plan and Departmental plans. The Authority shall be provided with statutory powers to facilitate, coordinate and monitor the activities related to disaster management utilizing the resources and expertise of relevant Government departments, district administration, local authorities, non-governmental organizations, the public sector, international development agencies, donors and the community. It shall also exercise the powers and functions as laid down in the national Disaster Management Act, 2005 and in the notification of Kerala State Disaster Management Authority vide G.O (p) No. 154/2007/DMD.

The State Government, by notification, has established and constituted District Disaster Management Authorities in all fourteen districts as per the provisions of National Disaster Management Act, 2005.

The District Authority shall act as the district planning; coordinating and implementing body for disaster management and take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the National Authority and the State Authority.

The State Government will ensure an appropriate chain of command whereby the Kerala State Disaster Management Authority at the State level and District Disaster Management Authorities headed by District Collectors at the district level are empowered to coordinate disaster management activities and mobilize resources of all relevant Departments at their level. Similar institutional arrangements fixing responsibilities, administrative mechanism and procedures shall also be made down line at Taluk and Village levels.

The Department of Revenue and Disaster Management will be the nodal department for management of all types of natural disasters that include water and climate related disasters and geological disasters. The scope of Department of Revenue has been enhanced to include prevention, mitigation and preparedness aspects of Disaster

Management apart from its traditional responsibility of relief and rehabilitation and renamed as Department of Revenue and Disaster Management. The Principal Secretary to government will act as the State Relief Commissioner. The organizational structure of the Department dealing with disaster management will be so tailored as to reflect the change in focus from post-disaster relief and rehabilitation to prevention, mitigation and preparedness in addition to relief and rehabilitation.

The Department of Home shall be the nodal department for management of manmade and human induced disasters including air and rail accidents. The Department of Public Health shall be the nodal department for chemical, biological (health related), radiological and nuclear disasters. The Factories and Broilers Department shall be the nodal department for industrial accidents and the department shall work in tandem with Industries Department in the event of a disaster. While Agricultural Department deals with pest attacks; cattle epidemics shall be handled by Animal Husbandry Department. Irrigation and Public Works Departments shall be the lead agencies for disasters related to dam bursts and major building collapse respectively. Forest Department shall be the nodal department for disasters like forest fire.

A well-coordinated and unified response of various state departments and agencies appropriate to the proportion and demand of the crisis situation will be ensured by the state government to improve the process of recovery through rapid dissemination of information, quick response and effective decision making. An institutional mechanism distinguished as 'Crisis Management Group' under the chairmanship of Chief Secretary with representatives of Department of Home including Police, Department of Revenue and Disaster Management and Department of Health will function at the state

level as a nerve center to support, coordinate and monitor crisis management activities related to natural disasters, manmade / accident related disasters and chemical / biological / radiological / nuclear disasters. Accordingly, 'Crisis Management Plans' that clearly define response roles and responsibilities of government agencies, facilitate communication across agencies, specify protocols and procedures, and detail actions to be taken by government departments shall be prepared and made operational by the state government. As and when a grave crisis situation develops, the District Collector as Chairman of 'District Crisis Management Committee' will send the 'first information' to the state level 'Crisis Management Group'.

At the institutional level, the disaster management plan proposed for Almas Resort is presented below.

7.3. Disaster Management for Almas

The disaster management policy statement for Almas Resort is as presented below.

Almas resort is committed for ensuring a comfortable, relaxing and safe holidaying in the resort for which all necessary safety aspects have been integrated in the design and operation of resort. This disaster management plan identifies the possible risks, the safety aspects integrated and which will be periodically reviewed and updated for ensuring the safety and satisfaction of the customer.

7.3.1. Risk Assessment

Considering the location of the resort, activities to come up in the operation phase, the possible disasters could be mainly of two types – natural and manmade. The most probable disasters are briefed below.

