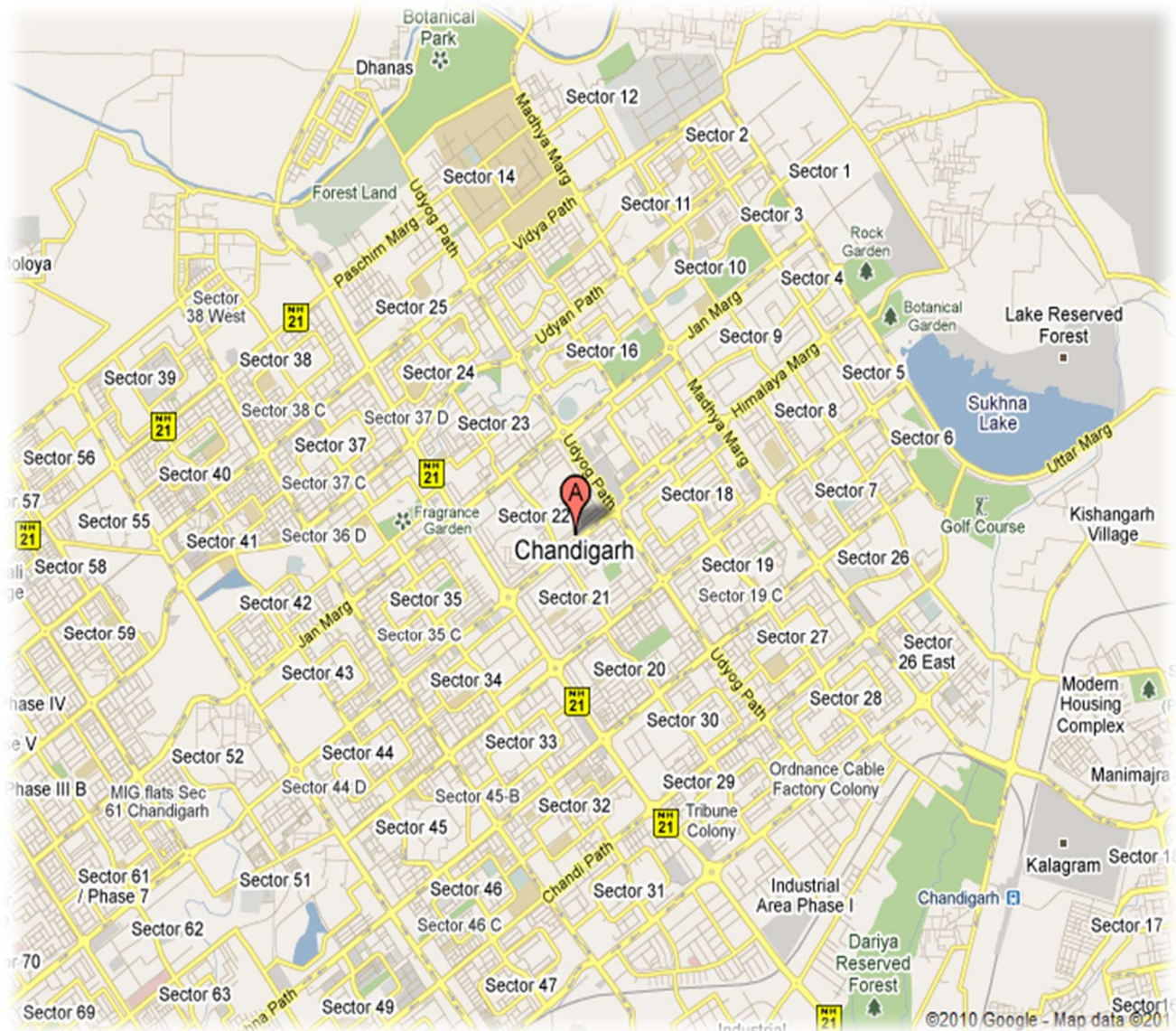


MULTI HAZARD DRAFT DISASTER MANAGEMENT PLAN, U.T. CHANDIGARH



Chandigarh Disaster Management Authority

Chandigarh Administration

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Abbreviations

ADM - Additional District Magistrate
BSNL - Bharat Sanchar Nigam Limited
BDO -Block Development Officer
CISF - Central Industrial Security Force
CMO - Chief Medical Officer
CBDM - Community Based Disaster Management
CBO - Community Based Organizations
CBDP -Community Based Disaster Preparedness
CD & HG - Civil Defence and Home Guards
CDMO - Chief District Medical Officer
CMG - Crisis Management Group
CBRN - Chemical, Biological, Radiological and Nuclear
CD - Civil Defence
CO - Circle Officer
CPMFs - Central Para Military Forces
CRF - Calamity Relief Fund
CS - Chief Secretary
DCR -District Control Room
DSO -District Supply Officer
DM -District Magistrate
DCRF -District Calamity Relief Fund
DDMA -District Disaster Management Authority
DDC -District Development Committee
DDMP -District Disaster Management Plan
DEOC- District Emergency Operation Centre
DIO -District Information Officer
DMC- Disaster Management Committee
DRMP -Disaster Risk Management Programme
DAE -Department of Atomic Energy
DC -Deputy Commissioner
DFO -Divisional Forest Officer
DIPRO -District Information and Public Relations Officer
DRDA -District Rural Development Agency
DRO -District Revenue Officer

DSS -Decision Support System
DTO - District Treasury Officer
DDMC - District Disaster Management Committee
EMS -Emergency Medical Service
EOC -Emergency Operations Centre
ESF -Emergency Support Function
ETA- Expected Time of Arrival
F & CS- Food and Civil Supplies
GIS - Geographic Information System
ICS -Incident Command System
IMD - Indian Meteorological Department
ICU - Intensive Care Unit
IC -Incident Commander
ICP -Incident Command Post
IRS -Incident Response System
IRTs- Incident Response Teams
LO- Liaison Officer
LIU -Local Intelligence Unit
NCC -National Cadet Corps
NCCMC -National Crisis Management Committee
NDMA -National Disaster Management Authority
NEOC -National Emergency Operation Centre
NGO -Non Governmental Organizations
NIC -National Informatics Centre
NO- Nodal Officer
NRP- National Response Plan
NSS -National Service Scheme
NCCF- National Calamity Contingency Fund
NDRF -National Disaster Response Force
NEC -National Executive Committee
NIDM -National Institute of Disaster Management
PCR -Police Control Room
PHD -Public Health Department
QRT -Quick Response Teams
RAF- Rapid Action Force
RWA -Residents Welfare Associations

