Disaster Management Plan

Of

Proposed development of IT Park

At

PLOT BEARING S.NO. . No. S. No. 65/1, 65/2 & 65/3, Kharadi, Pune Maharashtra

Proposed by

"KRC Infrastructure and Projects Pvt. Ltd
on Behalf of Gera Developments Pvt. Ltd."

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Disaster Management Plan (DMP)

1.1 Introduction:

The proposed project of IT Park is located on S. No. S. No. 65/1, 65/2 & 65/3, Kharadi, Pune Maharashtra The detail location is given in **Figure 1.1**.

1.1.1 Location of the proposed project:

Figure 1.1 Location of the proposed project

The proposed project consists of IT Building. The layout of the proposed project is as follow in **Figure 1.2**:

Figure 1.2 Layout Plan of the proposed project

Disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to life and property. The damage caused by disasters is immeasurable and varies with the geographical location, climate and the type of the earth surface/degree of vulnerability. This influences the mental, socio-economic, political and cultural state of the affected area. Following are the main features of disaster given in **Figure 1.3**.

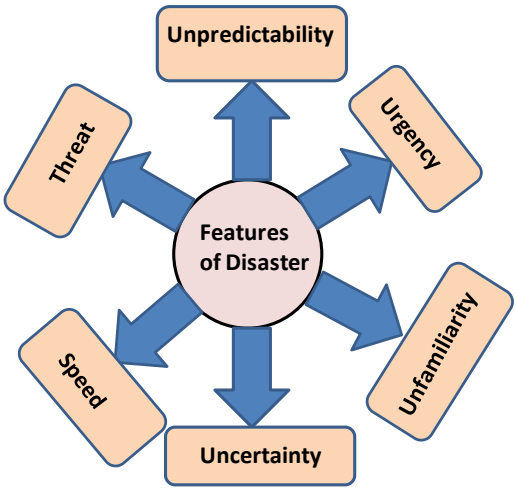

Figure 1.3 Features of Disasters

Disasters are classified in different categories that are listed in **Figure 1.4**.

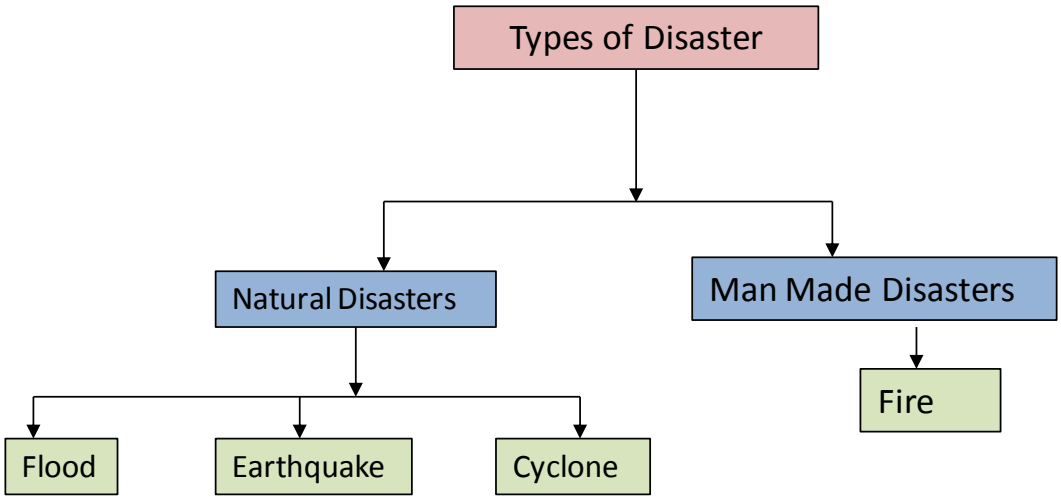

Figure 1.4: Different categories of Disasters

1.2 Risk Assessment and Vulnerability analysis

Without Vulnerability there is no disaster. The process of Risk assessment starts with the assessment of potential disasters through a combination of hazards mapping and vulnerability analysis. Risk assessment was carried out by:

i. Hazard mapping i.e. gathering information regarding location

ii. Frequency

iii. Duration of the hazard in an area

All these hazards could occur at different time period. They could vary seasonally, especially natural hazards like flood and cyclone. Man made hazards could occur at any time of the year.

Similarly, earthquake and tsunami could occur at any time of the year, depending on climatic conditions. A seasonal hazard mapping for different disasters is presented in **Table 1.1**.

Table 1.1: Seasonal disaster mapping

Type of Disasters	Vulnerability Mapping	Remark	Seasonal Mapping
Floods	The vulnerability of floods at the proposed site would depend on the drainage pattern, sewerage system, and heavy rainfall and others	Management plan for Floods is highlighted below. We have provided the storm water drainage for the proposed project.	Mainly from July-September as there is possibility of heavy rainfall, H, A and I are affected
Cyclone	Pune falls under Low risk zone for cyclone mapping. Cyclone is formed in condition when warm sea As Pune is not located near coastal line of Maharashtra.	Pune is the place situated interiors of Maharashtra	There will be very minimal risk of cyclones
Earthquake	Proposed site is located in Pune which falls under Earthquake Zone III, moderate risk zone, as per the map showing seismic zones of India IS 1893 (Part I) : 2002.	Management plan for Earthquake is highlighted below.	This is a natural calamity that could take place at any point of time. The affect is seen on H, A and I
Fire	Fire accidents could take place due to improper maintenance of electrical wiring, faulty wiring and gas leakage etc. Carelessness is one of the major factors for fire hazards.	Fire Hazard is considered in the study and an evacuation plan is also designed for the proposed project There will be clear open space of all along the building. There will be also provision of 9 m turning radius for fire tender.	It can occur at any point of time and H, A and I are affected by it

H: Human, A: Animals, I: Infrastructure

The proposed project is located in Pune. It could face various challenges from both natural and man-made hazards as highlighted in previous section. Some of the precautionary measures that could be taken in case of disasters in terms of social aspects are highlighted in consequence section of this chapter.

1.3 Mitigation and Preparedness

1.3.1 Standard Operating Procedures (SOPs)

A. Cyclones and Floods

- Community awareness and mass education programme would be arranged in association with NGO to manage the challenges during and after floods and cyclones.
- Employees would be made aware to switch off electrical mains at emergency situation.
- Employees would be educated about Do's and Don'ts during cyclone and Floods.
- The proposed project will have the provision to avoid the floods during rainy season.
- Proper maintenance of storm water channel and sewer lines.
- Developer would build the proposed building with all the measures to withstand high wind velocity.
- Nearby medical shop details will be made available to employees
- Awareness would be spread about the hazards of stored water. Communicable diseases like malaria, dengue, etc. could spread if water is stored for longer time.
- To avoid the leakages in building, there will be time to time check done by the maintenance staff.

B. Earthquake

- There will be provision of local newspaper, radio or television station to:
  - Provide series of information on locating hazards in homes, workplaces, day care centers, etc.
  - Provide tips for earthquake drills.
  - Run interviews with representatives of the gas, electric, and water companies about how individuals should prepare for an earthquake.
- There will be proper maintenance team to assist concerned authority in repair and strengthening tips for exterior features, such as porches, front and back decks, sliding glass doors, canopies, carports, and garage doors.
- The list of building codes will be given to society manager or the concern authority. National building codes would be made available to the concern authority
- Developer would prepare a disaster emergency kit which would be maintained at society office.