Natural Disasters

- Flood
- Earthquake
- Cyclone
- Storm
- Landslides
- Volcanic eruptions
- Lightning
- Tsunami

Manmade Disasters

- Fire
 - Fire due to short circuit

- Fire due to gas or oil leakage
- Fire due to improper handling/storage
- Fire due to human activity
- Explosion
- Terrorist attack
- Wars, Riots
- Accidents

From the analysis of the various natural disasters, flooding of the project area may be expected due towards the river side due to heavy rainfall since in proximity to the river existing along the boundary of the proposed project site. As the structures are designed with the maximum flood probability for the 100 years, any impact on the proposed structures are considerably reduced.

As per the National Earthquake Zonation Map, Kerala state falls under Zone III. Though the area does not fall where there is most probability of occurrence of earth quake, it is required that all the structures constructed should be able to withstand the probability if any. Incorporating the input of the relevant Indian standard IS: 1893:2002 - criteria for earthquake resistant design of structures shall be incorporated to reduce the impact on structures and related damages due to earth quake.

Considering the historical profile as well as the location specificity, the area is not likely to be affected by storm and cyclone, volcanic eruption, and landslides.

Fire related risks due to short circuit, gas leakage, improper handling/storage; human activities *etc.* are high for resorts. A proper fire fighting system shall be in place with regular mock drills done for ensuring that the system can function as per the requirement.

7.3.2. Objective of Disaster Management Plan

The objectives of the Disaster Management Plan (DMP) id to maximize human safety and survival, preserve property, minimize danger and restore normal activities. In case of disaster in the various categories the concerned departments/officials should be intimated immediately so as to put them into action. Since they are already authorized to involve incase of such a disaster as per the Kerala disaster management policy, they can trigger into action without waiting for any written order. This will save much time in decision making.

7.3.3. Various Stakeholders in Disaster Management

The various stakeholders who are part of any disaster management are presented below and the general profile of the actions and the responsible officers from the statutory bodies are presented in **Table 7.1.**

- Kerala State Disaster Management Authority
- State and Central Government departments
- District Disaster Management Authorities
- Local authorities including Municipal Corporations/Municipalities, District/block/Grama Panchayaths, taluk/village officers *etc.*,
- Voluntary and civil society organizations
- Red Cross, multinational aid agencies and UN agencies
- Community-village disaster management committees, task forces
- Public sector undertakings
- Private sector undertakings
- Army, navy, air force, coast guard, airport authority, national disaster response force *etc.*

Table 7.1. Actions during Disaster Management and Responsible Statutory Authority

Action points	Responsible Statutory Authority
Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
Medical care for the injured	District Medical and Health Officer
Supply of food and water and restoration of water supply lines	Executive Engineer, Water Authority, Deputy Director of Supply and Relief Team
Restoring lines of communication and information	Communication, District Information Officer.
Quick assessment of damage and demarcation of damaged areas according to grade of damage	Emergency Operating Centre, PWD and Block Development Officer concerned
Cordonning off severely damaged structures liable to collapse during aftershocks	Police, Fire Brigade, Home guards

7.3.4. Institutional Responsibility

An Emergency Response Centre (ERC) should be maintained and put in action within the Resort which would co-ordinate with various state departments to ensure planning, response and recovery. As the owner, M/s. Almas shall be responsible for

- Planning, Monitoring and Evaluation of disaster management practices.
- Review, adoption of appropriate laws, rules, codes and other measures to increase disaster management at all levels
- Incorporating disaster management aspects in normal developmental activities
- Provide financial assistance
- Building of Inventories

- Gathering support from Government / other departments to train department officials from the State Headquarters and districts, members from the community and other stakeholders through a participatory approach
- Documentation of incident records, lessons learnt *etc.*
- To maintain Support in Relief and rescue operation.

7.3.5. Institutional Arrangements

Institutional arrangements for an emergency management include pre-disaster preparedness, during disaster and post disaster management.