SATCOM -Satellite Communication
SDM -Sub Divisional Magistrate
SP -Superintendent of Police
S & R -Search & Rescue
SDMA -State Disaster Management Authority
SDO -Sub Divisional Officer
SDRF -State Disaster Response Force
SEC -State Executive Committee
TL -Team Leader
ULBs -Urban Local Bodies

CHANDIGARH DISASTER MANAGEMENT PLAN

EXECUTIVE SUMMARY

Although the common man is not so familiar with the term disaster management, people today are much aware of certain phenomena like earthquakes, cyclones, landslides and now even the tsunami. Since times immemorial India has been highly prone to natural calamities. According to a recent study, 65 per cent of total Indian landmass is highly prone to earthquake; whereas, twelve per cent is submerged under water annually (Ministry of Home Affairs, 2004). Eight per cent of the land is disturbed biannually with cyclones ranging from low pressure to super cyclones, like the one, which struck the Orissa coast in 1999.

The Union Territory of Chandigarh spread over an area of 114 sq.kms has high vulnerability to earthquakes as it lies in seismic zone IV.

The Disaster Management Plan (DMP) has been prepared for its operationalisation by various departments and agencies of the Chandigarh Administration and other Non-Governmental Agencies expected to participate in disaster management. This plan provides for institutional arrangements, roles and responsibilities of the various agencies, interlinks in disaster management and the scope of their activities. An elaborate inventory of resources has also been formalized. The purpose of this plan is to evolve a system to:

- Organize Working groups incl. constituting Warden Services in the city;
- Formation of Disaster Management Cell and City Disaster Management Force;
- Assess the status of existing resources and facilities available with the various departments and agencies involved in disaster management in the UT;
- Assess their adequacies in dealing with a disaster;
- Identify the requirements for institutional strengthening, technological support, upgradation of information systems and data management for improving the quality of administrative response to disasters at the state level;

- Make the UT DMP an effective response mechanism as well as a policy and planning tool.

It also provides for uniformity in approach and clear perception of the various issues at hand, thus avoiding undue complications. At the same time, the plan provides for the coordination of different agencies from the field level to the central government. The objective is to provide a quick and effective response in emergency situations.

Although, effective disaster specific plans have been previously prepared by different departments/agencies, there is a growing awareness of the need for a multi-disaster action plan in order to tackle multi-faceted effects of disaster. This essentially concentrates on the institutional setup and information flow, providing hazard specific responses along with the roles of primary agencies involved. Such an approach allows flexibility in response at the local level, while still under the direct supervision and control of the state or regions.

While the action plan assumes an element of preparedness on part of the administrative authorities, it also calls for substantial involvement of the NGOs and private initiatives. Community participation is one of the most effective inputs for the management of disasters. Training of the community and key social functionaries thus become essential elements for the successful execution of a disaster management action plan.

CHAPTER-01

INTRODUCTION

LIST OF REFERENCES :

- 1) National Disaster Management Guidelines (MHA.)
- 2) National Disaster Management Guidelines- Chemical Disasters (NDMA).
- 3) National Disaster Management Guidelines-Management of Nuclear and Radiological Emergencies (NDMA).
- 4) Website of SAARC Disaster Management Centre.
- 5) Website of NDMA, NIDM.

1.1 DISASTERS AND DISASTER MANAGEMENT CYCLE

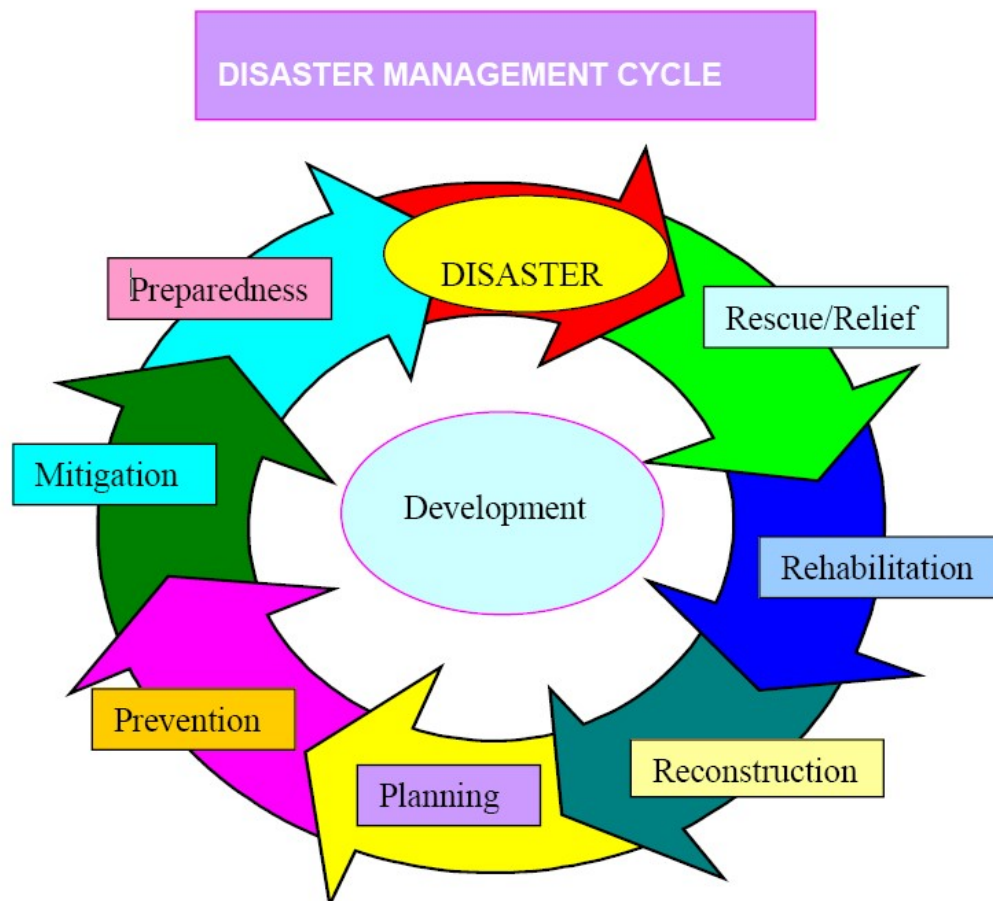
Repeated disasters threaten sustainable development. In the past twenty years, earthquakes, floods, tropical storms, droughts and other calamities have killed more than 3 million people globally, inflicted injury, disease, homelessness and misery on one billion others and caused damage worth millions of rupees. Disasters destroy decades of human effort and investments, thereby placing new demands on society for reconstruction and rehabilitation.