- Developer would follow seismic building standards and land use codes that regulate land use along fault lines, in areas of steep topography, and along shorelines.
- Some municipalities, counties, and states have enacted codes and standards to protect property and occupants in case of an earthquake. Code that would be followed by developer is given in **Table 1.2**

Table 1.2: Codes that would be followed by Developer

Codes	What it says
IS:1893 (Part 2)	Elevated and Ground Supported Liquid Retaining Structures
IS:1893 (Part 3)	Bridges and Retaining Walls
IS:4326	Earthquake Resistant Construction
IS:13920	Ductile Detailing of Reinforced Concrete Structures
IS:13827	Earthen Dwellings
IS:13828	Low Strength Masonry Structures
IS:13935	Seismic Strengthening of Structures

C. Water Scarcity Management

- There will be provision of sewage treatment plant which will decrease the water demand for flushing and Gardening.
- Employees would be provided with booklet that would highlight measures to save water and importance of water.
- Ultra low flow faucets and flushing devices could be installed by developer
- Developer would tie up with NGOs to promote development of emergency low cost water treatment plant.
- The society will arrange the tanker water if required.

D. Construction Phase Management

- Developer would not allow any child labour.
- Developer would evaluate health status of both skilled and unskilled workers on regular basis. If any workers found to have any diseases, then he/she would be transferred to a different sector depending on their skills.
- Developer would provide wages as per Payment Wages Act, 1936 and Minimum Wages Act, 1948.

- Other act that would be followed by developer for workers, The Buildings and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996.
- Similarly, developer would follow standard specifications for construction workers as well as for construction activities. These specifications and codes that to be followed are given in **Table 1.3**.

Table 1.3: Codes to be followed by developer during construction phase

Publication	Code no
Safety code for handling and storage of building material	IS 7969-1975
Safety code for scaffolds and ladders	IS 3696 (Part-I & II)-1987 & 1991
Safety code for working with construction machinery	IS 7293-1974
Safety code for excavation work	IS 3764-1992
Safety requirements for floor and wall openings, railings and toe boards	IS 4912-1978
Safety code for demolition of building	IS 4130-1991
National building code of India, 1983	Part-VII
Safety code for erection of structural steel work	IS 7205-1974
Steel scaffoldings	IS 2750-1964
Code of practice for structural use of unreinforced masonry	IS 1905-1987
Code of practice for design and construction of foundations in soils: General Requirements	IS 1904-1986

- All the storage area must be under the supervision of skilled and qualified staffs.
- Facility Manager would be appointed by developer and that person would be responsible for managing all safety related activities on the site.
- Some of the immediate measures that would be adopted by developer:
  - Construction and maintenance of safety facilities such as access roadways, pedestrian routes, barricades and overhead protection.
  - Safety signs would be installed at various location of construction site. It must be in Hindi, Marathi and English languages.
  - Testing of lifting machinery such as cranes and goods hoists, and lifting gear such as ropes and shackles on regular basis.
  - Inspection and rectification of access facilities such as scaffolds and ladders.
  - Inspection and cleaning of welfare facilities such as toilets, clothing accommodation and canteens.

- Transmission of the relevant parts of the safety plan to each work group.
- The organization and conduct of safety training programmes, including induction training for all workers on the site.
- The investigation and review of the circumstances and causes of accidents and occupational diseases so as to advise on preventive measures.
- Necessary protective equipment would be provided by developer.
- First aid kit box would be maintained at site engineer and Facility Manager office.

➢ Noise control measures include:

- Workers would be advised to switch off the machines when they are not in operation.
- Workers would be advised and trained to keep compressor motor covers closed when they are running.
- Workers would be advised to wear ear plugs while working with noise related machines.

➢ Other sanitary services that would be provided are:

- Proper water supply would be made available for all workers. This water would be made available through tankers.
- Toilet and urinal facilities would be provided in adequate number.
- Drinking-water containers should be placed in cool and protected areas. These containers must be made from impermeable materials with suitable covers. The containers should be cleaned regularly by a designated person. The drinking water must be tested for chemical and bacteriological parameter on regular basis. Developer could tie up with nearby institute to carry out this activity.
- Meal area or canteen should be cleaned properly by authorized personnel.
- Toilet and washroom facilities would be provided.

E. Fire Hazard

➢ List of nearby fire stations and hospitals would be displayed at lobbies and society office room.

➢ The road map of nearby fire stations would be displayed at lobbies, society office room by developer and the same would be maintained by concerned authority.

➢ Developer and concerned authority would be given booklet for Do's and Don't for fire hazard.

- Developer would follow the appropriate building codes for construction of proposed building.
- Developer would follow appropriate norms for electrical wiring system to minimize the fire hazards.
- Evacuation plan would be shared with all the staff members, employeess and the same would be displayed at each floor lobbies and society office. The same plan would be maintained by concerned authority.
- Developer would be installing fire hoses/ fire extinguisher and first aid kit box. The number of the same will be provided as per CFO nos.Concerned authority would be inspecting them on regular interval. Maintenance for the same could be taken care initially by developer and later by society management committee.
- Sprinkler systems, fire and smoke alarm would be installed by developer. Locations for the same would be chalked out after completion of project. They would be regularly monitored for their efficient functioning.
- Importance of assembly point and its location would be highlighted by developer.
- An underground water storage tank of would be provided for firefighting measures.
- Electric supply to these pumps would be on independent circuit.
- Walls enclosing lift shaft would have 2 hours fire resistant capacity.
- One dry chemical powder type fire extinguisher of 10kg capacity having ISI certification mark and two buckets filled with dry sand would be kept in Electric Meter Room as well as Lift Machine Room.
- The building would be provided with manual fire alarm system with main control panel at ground and pill boxes and hooters at each floor level. The layout of fire alarm would be in accordance to relevant I.S. Specification.
- There will be provision clear distance all around the buildings as specified in CFO requirement. This will be helpful for the fire tender movement. Following figure shows the fire tender movement of the proposed project

Figure 1.5 Fire tender Movement

1.4 Evacuation Plan:

Following plans are showing how the IT employees will be evacuating during Fire. There will proper signage on each floor.