7.3.5.1. Pre-Disaster Preparedness

Pre-disaster preparedness include disaster preventive measures related with setting up of the resort with design and construction of all buildings as per the approved national and international code of practice and ensuring that the routine maintenance requirements are complied in all respects for the same. Incorporation of adequate access ways/walk ways for the movement of equipment and personnel's, preparation of adequate number of escape route plan and providing escape routes to ensure evacuation within the shortest span of time, pre planning of assembly points at the event of any emergency, training of the inmates for dos as don'ts during an emergency and safe evacuation practices, ensuring routine mock drill operations *etc.* would be an important step towards controlling the damage due to any disaster. The project is incorporated with escape routes, emergency alarm, a dedicated fire fighting facilities and common assembly point has been fixed at the parking lot of the resort and the details are presented in **Figure 7.1, 7.2 7.3.etc.**

Provision of an exit at the back side of the resort shall be provided as an additional escape route, which could be operational only during an emergency and employees within the resort, shall be familiarized with the disaster management procedures during their induction period of employment itself. Considering the floating population visiting the resort, it shall be made mandatory by M/s. Almas that the information on the disaster management aspects are duly shared with the inmates preferably in their individual rooms in the language familiar to them with clear display of escape routes and guidance for safe exit. A centralized facility with regular record on the number of inmates including the employees at any time within the resort with visitors' details with emergency contact details shall be maintained for assessing the probability of actual person affected during any emergency in any unit and also to ease contacting with the relatives of the diseased.

For better preparedness, the administrative office as well as the parent organization running the resort shall have an updated ready to reference record on the number of people within the resort with essential details of site layout, building layout with details of equipments, storage details for raw materials

especially the inflammable chemicals, details on the man, machinery, details of fixed and movable assets, including the flexibility for its mobility, storage of solid/liquid waste *etc* .in place which will ease the priority of protection in the event of any emergency. This may help in saving the very important machineries as well as avoiding contamination of chemicals with the soil/nearest water body. A list of emergency contact numbers shall be kept ready to refer while dealing with any emergency.

An in house arrangement for managing any disaster shall be set by M/s. Almas as part of the project. The essential institutional arrangements need to be made is to set up Emergency Control Room and ensuring that the Emergency Management Team is available throughout the shift.

7.3.5.2. Emergency Management System during Disaster

EmergencyControl Room

Emergency control room activates in case of an emergency to direct and co ordinate the operation to handle emergency. The control room shall have well trained personal and facilities for communication, co ordination etc. The following facility shall be made mandatory for the ECR.

- Site Plan showing all emergency exits, fire escapes, assembly point, sources of safety equipments
- External & Internal telephone connections.
- List of Key persons and their addresses, and essential telephone numbers displayed on board.
- Operating point for public addressing systems
- Loud speaker
- Torches
- Alarm Systems

In case of an emergency, the first step to be initiated by the ECR is to disseminate information by blowing siren or signal for the company people as well as for the outside people of the campus.

Emergency Management Team (EMT)

The Emergency Management Team shall be constituted as per the structure presented below to combat on emergencies. A 3 tier team shall be maintained for the resort with trained manpower as presented in **Figure 7.1**. On an incident reporting **Site Incident Manager** has to primarily investigate the situation and appraise to **Works Main Controller**. Works Main Controller will be the overall responsible officer for assessing and declaring an emergency, analyzing the progress of combat operation and also to ensure availing the services of various stakeholders involved. Site Incident Manager would be directly in touch with the operation team and would facilitate their operation, closely monitor the progress and

report the same to Works Main Controller. The operation teams consisting of **Combat Team**, **Rescue Team** and **Auxiliary Team** would be dealt with actual operation in site and SIC and WMC would be supporting the operation team with appropriate input, decision and ensuring that the services of various stakeholders involved are availed for combating with the situation.