Disasters are either natural, such as floods, droughts, cyclones and earthquakes, or Human-made such as riots, conflicts or others like fire, epidemic, industrial accidents and environmental fallouts. Globally, natural disasters account for nearly 80% of all disaster affected people. According to the insurance company estimates, natural disasters represent 85% of insured catastrophe losses. If one adds the losses in countries like India, where most of the property of the people, especially in the rural areas remains uninsured, the losses are astronomical. In 1996, 40 million disaster affected

people depended on humanitarian assistance, a 60% increase over the 25 million in the 1980s.

Disasters are characterized by some or all of the following:

- They are disruptive to individuals and communities
- They are not part of day-to-day experience and are outside the expectations of normal life
- They are unpredictable in occurrence and effects
- They require a response for which normal local resources may be inadequate
- They have a wide range of effects and impacts on the human and physical Environment
- There are complex needs in dealing with them
- They can be of sudden onset



Three major functional areas were recognized as necessary components of a comprehensive approach: prevention, response and recovery. Within these areas, the key responsibilities of agencies include:

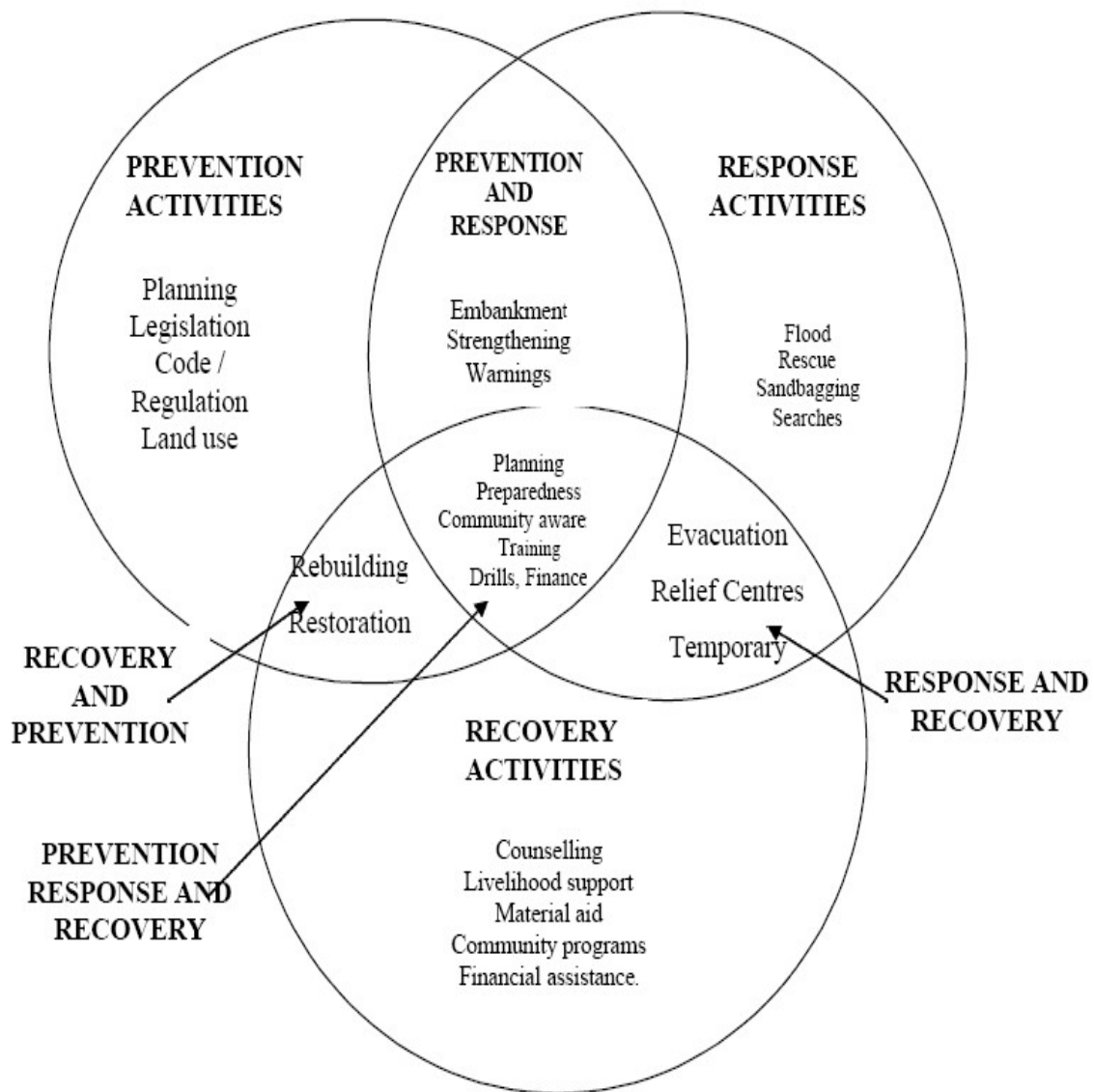
Planning: The analysis of requirements and the development of strategies for resource utilization.