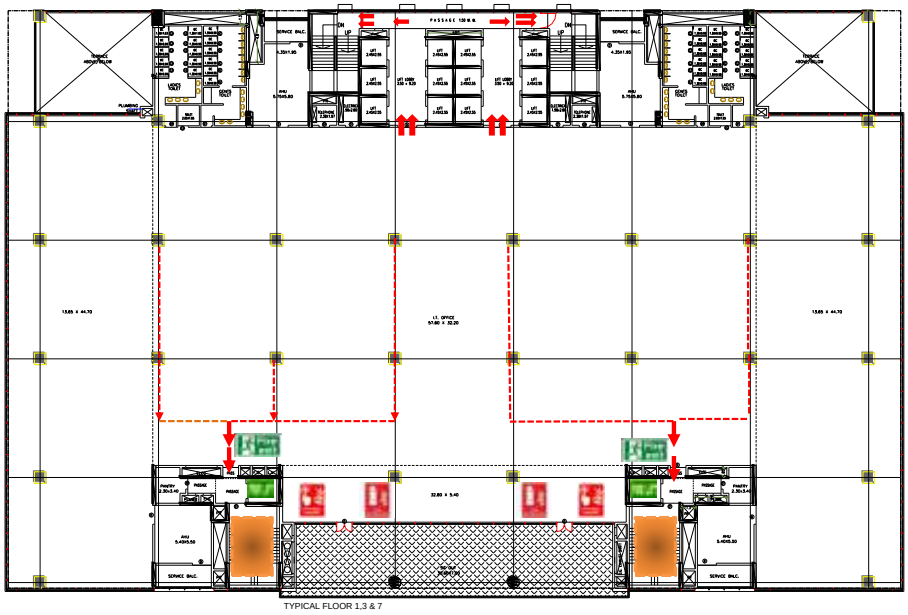

Figure 1.6 Evacuation Plan_ Typical floor plan 1, 3 & 7 floor

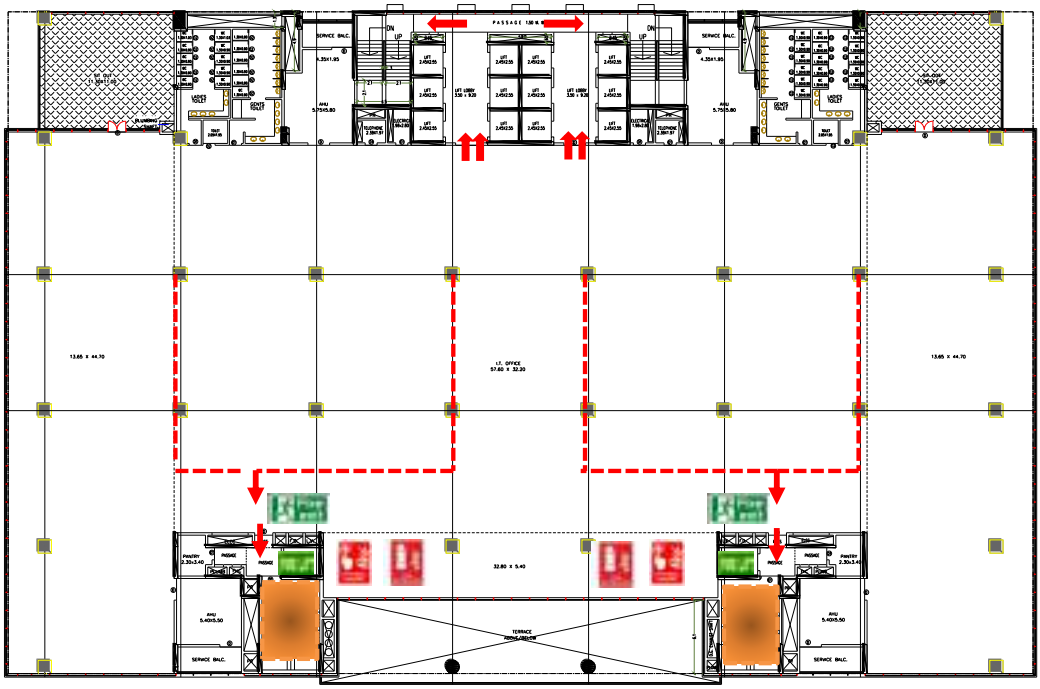

Figure 1.7 Evacuation Plan_ Typical floor plan 2, 4 & 8 floor

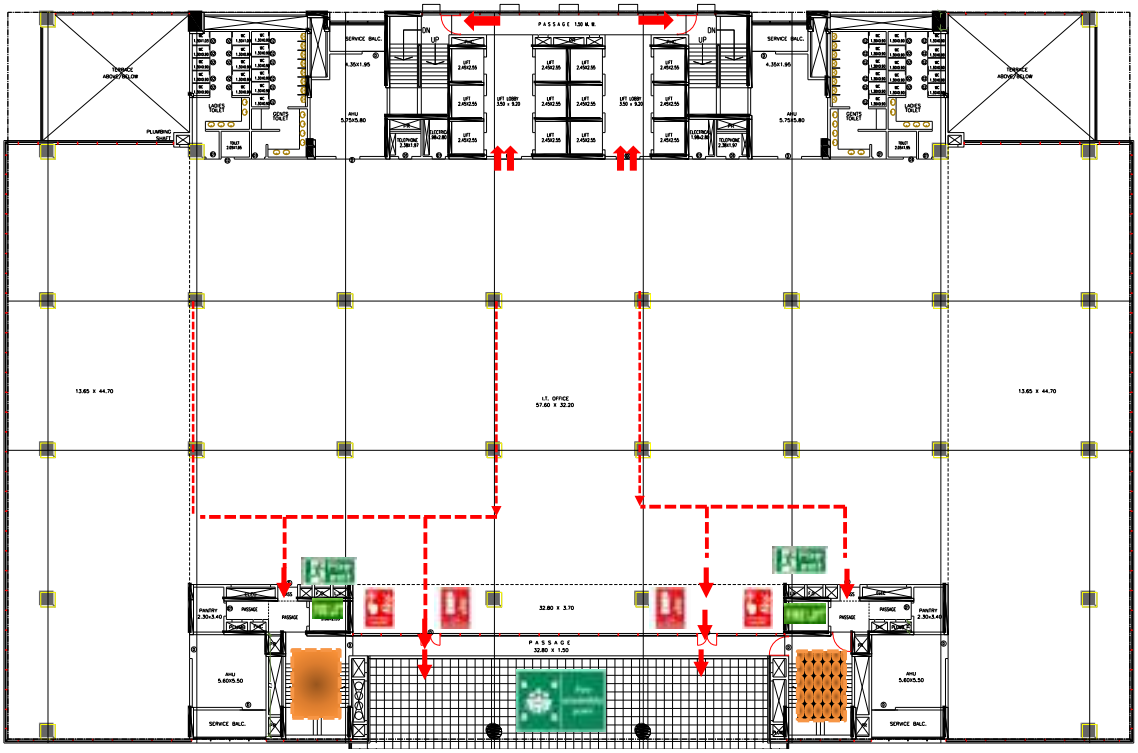

Figure 1.8 Evacuation Plan _Refuge floor plan 9th floor

1.5 Emergency Resonance Plan:

The following flowchart gives the idea regarding overall path to be followed during disaster.

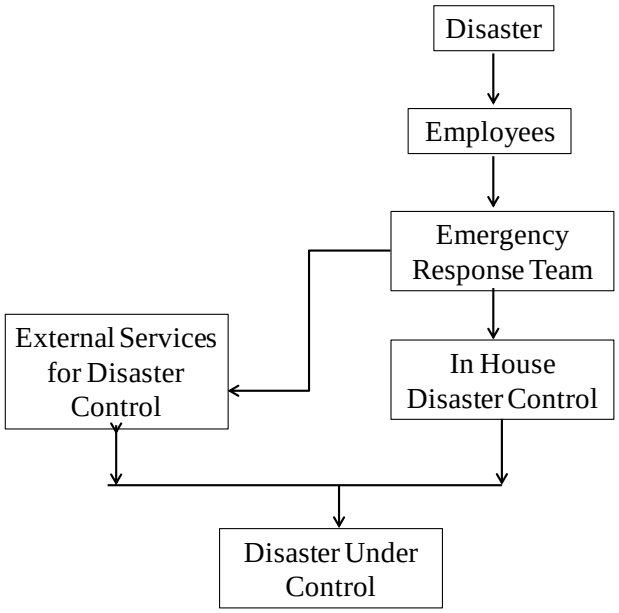

Figure 1.9 Emergency Action Plan

1.6 Inventory Resources

A. Disaster management Kit and First aid kit

- **Developer would prepare a disaster emergency kit which would consist of:**

1. Battery operated torch
2. Extra batteries
3. Battery operated radio
4. First aid kit and manual
5. Candles and matches in a waterproof container
6. Knife
7. Chlorine tablets or powdered water purifiers.
8. Can opener
9. Essential medicines
10. Thick ropes and cords
11. Sturdy shoe