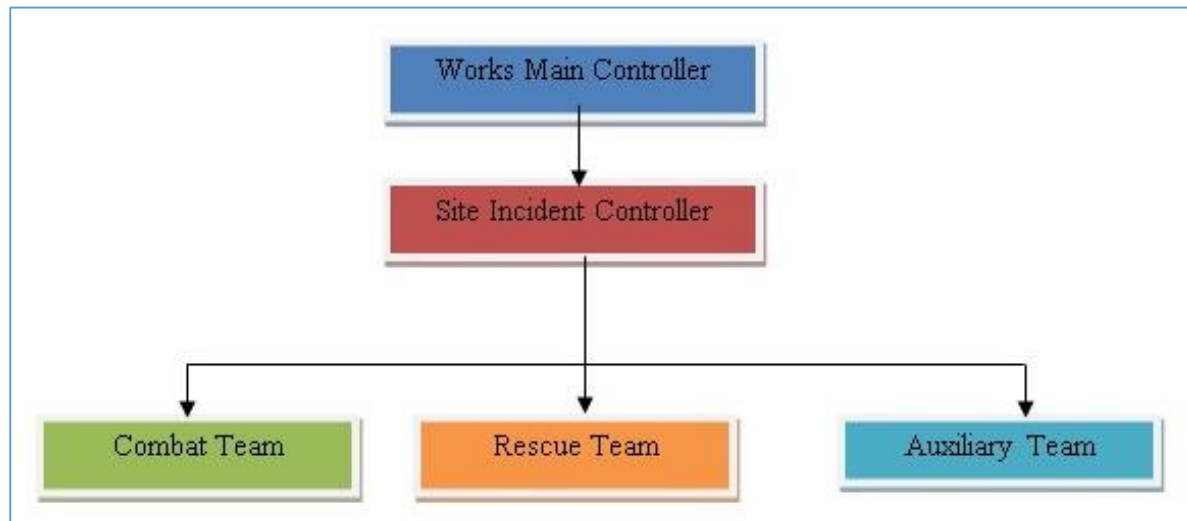


Figure 7.1. Structure of Emergency Management Team

During an emergency, the whole team would be put in to action and the general responsibility allocation within the emergency management team is presented in **Figure 7.2**.below. The Emergency Management Team proposed for the resort is presented in **Table 7.1**

Table 7.1. Proposed Emergency Management Team for Almas Resort

Sl.No	Proposed Position	Details of Personnel
1.	Works Main Controller	Dr Ahmed Kabeer , Chairman, Almas Ayurvedic Resorts Limited
2.	Site Incident Controller	Resort Administrator
3.	Combat team leader	Resort Manager
4.	Rescue Team leader	Resort Security Officer
5.	Auxiliary Team leader	Public Relations Officer

Note: The team leaders of combat team, rescue team and auxiliary team would be supported with adequate number of members for the operation during an emergency.