Preparedness: The establishment of structures, development of systems and testing and evaluation by organizations of their capacity to perform their allotted roles.

Co-ordination: the bringing together of organizations and resources to ensure effective disaster management.

The main vision of this document is to initiate coordinated efforts to have an effective disaster management strategy, which will minimize the impact of future disasters. The other main focus area of this document is to have quick, efficient and coordinated response and recovery plans in place with a mechanism that will ensure increased

community participation in all disaster preparedness activities.



The structural layout showing the inter-relationships between **the Prevention, Response and Recovery activities**

EXAMPLE OF MEASURES IN EACH DISASTER RISK MANAGEMENT PHASE

Disaster Phase	Earthquake	Flood	Storm (cyclone, typhoon, hurricane)	Landslide
Prevention/ Mitigation	<ul style="list-style-type: none"> - Seismic design - Retrofitting of vulnerable buildings - Installation of seismic isolation/ seismic response control systems 	<ul style="list-style-type: none"> - Construction of dike - Building of dam - Forestation - Construction of flood control basins/ reservoirs 	<ul style="list-style-type: none"> - Construction of tide wall - Establishment of forests to protect against storms 	<ul style="list-style-type: none"> - Construction of erosion control dams - Construction of retaining walls
Preparedness	<ul style="list-style-type: none"> - Construction and operation of earthquake observation systems 	<ul style="list-style-type: none"> - Construction and operation of meteorological observation systems 	<ul style="list-style-type: none"> - Construction of shelter - Construction and operation of meteorological observation systems 	<ul style="list-style-type: none"> - Construction and operation of meteorological observation systems
Response	<ul style="list-style-type: none"> - Preparation of hazard maps - Food & material stockpiling - Emergency drills - Construction of early warning systems - Preparation of emergency kits 			
Rehabilitation/ Reconstruction	<ul style="list-style-type: none"> - Rescue efforts - First aid treatment - Fire fighting - Monitoring of secondary disaster - Construction of temporary housing - Establishment of tent villages - Disaster resistant reconstruction - Appropriate land use planning - Livelihood support - Industrial rehabilitation planning 			

1.2 Assumptions

The District Administration is primarily responsible for natural, technological, human caused and biological emergency preparedness, but has a shared responsibility with Chandigarh Administration and the Central governments for national security preparedness and for catastrophic hazards. The probability of a terrorist related emergency or disaster leading to disaster situation that would involve mass fatalities and casualties, major devastation and disruption of vital services exists.

Disasters could, individually or in combination, cause a grave emergency condition in any area of the district. It can vary in scope and intensity, from a small local incident with minimal damage to a multi-district disaster with extensive devastation and loss of life.

The actions of prevention, mitigation, preparedness, and response and recovery operations are conducted by the District Administration. Local authorities will exhaust their resources, and then use resources of other support agencies, volunteer groups, the private sector, and / or neighboring districts.

Union Territory assistance will supplement District Administration efforts and central assistance will supplement U.T. and District Administration, when it is clearly demonstrated that it is beyond local and U.T. capability to cope with the disaster situation.

1.3 Concept of Operations

The Disaster Management Plan is based on the premise that the Emergency Support Functions (ESF) performed by the various agencies and organizations during emergency operations generally parallels their normal day-to-day functions. The same personnel and material resources will be employed in both cases. Day-to-day tasks and operations that do not contribute directly to the emergency may be suspended or redirected for the duration of any emergency or disaster, and efforts that would normally be assigned to those tasks will be channelled toward emergency and disaster ESF as assigned.

CHAPTER-02

MULTI HAZARD DISASTER PLAN

2.1 RATIONAL OF CHANDIGARH DISASTER MANAGEMENT PLAN (CDMP)

Vulnerability of the Chandigarh towards disasters, both natural and man – made is widely recognized. The district is vulnerable towards natural and manmade calamities like, Floods, Earthquakes, Wind Storms, Sunstroke, Heat & Cold Wave, Fire Accidents and Chemical and Biological accidents/threats etc. Losses caused by disasters continue to mount year after year. The need for an effective disaster management strategy to reduce the impact of disaster is very much essential in many quarters and alongwith strengthening of organizational structures for disaster management. Further, regular updation of Codes / Manual / Disaster Plans on the basis of lessons learned and technological developments should be made.

Precise actions, procedures and responsibilities have to be laid down well in advance in order to ensure timely response in case of any disaster. Therefore, a mechanism that takes into account multiple hazards and basic preparedness has to be articulated in the form of Quick Response Teams, Quick Assessment Teams, Reporting Procedures, Checklist and Handbooks. The mechanism also lays down crucial parameters, requirements and organizational composition of Emergency Operations Centers and Incident Command Systems.

2.2 OBJECTIVES OF PLANNING

Disaster management plan is a comprehensive plan, which optimally utilizes men, material and available resources to prevent loss to lives and minimizes loss to property. It ensures fastest approach for rescue and rehabilitation. Disaster management plan guides the entire machinery engaged in relief operation and induces courage amongst the community to face the eventuality boldly. The key objectives of the Chandigarh Disaster Management Plan are:

- To improve the preparedness for disaster through risk assessment and vulnerability analysis of Chandigarh
- To evolve a suitable mitigation strategy so as to minimize the impact of disaster in terms of men and material loss
- To give professional guidance to the relief machinery engaged in relief operations
- To create awareness amongst the community to face the disaster in case of an eventuality
- To involve the voluntary organizations & NGO's in awareness creation and in relief operations
- To enable quick restoration of the public service system affected by the disaster
- To prevent the spread of post-disaster epidemics

2.3 PERSPECTIVE

A formal plan for managing disaster would include:

- _ Pre planning a proper sequence of response actions
- _ Allocation of responsibilities to the participant agencies
- _ Developing codes and standards operating procedures for various departments and relief agencies involved
- _ Inventory of existing facilities and resources
- _ Mechanism for effective management of resources