This kit would be maintained at society office

Detail of first aid kit box which is to be prepared and kept at appropriate location. This first aid kit box must be check and inspected by society manager and fire officer on regular interval. The details of different medicines to be kept in first aid kit box are:

Bandages	Dettol/Savlon	Antiseptic cream	Medical tape roll
Dressing material	Sterile gauze pads	Adhesive bandages	Scissors
Antibiotics	Soap	Burnol	Crocin

B. List of NGOs

List of various NGOs and their functional area has been highlighted in the **Table 1.4**. These NGOs can be contacted for awareness creation and providing basic knowledge to the employees. Developers would provide such list to the society manager and the decision would be taken by society to conduct such awareness campaign.

Table 1.4: List of different NGOs near the proposed site

Name	Address	Contact no.	Functions
Foundation Of Road Safety Environment Conservation And Disaster Management	Row House No-24,Ridhi-Sidhi Park,Plot No-78,Vimannagar,Pune,Maharashtra,Pin Code-411014, Viman Nagar, Pune - 411014	02040027056	The NGO is for the Disaster Management and Road safety
Sidhi Vrudha Asharam	Shivneri Complex, Pune solapur Road, near usha Kiran Hospital, Hadapsar, Pune - 411028,	020-39543608	NGO For Women NGO For Senior Citizen
National institute for sustainable development	Sunder, H. N. 560, Survey No. 21/1, At - Sainikwadi, Wadgaonsheri, Sainikwadi-Vadgaon Sheri, Pune - 411014	020-27033020	Charitable Trusts NGO For Women Ngos For Children Charitable Old Age Homes NGO Consultants Charitable Trust Registration Agencies Ngos For Child Labour
Green Health Foundation	219, Gopi Mall, Nana Shankar Sheth Road, Dombivli (W) – 421202	0251-2400405	Health Survey
SOCLEEN	N-7, Rabindra Natya Mandir, Prabhadevi, Mumbai – 25	+(91)-265-2794352	Water and wastewater management, fire fighting drills

C. List of Hospitals

List of hospitals near proposed project is given in **Table 1.5**. Proposed project would be displaying this list of hospital in lobbies or appropriate locations and society office rooms. Also they would share the same list with concerned authority and employees. So as the time of emergency, one could contact any of the hospitals for early response.

Table 1.5: List of hospitals near proposed project

Name	Address	Phone number
Columbia Asia Hospital	No.2A, Near Nyati Empire, 22, Old Mundhwa-Kharadi Rd Santipur, Thite Nagar, Kharadi Pune, Maharashtra 411014	020 7129 0222
Imax Multispecialty Hospital	Sant Tukaram Nagar, Opp. Kesnand Phata Pune Nagar Rd Wagholi Pune, Maharashtra 412207	073870 56678
Sahyadri Hospitals	Opp. MSEB office Hermes Heritage Society Phase 1, Shastrinagar, Yerawada Pune, Maharashtra 411006	020 6727 1111
Noble Hospital	153, Magarpatta City Road, Hadapsar North Hadapsar, Hadapsar Pune, Maharashtra 411013	020 6628 5000

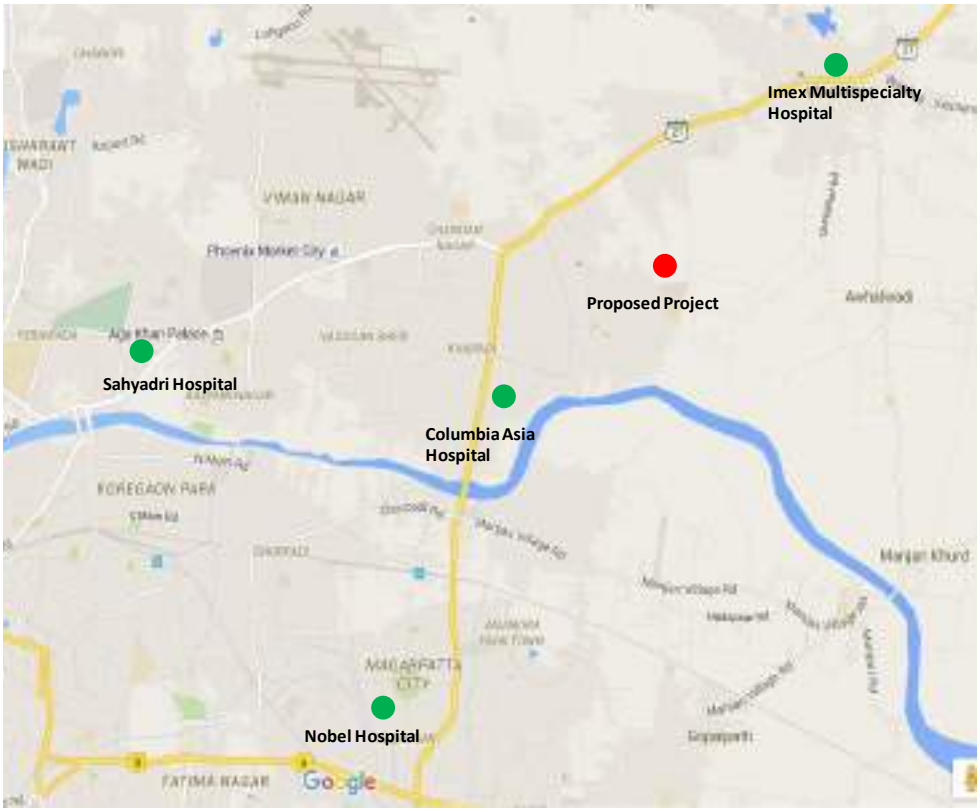

Figure 1.10 Locations of Hospitals

1.7 Warning System and information sharing

Maharashtra has eight Area Cyclone Warning Centre (ACWC) monitoring stations of IMD. They mainly release special bulletins for cyclone warning. They would instruct the employees as per the

information, without creating any panic situation. In order to share this information some of the communication routes that could be taken are:

a) Direct-to-Home (DTH)

DTH service provides different language channels in the country. The most significant aspect of DTH broadcast is its digital quality, fail-proof communication. Apart from the DTH service of Prasar Bharati (PB), private broadcasters like Dish TV and Tata Sky also provide services on different television channels all over the country. There will be arranging of such kind of booster device on terrace for proper communication for whole communities. They would also install one television set at society office for data updating.

b) Battery-less Hand Radio

Some battery-less, low-cost hand radios are now available in the market which will be useful for receiving warnings. Developer would provide such battery less hand radios to manager for receiving warnings from All India Radio (AIR).

c) Internet

In the present era of electronic communication, internet provides a useful platform for communications. It provides a new and potentially revolutionary option for the rapid, automatic and global dissemination of disaster information. A number of individuals, organizations and groups, including IMD, are using the internet for real time dissemination of weather observations, forecasts, satellite and other data. In the most critical phase of natural disasters, electronic communication has provided the most effective, and in some instances perhaps the only means of communication with the outside world. Developer will help to provide internet based services at society office and also to all the flats. It would be dependent on flat owners to decide on selecting a particular brand of internet.