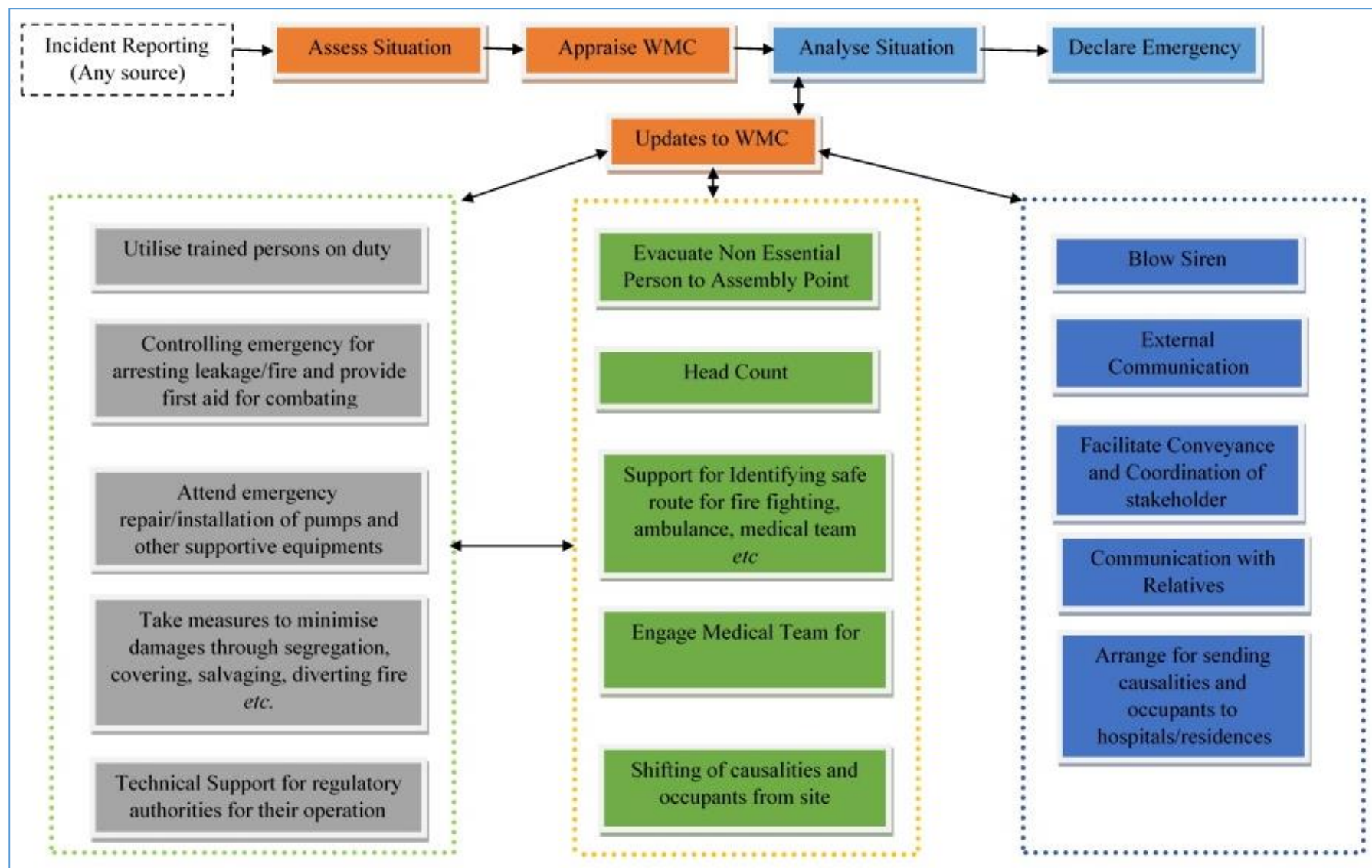


Figure 7.2. Responsibility Allocation within EMT during Emergency

The emergency contact list to be maintained by the resort is presented in **Table 7.2.**

Table 7.2. Emergency Contact List to be maintained by Resort

Sr. No.	Contact Point
Internal Contact Numbers	
1.	Dr. Ahmed Kabeer, Chairman
2.	Almas Hospital, Changuvetty, Kottakkal
3.	Resort Administrator
4.	Resort Manager
5.	Employees
External Contact Numbers	
1.	District Administration
	District Collector
	Thahasildar
	Village Officer
	Tirur Municipality
	Corporation
	District Panchayath
	Block Panchayath
	Grama Panchayath
2.	Fire Services
	Chief Fire Officer of nearby stations
3.	Police
	Police Commissioner
4.	MedicalFacilities
	All government hospitals/private and clinics community health centers, primary health centresetc.
	Ambulance Services
	Blood bank facilities
5.	State Electricity Board Office
6.	Fisheries department
	Fisherman association/societies
7.	Transport Services
	Road Transport Officer, Tirur
	KSRTC Station, Tirur
	Private Bus Stand Tirur
	Ponnani Port
8.	District Public Relations Officer
9.	District Agriculture Officer
10.	Educational institutes for acting as shelter
	All schools and colleges, play schools etc
11.	Press media for information dissemination
	Doordarshan
	All India Radio
	Mathrubhumi Daily
	MalayalaManorama Daily

Sr. No.	Contact Point
	Times of India
	The Hindu
	Asianet
	Reporter
	Indiavision
	Amrutha
	Jeevan
	Kairali
	Surya

7.3.5.3. Post Disaster Management.

Damage Assessment and Estimation of Funds

A detailed assessment must be conducted before commencing rehabilitation and reconstruction activities. Project proponent along with the officials from statutory authorities should undertake detailed assessments at their respective level for damages sustained. Based on detailed damage assessment, it is required to finalize estimation of funds required and fund generation mechanisms. Assistance from national and international organizations shall also be sought, if required.

7.3.6. Plan update and Review

This disaster management plan shall be reviewed once in a year and shall be updated as per the operational requirements.

7.3.7. Training & Drills

The key personnel to act on emergencies shall be provided with basis training for handling any emergency. Mock drill exercises shall be done once in a month (10.00 AM – 11.30 AM on 4thSaturday) to ensure that the employees and inmates are aware of the measures to be undertaken during an emergency