- _ Coordination of all relief activities including those of NGOs to ensure a coordinated and effective response
- _ Coordinating with the state response machinery for appropriate Support

The Chandigarh Disaster Management Plan (CDMP) has been envisaged as a preparedness plan. On the receipt of a warning of an impending disaster it would simultaneously energise and activate the mechanism for response and mitigation without loss of crucial time. Identification of available resources including manpower, material, equipment and adequate delegation of financial and administrative powers are prerequisites for successful operation of the CDMP. The CDMP is in essence, the Standard Operating Procedure (SOP) in which the implementation of efforts on ground is well laid down. Activities such as Evacuation, Search & Rescue, Temporary Shelter, Food Drinking Water, Clothing, Health and Sanitation are given prime importance. Communication accessibility and public information, that are important components of disaster management, would follow on the activation of the CDMP. These activities are common to all types of disasters and require subdivision and preparation of sub action plans by each field level officials. Each sub group has been requested to work out the CDMP mechanism relevant to their group of disaster.

The CDMP requires the disaster managers to:

- _ Evolve an effective signal / warning mechanism.
- _ Identity activities and their levels.
- _ Identity sub activities under each activity / level of activity.
- _ Specify authorities for each level of activity and sub activity.
- _ Determine the response time for each activity.
- _ Workout individual plans of each specified authority to achieve activation as per the response time.
- _ Have quick response terms for each specified authority.
- _ Have alternative plans and contingency measures.
- _ Provide appropriate administrative and financial delegation to make the response mechanism function and viability.
- _ Undergo preparedness drills.

2.4 METHODOLOGY OF PLAN DEVELOPMENT

Preparation of a multifaceted plan document is neither possible with a single agency nor an individual. District has been taking various measures to prepare this document and make it as perfect as possible. The major steps involved in preparing the plan document include the following;

Data collection from all line departments,

_ Data analysis

_ Discussion with experts,

_ Referring national and international literatures

_ Preparation of action plans for departments

_ Preparing draft plan document,

_ Mock drill to check the viability and feasibility of implementation methodology

_ Wide circulation for public and departmental comments and

_ Preparation of the final plan document

:

2.5 VULNERABILITY ASSESSMENT

- Locations of the vulnerable areas are to be mapped separately
- Identification of the vulnerable people such as, the elderly, the disabled, children and pregnant women, families living in thatched houses, etc.
- Identification of property or assets which are likely to be affected, such as, cattle and other livestock's, kachcha houses, weak structures, etc.
- Identification of weak points on embankments, Over Bridge, Transformer, Water Tanks, Mobile Towers, Partially or Fully Damaged Houses or Buildings, Apartments, Low Land Areas, Water Logging Places, Fire Danger Zone (if any)

- Marking the drainage system in the concerned area

2.6 OPPORTUNITY ANALYSIS

- Identification of the existing resources which may help to reduce risks to life and property
- Identification of the high raised platform, open land area, open space, hydrant point, safe houses and hillocks for shelter and storage
- Listing the existing shelters, if any
- Identification of the elevated and up-lands which can act as natural barriers to protect livestock
- Listing of the existing health and sanitation facilities
- Identification of safe routes for evacuation
- Identification of the sources of funds to carry out the preparedness activities

2.7 ROLE OF THE DISTRICT ADMINISTRATION

In anticipation of any disaster, the district administration has taken various precautionary measures. Functioning of the Control Room, Closure of past breaches in river and canal embankments and guarding of weak points, rain recording and submission of rainfall report, communication of Gauge reading, deployment of power/country boats, installation of temporary VHF stations, arrangement for keeping telephone and telegraph lines in order, storage of food stuff, arrangement for keeping drainage clear, agricultural/health/veterinary measures, selection of flood/ Earthquake

shelters, etc. have been properly planned. The government officials of different departments have been apprised of their duties for pre, during and post disaster periods. The Circle Officers, SDMs, ULBs, Executive Engineers of PWD, Municipal Corporation and Irrigation Department, Health, Police, Veterinary, DSO, and Fire Department etc. have been requested to take all precautionary and preparatory measures and to remain alert to face the challenge of any disaster. The other government officials have also been apprised of their roles and responsibilities to be played during pre disaster arrangement and during/post-disaster management. Every possible kind of cooperation from all the line departments has been sought for by the district administration in combating the severe natural calamities that may occur anytime.

2.8 WHO FORMULATES AND CARRIES OUT THE PLAN

The disaster management plans have been formulated at City level. The plan clearly indicates the role and responsibility of each player of the team. The Collector in the district level, Sub – Collector in the Sub – Divisional level and The Mayor is the key player in Ward level and the Community with guidance of Ward Level Disaster Management Committee formulates and carries out this plan in the Urban Ward level. Civil society organizations also play a vital role during the implementation of this plan in the field.

A detailed description of the information flow among different components of the plan is given in subsequent chapters.

2.9 RISK AND VULNERABILITY ANALYSIS (RVA)

Risk and Vulnerability Analysis (RVA) is an essential tool for any disaster management plan. In the Chandigarh Disaster Management Plan (CDMP), a conscious effort has been made to include a preliminary RVA which will help identify people, property and resources that are at risk of damage, injury or loss during disasters. Such information would aid in prioritizing the precautionary measures.

A. IDENTIFICATION AND PRIORITIZATION OF HAZARDS

- 1) Earthquake
- 2) Terrorist Attack
- 3) Fire
- 4) Chemical Hazards
- 5) Flood
- 6) Accidents (Road, Railways, Air, Building Collapse)
- 7) Road Blockade

B. HAZARD ANALYSIS

Hazard analysis involves mapping of areas, which are prone to disaster so as to develop a visual representation of the hazard. The analysis aims at identifying areas in which the potential impact of a disaster is higher.