All these warning systems would be utilized by the proposed building for acquiring warning data and thus plan adequately for the disasters.

1.8 Road Map of Fire Brigades

The proposed project is located at Pune. The address, phone number, and minimum distance (by road) of nearby Fire stations are given in **Table 1.6.**

Table 1.6: Details of Fire Stations near proposed project

Sr. No.	Name of Fire Station	Address	Phone Number	Nearest Distance by Road (in km)	Time
1	Amanora Park	Amanora Park Town, Pune, Maharashtra, India		7.1 km	17 min
2	Yerawada Fire station	Yerawada, Pune, Maharashtra 411006, India	020 2669 6400	10.4	27 min
3	PCMC	Bhosari Gaonthan, Bhosari, Pimpri-Chinchwad, Maharashtra 411039, India	020 2712 0090	22.1 km	50 min

Note: *The distance given in table is measured from google earth.

There is Fire station at Amanora Park. It is about 7.1 km away from the proposed site. In order to reach this place, road maps from Fire Station to the proposed site are given in **Figure 1.11**. It would take about 17 minutes to reach the proposed site. To reach the proposed site fire brigade should take right turn at Raskar Chowk then take Magarpatta road, at Magarpatta Road take left to get Kharadi south main road. From this road again take left at Fountain road. From fountain again take right at Eon circle to reach the proposed site.

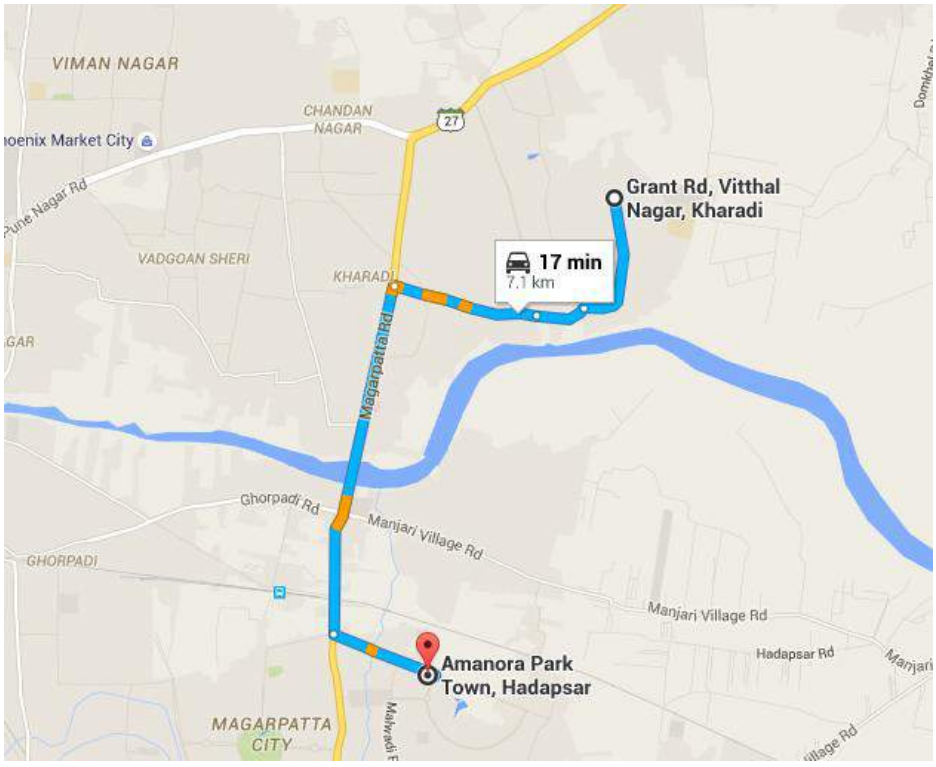

Figure 1.11: Road map of proposed project from Amanora Fire Station

The second nearest fire station is Yerawada fire brigade. The route from the fire station to reach the proposed site is highlighted in **Figure 1.12**. The distance is about 10.4 km through Pune Nagar Highway It would take about 27 minutes to reach the destination.

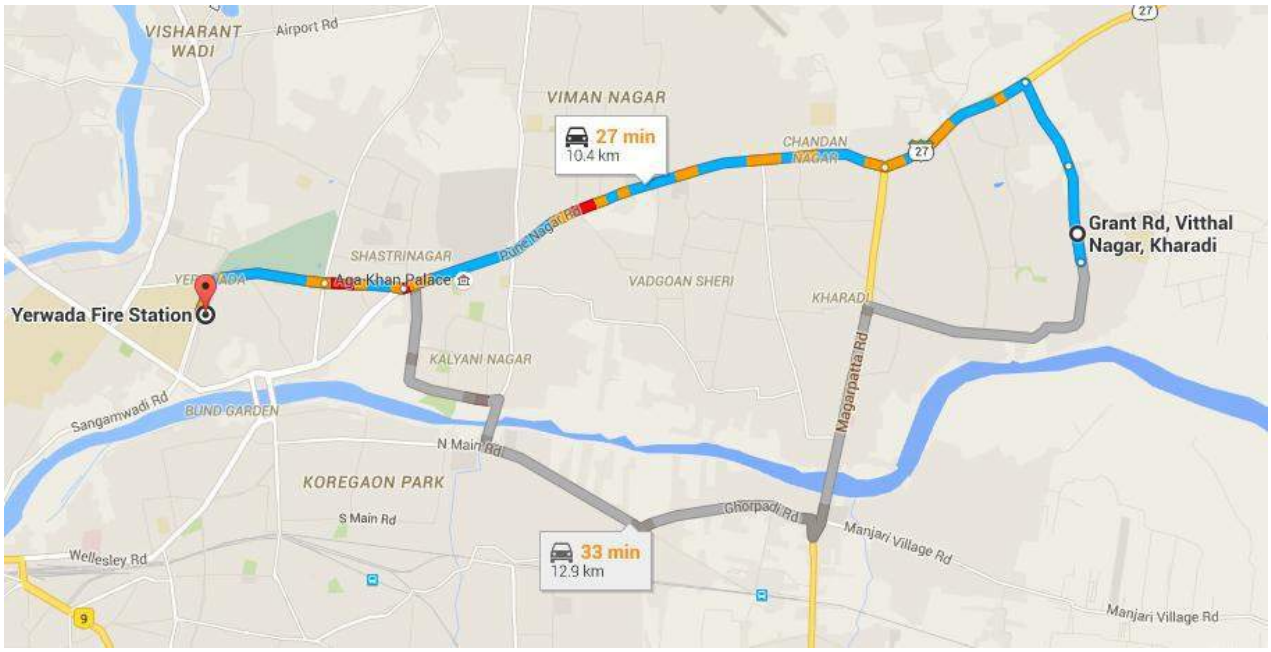

Figure 1.12: Road map of proposed project from Yerawada fire station.

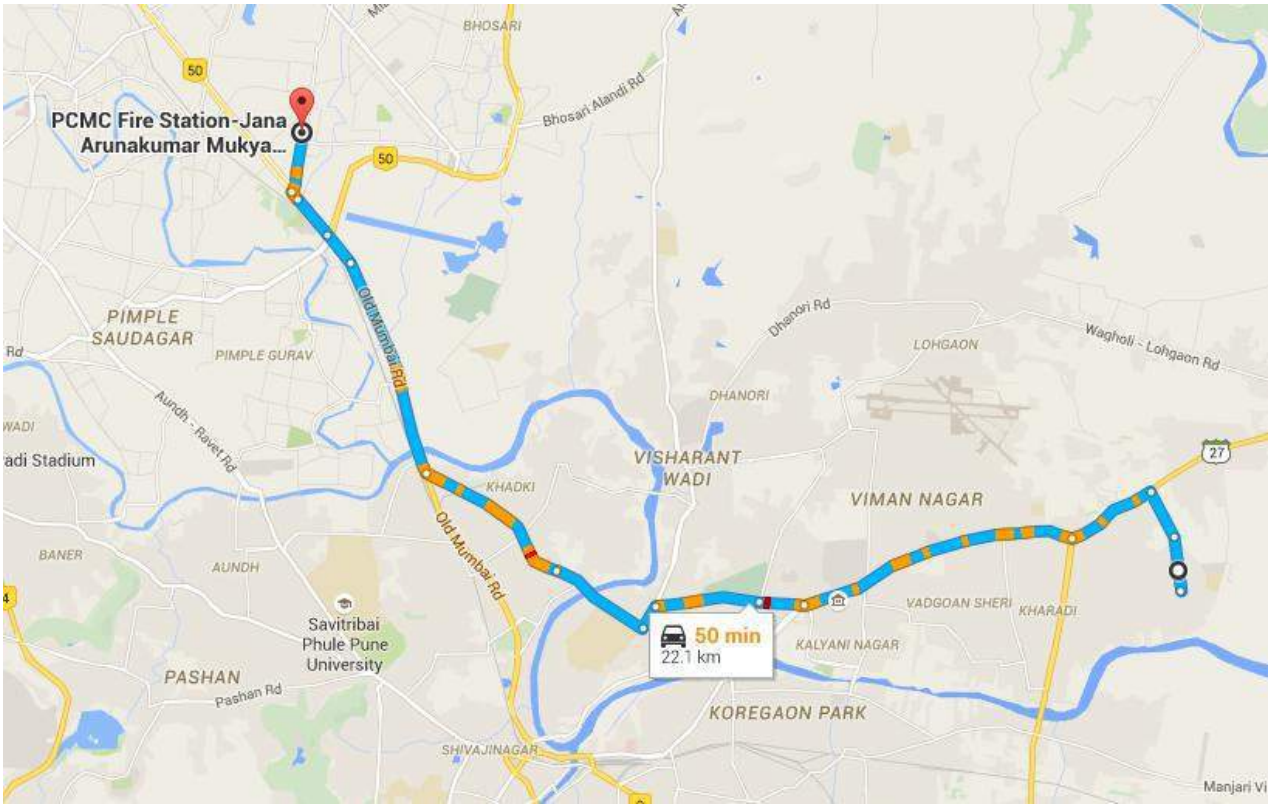

Figure 1.13: Road map of proposed project from PCMC Fire Station

The third near fire station is PCMC fire station. The proposed site is around 22.1 km away from the fire station. The route from fire station to reach proposed site is to take straight at fire brigade road to Old Mumbai road. All these routes would be displayed at society offices and at appropriate locations. Also developer would install sign board on road for providing direction of proposed site. A feasibility and final decision on them could be taken in discussion with PMC. Similarly Ambulances can use the same route for locating proposed project.

1.9 Do's and Don'ts for Disasters

A. Fire

1. Do not panic; keep calm, think and act quickly
2. Activate the manual fire alarm system provided on the floor to raise alarm
3. Report to security management
4. Summon the fire brigade on telephone No. 101
5. Alert the people in the vicinity of fire
6. Do not take shelter in the toilet
7. Fight the fire only if you can. Do not take undue risk
8. Crawl, in case you encounter smoke
9. If you know the details of fire/fire extinguishing system provided, inform the fire brigade personnel on their arrival

All of these could be listed, shared and displayed near society office or lobbies

B. Cyclone

(a) Before the Cyclone season

- Concern authority would inspect the building; secure loose tiles, carry out repair works for doors and windows
- Remove dead woods or dying trees close to the building; anchor removable objects like lumber piles, loose tin sheds, garbage cans, sign-boards etc. which can fly in strong winds
- Emergency light with extra batteries, battery operated torches, battery operated radio and enough dry cells would be kept at society office
- Check first aid kit box regularly

(ii) When the Cyclone starts

- Listen to the radio (All India Radio stations give weather warnings)
- Keep monitoring the warnings. This will help one to prepare for a cyclone emergency
- Pass on the information to others. But one must not to spread rumors
- Ignore rumors and do not spread them; this will help to avoid panic situations
- Believe in the official information
- Developer would be built the project with all the measures to withstand high velocity wind
- Employees would be made aware to switch off electrical mains at emergency situation

(iii) Post-cyclone measures

- One must get inoculated against diseases immediately
- Strictly avoid any loose and dangling wires from the lamp posts
- Concern authority will clear all the debris from the premises

C. Floods

The concerned authority should take the following measures as soon as they receive flood warning:

- ✓ Closing of sewer wells
- ✓ Torch
- ✓ Batteries
- ✓ Emergency light
- ✓ Acquiring sufficient food material and potable drinking water
- ✓ Maintenance of First Aid Kit - This First Aid Kit should include disinfectant (dettol), dressing material, soap, band aid, antiseptic cream, medicines, antibiotics, and scissor

Measures after Floods

- ➢ During floods, incidence of water borne and vector-borne diseases increases. Hence all the staffs and members of the society would be advice to undergo a thorough medical checkup for betterment of their health.
- ➢ All the underground and overhead tanks must be cleaned and disinfected. This must be carried out in presence of qualified staff. Developer would assist in identifying the concern authority or NGO who carried out this kind of activities.

- The flood affected area must be disinfected. Any water which was stored during floods (in pits, vessels, drums etc.) should be cleaned and disinfected. This would prevent growth and spread of vectors.
- Desilting and cleaning of storm water channels should be carried out by concerned authority. Developer would assist in carrying out this activity

D. Earthquake

If one is outdoor at the time of earthquake

- If open space is available nearby, go there
- Keep away from tall chimneys, buildings, balconies and other projections
- Do not run through streets; hoardings or lamps may fall

If one caught indoors at the time of an earthquake

- Be calm
- Stay indoors until the shaking stops
- Stay away from glass windows, doors, cupboards etc
- Stay away from falling plaster, bricks or stones
- Get under a table so that one does not get hurt by falling objects
- Do not rush towards the doors or staircase. They may be broken or jammed
- If one goes outside, move quickly away from the building to prevent injury from falling debris
- Be aware that fire alarm and sprinkler systems frequently go off in buildings during an earthquake, even if there is no fire. Check for and extinguish small fires, and exit via stairs

Avoid the following in an earthquake

- Do not crowd around damaged areas or buildings
- Do not waste water. It will be needed for fire fighting.
- Do not move the seriously hurt people
- Wait for medical help to arrive