THE LISTS OF SUCH LOCATIONS ARE AS FOLLOWS:

Sr. No	Industrial Location	Nature of Hazard	Vulnerable Areas
1	Industrial Area – Phase I	Chemical Spills, Effluent Discharge, Fire, etc.	Sector 28, 29, Sukhna Choe, Reserved Forest
2	Industrial Area – Phase II	Chemical Spills, Effluent Discharge, Fire, etc.	Sector 31, Karsan Rehabilitation Colony
3	Industrial Area – Phase III	Chemical Spills, Effluent Discharge, Fire, etc.	Mauli jagran Rehabilitation Colony
4	Sewerage Treatment Plant	Sewer Leakage, Methane Gas Leakage, Drinking Water Pollution, etc.	Sectors 47 & 48, Karsan Rehabilitation Colony

C. CRITICAL FACILITIES ANALYSIS

This analysis aims at identifying the critical facilities in Chandigarh like educational institutions, police stations, hospitals, fire and rescue stations, etc. These facilities play a central role in disaster response and recovery and, hence, it is important to protect these critical facilities to ensure that disruption of public service is minimized during the disaster. The list of the critical facilities includes:-

- Schools, Colleges and University
- Hospitals
- Police Stations
- Shelter Homes
- Telecom offices
- Key Government Offices
- Community Centres
- Fire Stations
- Hotels

The critical facilities and risk prone area are mapped and given in **Annexure I & II**. These are areas of critical importance, as they have to be protected with adequate precautionary measures as these facilities play a key role at the time of disaster in the rescue and relief efforts of the administration.

SR.NO	CRITICAL FACILITY	SECTOR-WISE LOCATION
1	Schools	All Sectors except Sectors 1 - 6.
2	Government Colleges	10, 11, 12, 19, 20, 25, 26, 28, 42, 45, 46
3	University & PGI	12, 14, 25
4	Hospitals	12, 16, 32
5	Fire Station	11, 17, 32, 38, Industrial Area- I and Manimajra
6	Community Centres	8, 11, 15, 16, 18, 19, 20, 21, 23, 25, 27, 28, 29, 30, 33, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47 and Industrial Area
7	Hotels	10, 17, 22, 24, 26, 34
8	Bus Terminals	17, 43

D. SOCIETAL ANALYSIS

This analysis aims at identifying the areas in which the outreach efforts have to be concentrated for targeting effective hazard mitigation strategies. These areas normally have low to average income levels and require public assistance and services to recover from disaster impacts.

Rehabilitation Colonies and their location in Chandigarh

Sr.No	Rehabilitation Colony	Location
1	Indira Colony	Manimajra
2	Khuda Lahora and Khuda Jassu Rehb. Colony	Khuda Lahora and Khuda Jassu villages
3	Mauli Jagran Colony	Industrial Area – III
4	Milkman Colony	Dhanas
5	Sector 25 Rehb Colony	Sector 25
6	Dadu Majra Rehb. Colony	Sector 38
7	Karsan Colony	East of Industrial Area-II
8	Maloya Rehb. Colony	Maloya Village
9	Palsora Rehabilitation Colony	Sector 55-56
10	Rehabilitation Colony	Sector 52-53

E. ECONOMIC ANALYSIS

The effect of a disaster includes the loss of income associated with business and loss of jobs as a result of closure of the businesses. In this analysis the hazard vulnerabilities of the centres of economic activity and the largest employers are identified so as to concentrate the mitigation strategies on those areas that are critical in sustaining the economy of the region. This is to enable a business establishment to make structural improvements to minimize damage and to ensure adequate insurance coverage to expedite the recovery process in the event of a disaster.

In Chandigarh the economically active regions are the Sector 17 and 34 markets. Apart from this each sector has a market of its own.

F. ENVIRONMENTAL ANALYSIS

The environmental analysis aims at reducing the impact of secondary hazards like chemical spills on the environmental resources in Chandigarh like the lakes, leisure parks, reserved forests, etc. Environmental resources may be impacted when a primary hazard (earthquake, flood) leads to secondary hazards like chemical spills, sewage overflow, etc. Environmental impacts are important because they not only affect the habitat and species but also pose a grave threat to the public health (e.g. poor drinking water quality) and quality of life (curbing the access to leisure parks and lake). These resources are aplenty in Chandigarh and play a vital role in determining the quality of life of the people.

The lists of such critical Environmental Resources in Chandigarh

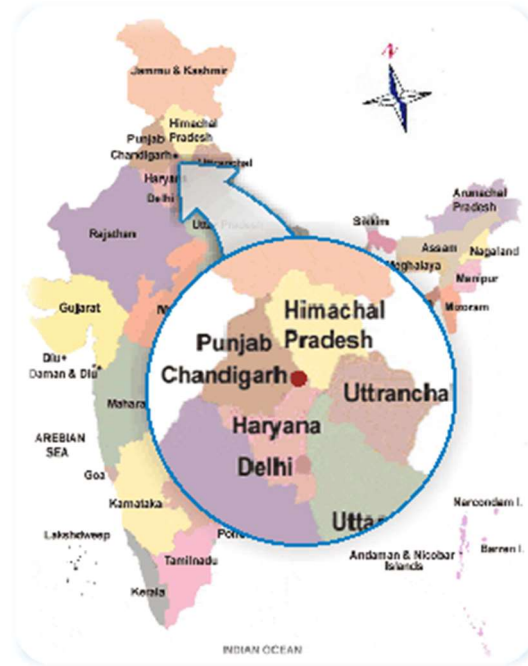
SR.NO	ENVIRONMENTAL RESOURCE	LOCALITY
1	Rajendra Park	Sector 1
2	Smriti Upavan	Sector 1
3	Bougainvillea Garden	Sector 3
4	Sukhna Lake and Wildlife Sanctuary	Sector 6
5	Fitness Trails	Sector 10
6	Botanical Garden	Sector 14
7	Rose Garden	Sector 16
8	Bamboo Valley	Sector 23-A
9	Terraced Garden	Sector 33
10	Topiary Park	Sector 35
11	Hibiscus Garden	Sector 36
12	Garden of Fragrance	Sector 36

CHAPTER-03

CHANDIGARH PROFILE

3.1 DISTRICT PROFILE

Chandigarh, the ‘City Beautiful’ is a unique Union Territory of India as it is the capital of both Punjab and Haryana states. The city was conceived as the capital of Punjab after the partition of India and is the first planned modern city in India. Le Corbusier, a French architect and his cousin Pierre Jeanneret were assigned to plan and design Chandigarh. Pandit



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to

Jawahar Lal Nehru, the first Prime Minister of India remarked – ‘Let this be a new town symbolic of the freedom of India, unfettered by the traditions of the past... an expression of the nation’s faith in the future.