- Do not spread rumors. They lead to panic and worsen the situation

After an earthquake

- Check if anyone else is hurt. Use first aid at least on the cuts and bruises
- Keep the streets clear for emergency services
- Switch off all appliances like the refrigerator, TV or Computers
- Turn off the gas
- A battery operated radio would aid in receiving important messages
- Use the stairs, not an elevator
- Listen to a portable, battery-operated radio or television for updated emergency information and instructions
- Cellular telephone equipment is subject to damage by quakes and cell phones may not be able to get a signal, but regular "land line" phones may work
- Open closet and cabinet doors cautiously as contents may have shifted during the shaking and could fall, creating further damage or injury
- Watch out for fallen power lines or broken gas lines, and stay out of damaged areas
- Stay out of damaged buildings. Damaged buildings may be destroyed by aftershocks following the main quake
- Be alert for and observe official warnings
- Do not smoke; smoking in confined areas can cause fires

DG sets:

S.No.	Risk Assessment	Risk Mitigation Plan
1.	DG Catches Fire	1. DG Sets have inbuilt fault detection and tripping mechanism in case of low oil level or any other faults. 2. A trained operator shall always be present in the DG Room to keep a check on the functioning of the DG and taking necessary measures in case of DG malfunction.
2.	DG Explosion	1. DG Sets have inbuilt fault detection and tripping mechanism in case of low oil level or any other issues. 2. A trained operator shall always be present in the DG Room to keep a check on the functioning of the DG and taking necessary measures in case of DG malfunction. 3. An annual maintenance contract shall be given to the DG vendor for regular servicing of the DG Sets.
3.	Day Storage Tank Catching Fire	1. A trained operator shall always be present in the DG Room to keep a check on the functioning of the DG and taking necessary measures in case of DG malfunction. 2. An annual maintenance contract shall be given to the DG vendor for regular servicing of the DG Sets.

1.10 Conclusion and Recommendation

- The essential information of cyclone and flood warning to society manager or concerned authority will be provided.
- The buildings will be constructed based on the codes. . National building codes would be made available to the concern authority. These codes identify construction techniques for buildings that help them withstand earthquakes without collapsing and killing people. Also Developer would follow appropriate building codes during construction phase.
- Localize the information by printing the phone numbers of local emergency services offices and hospitals
- Provide tips on conducting earthquake drills at the proposed site
- Interview representatives of the gas, electric, and water companies about shutting off utilities
- There will be proper arrangement of water distribution for the society.

- All the sensors and fire safety equipments shall be inspected on regular basis by concern authority. If any faulty equipment is found then they must be replaced by developer or they assist in this activity. Society management committee should keep separate funds for DMP.
- All the members and employees would be made familiar with evacuation plan
- Developer would formulate disaster management cell (**Figure 1.14**) and they would be responsible for:
    - Check up and structural auditing of building and submitting the report to manager and PMC on regular basis.
    - Evaluation of sprinklers, fire fighting equipment's, first aid kit box, disaster management rescue items, safety training, mock drills, awareness among employees, etc.
    - Training and knowledge dissemination.

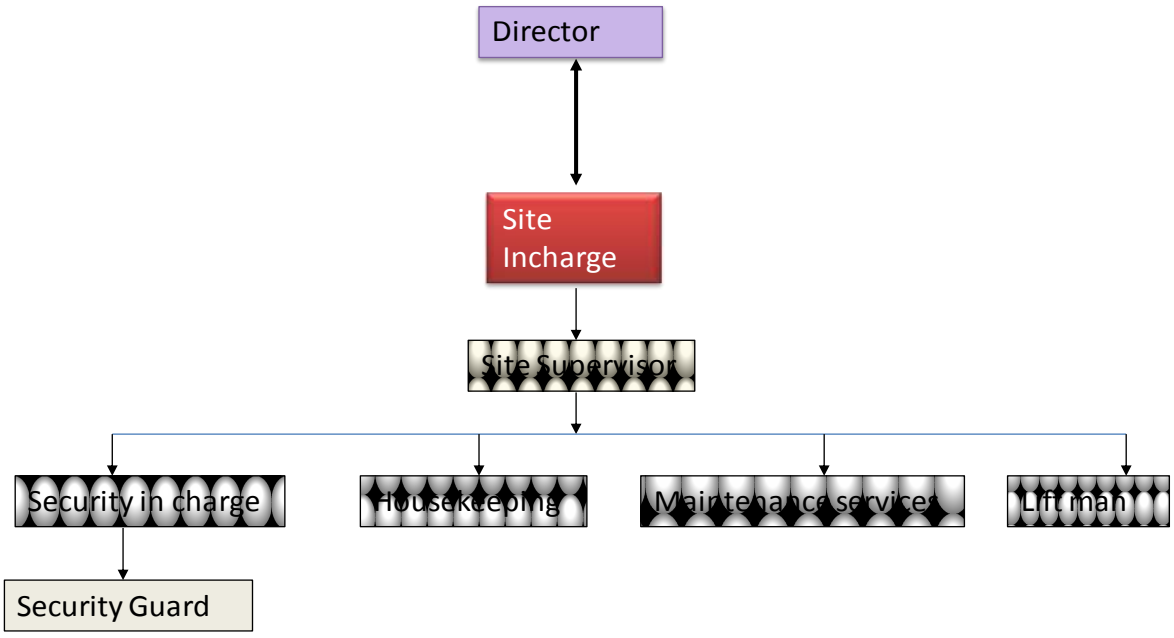

Figure 1.14: Disaster management cell

1. Responsibility of Management (Facility Manager, Operating management and Administration management):

- Facility Manager would be appointed with background knowledge of environment and safety. This manager would report to Operating management and administration management.

- Main responsibility of the Facility Manager is to keep all the records like proper functioning of fire alarms, hose reels, first aid kit box, etc. and report the same to Operating management or Administration management on monthly basis.
- Facility Manager would also be responsible for carrying out mock drills at regular interval as per CFO directives.
- Facility Manager would also be responsible for maintenance of different signage and cleaning of overhead and underground tanks.
- Cleaning and maintenance of drainage system would be supervised by Facility Manager. Every 3 months, a report for the same to be submitted to administration management or Operating management. Before onset of monsoon, Facility Manager or Administration management must evaluate the status of drainage system in order to avoid flooding.
- During disaster, Safety manage would assist in evacuation of all the employees and supervise the activity in which all the employees are evacuated without creating any panic situation. This kind of drilling activity would be highlighted by Facility Manager during mock drillings.
- Also Facility Manager would coordinate with fire officer and ambulance services during disaster.
- Facility Manager must ensure all the employees and security management personnel attain mock drills whenever conducted and report the same to administration management or Operating management. During mock drill, evacuation plan for each floor must be explained to all the employees.

2. Security management person / Guard

- They must assist Facility Manager in terms of evaluating the details of different various safety equipments like sprinklers, hose reels, etc. If any damages are recorded, the same must be communicated to Facility Manager for immediate action.
- They must attain mock and safety drills arranged by the management.
- During disaster, they must communicate to all the employees via intercom and request them for evacuation. The must supervise the entire evacuation process for each floor.
- They must ensure no one is stuck in the lift during disaster, especially, fire. If anyone gets stuck at fire, then security management personnel must communicate the same to Facility Manager for rescue. Once the rescue happens, they must shut down all the lifts.

- During disaster, they must ensure, no one (especially children) get close to the area where any hazardous substances are stored or near sub-station. No one should be allowed to take shelter under the same.
- They must coordinate with ambulance and fire personnel under the supervision of Facility Manager.

3. IT Employees and Floating Population

- If any damages are found in terms of functioning of any safety equipments like sprinklers, hose reel, the same must be reported to Facility Manager for immediate action.
- They must attain the mock drills as and when planned by Facility Manager.
- They must ensure proper evacuation without creating any panic situation.
- They must coordinate with Facility Manager for ambulance and fire brigade services.
- In mock drills, employees would be made aware of keeping clean drainage system.
- During mock drills, employees would be made aware about the storage area at the Safety where hazardous materials is stored, if any. Similarly, power room and sub-station area would be highlighted. They would be advised not to go to those places during disaster, especially fire.
- There will be proper signage on each floor to get down during fires or other emergencies.

4. Visitors

- It would be the responsibility of the employees to escort the visitors to a safer area.
- Before entering into the Safety, visitors would be made aware of exit routes by security management personnel.

Steps to be taken by management during disasters

Table 1.7: Steps for Management during disaster

Name of disasters	Steps for Management
Fire	**Before Disasters: Developer Role** • They must provide fire fighting equipment's, hose reel, sprinklers, smoke detector as per CFO norms. • Developer must provide intercom facility at lifts, each flats, corridors, etc. **Before Disasters: Role Emergency Team** • Society manager must audit and maintain different fire fighting devices. • If any damages occur, manager must report to administration management and get the problem rectified. Developer would assist in this activity.

	During Disaster: • If fire breaks down, then the personnel, who notice it, must report to society manager or concern authority. One must not spread rumor and be calm. • Society manager must call the fire brigade and hospital, if any casualty. • Manager must switch off the electrical equipment's like corridor lightings, lifts, and inform the same to the employees via intercom. • Manager must ensure evacuation of employees as per evacuation map and ensure all the employees escorted to assembly point without any panic. • One must ensure children and elderly personnel given top priority and safety during evacuation process. • Manager and security management personnel must ensure, no one visits the place where extinguishable materials like diesel or petrol stored for DG sets. • Once the fire brigade arrives, they must take over the entire evacuation process and manager must direct all employees to follow instruction of the fire brigade personnel during the same.
Gas Leak	**Role of Facility Manager** • Manager must inspect pipeline and report if any damages to the residence for its replacement. • Manager must keep a record of expiry date of pipes and must ensure that they get replaced before expiry date. • Manager must make the employees aware about reacting during gas leak. **During Gas leak:** • If anybody notice or smell gas leakage, he/she must switch off all the electrical equipment's and open all windows and door for natural ventilation. • He/she must inform about gas leak to the manager for appropriate action plan. • One must look for location at which gas leak has occurred. If one unable to find the same, then they must call qualified personnel for the same. Manager must maintain the detail of qualified personnel along with their emergency numbers.
Earthquake	**Role of Developer:** • Must provide building as per proper earthquake resistant codes. • Must ensure structural stability of the building and must procure a structural stability certificate from local Municipality, if possible. **Role of Facility Manager** • Facility Manager must carryout auditing of the building as per local norms and reports the same to the local Municipality. If any damages are occurred or noticed, then it must be reported to administration management for rectification at the earliest. Developer could assist in this activity. • Facility Manager must ensure everyone attains mock drills about earthquake. • Facility Manager must find out warning alarms and notices from IMD or local newspaper or All India Radio. • During earthquake, manager must ensure all the electrical supply is switched off; also ensure proper evacuation without any panic.
Cyclones and Floods	**Role of Developer:** • Must ensure proper storm water drainage and management plan. • Must clean the storm water drainage before monsoon season, even after

	formation of society, they assist in this activity for proper management of sewerage system near the building. **Role of Society:** • Facility Manager must ensure proper cleaning of storm water drainage system during operation phase. • Facility Manager must find out warning alarms and notices from IMD or local newspaper or All India Radio. • Facility Manager must inform all the employees in IT Building about cyclone and floods and must ensure all residence acquire safety and precautionary measures for the same. • Facility Manager must keep record of hospitals, and large scale medical store.

Table 1.8: Actionable Points for Disaster Management Strategies

Sr. No.	Parameters	Actionable Points
1	Preparation of Manual and SOPs to track various disasters	SOPs Do's and Don'ts for various disasters are already prepared by developer.
2	Fire Evacuation Plan	Fire Evacuation Plan is already prepared by developer.
3	Listing of fire brigades, hospitals, NGOs, Medical store	It is been already prepared and identified by the developer.
4	Mock drills	It would be carried out in every 3 months and the report for the same is submitted to CFO and also through compliance monitoring to Environment Department.
5	Structural Audit	It will be carried out by developers on every 6 months.
6	Sprinklers and fire fighting Equipments	Sprinklers and fire fighting Equipments will be installed by developer as per the direction of CFO.
7	Safety Trainings and Awareness among employees	This will be carried out in every 3 months and report for the same is submitted to CFO.
8	First Aid Kit Box	It is already listed by the developer.
9	Earthquake Planning	Developer would follow requisite codes for earthquake resistant buildings.
10	Fire Proof Materials	Developer would provide all safety doors and materials two hours of fire rating.
11	Drinking water check up	This will be carried out in every 3 months and report would be submitted to Environment department compliance monitoring.
12	Cleaning of overhead and underground tanks	This will be carried out in every 3 months and report would be submitted to Environment department compliance monitoring.
13	Drainage Check up	It would be carried out in every 6 months; especially once before onset of monsoon season
14	Air, Water, Noise Assessment	It would be carried out as per EC direction.
15	Compliance monitoring and reporting	It would be carried out as per EC direction.

Table 1.9 Safety Drills and Maintenance for proposed IT Park

Sr. No.	Types of Drills	Frequency of drill	Who must attend	Date of drill and any issues : Log of drills
1	Earthquake safety	6 months	All occupants	Log book
2	Fire safety	6 months	All occupants	Log book
3	Fire and any other equipment maintenance	3 months	Security management, utility manager	Must report to Facility Manager and maintain a log book
4	Lift security management	3 months	Security management, utility manager	Must report to Facility Manager and maintain a log book
5	Water management	3 months	Security management, utility manager	Must report to Facility Manager and maintain a log book
6	Safety kit check	6 months	Security management, Facility Manager and volunteers	Log book

1.11 DMP Costing

The table below gives the detail DMP costing

Table 1.10 DMP Costing

Sr. No.	Parameters	Capital Cost (Lakh)	O & M Cost (Lakh)
1	Fire Fighting measures (Sprinkling System, Fire alarm, Portable fire extinguishers, Fire Tanks, Water lift pumps, Fire Hydrant Cabinets with hose reels, Fire Hydrants pumps, Fire Lifts, Fire alarm, fire Curtains)	175	5.5
2	Disaster Management Kit (First Aid Facility, Stretcher, A portable battery-powered radio, Flashlight and extra batteries, First aid kit and first aid manual, Safety shoes, helmets, Hand gloves, fire mask, fire blanket, Axe, Cutter)	6.5	2.5
3	Well-equipped Control Room , CCTV	12	1.5
4	2 way Public announcement system	6.5	2.5
5	Disaster Management training to Employees and Security Staff, Mock Exercise		2
	Total	**200**	**14**

DMP Cost at Construction Phase

Sr. No.	Parameters	Cost (Lakh)
1	Safety tools	5.5
2	Construction and debris waste	6.5
3	Passenger Lift	4.5
4	Excavation & Remaining construction material	35.5
5	Tower or crane used for construction material	7.5
6	DMP personnels	2.5