Chandigarh or “the fort of Chandi” picturesquely sprawls in the foot hills of Shivalik ranges and is named after Chandi Mandir, the temple of goddess Chandi (Durga), located in nearby Panchkula district of Haryana. The beauty of Chandigarh is not only restricted to its city limits, as there are a number of attractive tourist destinations located nearby. Chandigarh is also flanked by two satellite cities – Panchkula and SAS Nagar (Mohali) and the triangle of these three cities is collectively referred as the Chandigarh Tricity.

3.2 TOPOGRAPHICAL LOCATION

Altitude	304-365 m above msl
Longitude	76° 48'E
Latitude	30° 50'N

3.3 CLIMATE

Chandigarh falls under Koeppen's CWG category i.e. it has cold dry winter, hot summer and sub tropical monsoon. Evaporation usually exceeds precipitation and the weather is generally dry.



and

The area experiences four seasons: (i) Summer or hot season (mid-March to Mid-June) (ii) Rainy season (late-June to mid-September); (iii) Post monsoon autumn/transition season (mid September to mid-November); (iv) Winter (mid November to mid-March). The dry spell of summer is long but with the occasional drizzles or thunder storms. May and June are the hottest months of the year with the mean daily maximum & minimum temperatures being about 37° C & 25° C, respectively. Maximum temperatures can rise up to 44° C. Southwest monsoons with high intensity showers commence in late June. The weather at this time is hot and humid. The variation in annual rainfall on year to year basis is appreciable i.e. 700 mm to 1200 mm. The 20 year average rainfall for Chandigarh is 1100.7 mm. January is the coldest month with mean maximum and minimum temperatures being around 23° C and 3.6° C respectively. Winds are generally light and blow from northwest to southeast direction with exception of Easterly to Southeasterly winds that blow on some days during the summer season.

3.4 RAINFALL

Amount of rainfall is 250mm-1000mm. The maximum falling near the Shivalik Hills and the minimum towards the west. 70 to 80 percent of the total rainfall is concentrated during the three months of southwest monsoon winds and the rest comes during the winter months.

3.5 GEOLOGY

The Union Territory of Chandigarh is located in the foothills of the Shivalik hill ranges in the north, which form a part of the fragile Himalayan ecosystem. It is occupied by Kandi (Bhabhar) in the north east and Sirowal (Tarai) and alluvial plains in the remaining part. The subsurface formation comprises of beds of boulders, pebbles, gravel, sand, silt, clays and some kankar. The area is drained by two seasonal rivulets viz. Sukhna Choe in the east and Patiala-Ki-Rao Choe in the west. The central part forms a surface water divide and has two minor streams. The stream passing through the central part is called N-Choe and the other is Choe Nala which initiates at Sector 29.

3.6 DEMOGRAPHY

❖	Total Population (As on 31.3.2006)	: 900635
❖	Males	: 506938
❖	Females	: 393967
❖	Density	: 7900
❖	Decadal population growth	: 40.33 %
❖	Slum population	: 107125

3.7 AREA AND ADMINISTRATIVE DIVISION

❖	Geographical area of the district	: 114 sq km
❖	No of Revenue Sub Divisions	: 3
❖	No of Blocks	: 1
❖	No of Tehsils	: 1
❖	No of Municipality	: 1
❖	No of Gram Panchayats	: 12
❖	Total no of Villages	: 13

3.8 EDUCATION

❖	Literacy(%)	: 81.9
❖	Schools	
▪	Government schools	: 153
▪	Private schools (aided)	: 7
▪	Private schools(unaided)	: 88
❖	Colleges	
▪	Government colleges	: 10
▪	Aided colleges	:7
▪	Regional institute	:1
▪	State institute of education	:1
❖	University	
▪	Punjab university	
▪	Post graduate institute of medical education and Research	

3.9 TRANSPORT AND COMMUNICATION

❖	Total Road Length	: 1829
❖	Surfaced	: 1829
❖	Highways Total	: 236
❖	Surfaced	: 236
❖	Urban Roads-Total	:1593
❖	Surfaced	: 1593
❖	Total Number of Motor Vehicles Registered	:680805
▪	Two Wheelers	:194473
▪	Jeeps,Cars	:476315
▪	Three wheelers	:1963
▪	Taxis	:466
▪	Buses	:4071
▪	Goods Vehicles	:3897
▪	Miscellaneous	:86

3.10 ROADWAYS

A unique feature in the layout of Chandigarh is its roads, classified in accordance with their functions. An integrated system of seven roads was designed to ensure efficient traffic circulation. Corbusier referred to these as



the 7'Vs. The city's vertical roads run northeast/southwest (the 'Paths'). The horizontal roads run northwest/southwest ('The Margs'). The intersect at right angles, forming a grid or network for movement.

This arrangement of road-use leads to a remarkable hierarchy of movement, which also ensures that the residential areas are segregated from the noise and pollution of traffic.

Each 'Sector' or the neighboured unit, is quite similar to the traditional Indian 'mohalla'. Typically, each sectors measures 800 metres by 1200 metres, covering 250 acres of area. Each Sector is surrounded by V-2 or V-3 roads, with no buildings opening on to them. Access from the surrounding roads is available only at 4 controlled points, which roughly mark the middle of each side. Typically a sector is divided in four parts by a V-4 road running from east to west and a V-5 road running from north to south. These four parts are easily identifiable as A, B, C and D corresponding to North, East, South and West sides. Each Sector is meant to be self-sufficient, with shopping and community facilities within reasonable walking distance.

The roads of the city are classified into seven categories known as the system of 7 Vs, as below:

- ❖ V-1 – Fast roads connecting Chandigarh to other towns.
- ❖ V-2 – Arterial roads.
- ❖ V-3 –Fast vehicular roads.
- ❖ V-4 – Meandering shopping streets.
- ❖ V-5 – Sector circulation roads.
- ❖ V-6 – Access roads to houses.
- ❖ V-7 – Footpaths and cycle tracks.

Buses will ply only on V-1, V-2, V-3 and V-4 roads. A wall shall seal the V-3 roads from the sectors.

2.11 RAILWAYS

Served by the Northern Railways, Chandigarh Railway Station is located 8 km to the south-east of Chandigarh. Shatabdi Express and Himalayan Queen Express connect the station with Delhi. The rail route between Chandigarh and Kalka is fully electrified. Some of the important train connections are Kalka Howrah Mail, Inter City Express and Kalka-Ambala Passenger. Computer reservation facilities are provided. The railhead close to the station is at Kalka (22km, north-east).



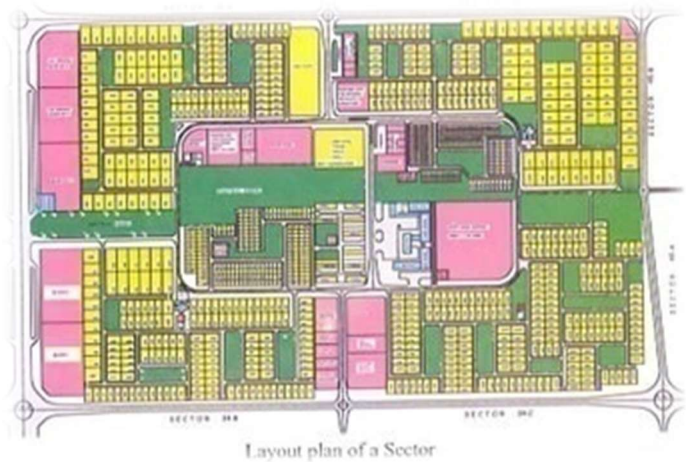
3.12 AIRWAYS

Chandigarh Airport (IATA: IXC, ICAO: VICG) soon to be integrated with upcoming Chandigarh International Airport is located in the Union Territory of Chandigarh, India. The airport is currently undergoing construction of an integrated passenger terminal, and many other facilities. The distance of the Airport from the city centre is approximately 11 kms.



3.13 SECTORS

Le Corbusier conceived the master plan of Chandigarh as analogous to human body, with clearly defined head (the Capitol Complex, Sector 1), heart (the City Centre Sector-17), lungs (the leisure valley, innumerable open spaces and



sector greens), the intellect (the cultural and educational institutions), the circulatory system (the network of roads, the 7Vs) and the viscera (the Industrial Area). The concept of the city is based on four major functions: living, working, care of the body and spirit and circulation. Residential sectors constitute the living part whereas the Capitol Complex, City Centre, Educational Zone (Post Graduate Institute, Punjab Engineering College, Panjab University) and the Industrial Area constitute the working part. The Leisure Valley, Gardens, Sector Greens and Open Courtyards etc. are for the care of body and spirit. The circulation system comprises of 7 different types of roads known as 7Vs. Later on, pathways for cyclists called V8 were added to this circulation system.

The city centre (Sector 17) is the heart of Chandigarh's activities. It comprises the Inter-State Bus Terminus, Parade Ground, District Courts, etc. on one hand, and vast business and shopping center on the other. The 4-storey concrete buildings house banks and offices above and showrooms/shops at the ground level with wide pedestrian concourses. The Neelam plazza in the center has fountains with light and water features. Proposal to set up an eleven storey building in Sector 17 is in the offing. Sector 34 is another newly developed commercial sector.

❖	No of spectors	:Sector 1 to 56 (part of sector -61 & 63)
❖	Dimensions(sq m)	: 800 x 1200

3.14 ELECTRICITY

The Sources of power are BBMB, NHPC, NTPC, NPCIL, Nathpa Jhakri

❖	Total Consumption	:1423 Mkwh
❖	Per Capita Consumption	:1224 KWH
❖	Agricultural Consumption	: 1.30 MWH
❖	Industrial Consumption	:279.52 Mkwh

3.15 TELEPHONE

❖	Total Connections (landline)	:130773
❖	WLL	:2013
❖	Public Call Office (STD)	:864
	(PCO on highways)	:39
	(CCB)	:263
❖	Telephone Exchange(main)	:12
	(Sub)	:52
❖	Post Offices	:69
❖	Internet Connections	:54567
❖	Mobile Phone Connections	:115000

3.16 MEDICAL FACILITIES

❖	Hospitals	:5
❖	Dispensaries	:44
❖	Beds	:2662
❖	Registered Doctors	:635

3.17 HEALTH INFRASTRUCTURE IN SATELLITE TOWNS

MOHALI

❖	ESI Hospital	:1
❖	ESI Dispensaries	:2
❖	Civil Dispensaries	:1
❖	Homeopathic Dispensaries	:2
❖	Ayurvedic Dispensaries	:1
❖	Private Nursing Homes	:13

KHARAR

❖	Homeopathic Dispensaries	:1
❖	Ayurvedic Dispensaries	:1
❖	Private Nursing Homes	:3
❖	Civil Hospital	:1

PANCHKULA

❖	Civil Hospital	:1
❖	Civil Dispensaries	:4

3.18 INDUSTRY

❖	No of large & medium Factories	: large-1 : Medium-7
❖	No of SSI's	:2079

3.19 AGRICULTURE

❖	Area under cultivation	:1793.56 hac
❖	Irrigated area	:2564.30 hac

Area under major crops (hectare)

❖ Wheat	:1128.89 hac
❖ Maize	:213.45 hac
❖ Paddy	:118.59 hac
❖ Pulses	:2.13 hac
❖ Fodder	:1037.12 hac

3.20 SOURCES OF DRINKING WATER FOR HOUSEHOLDS

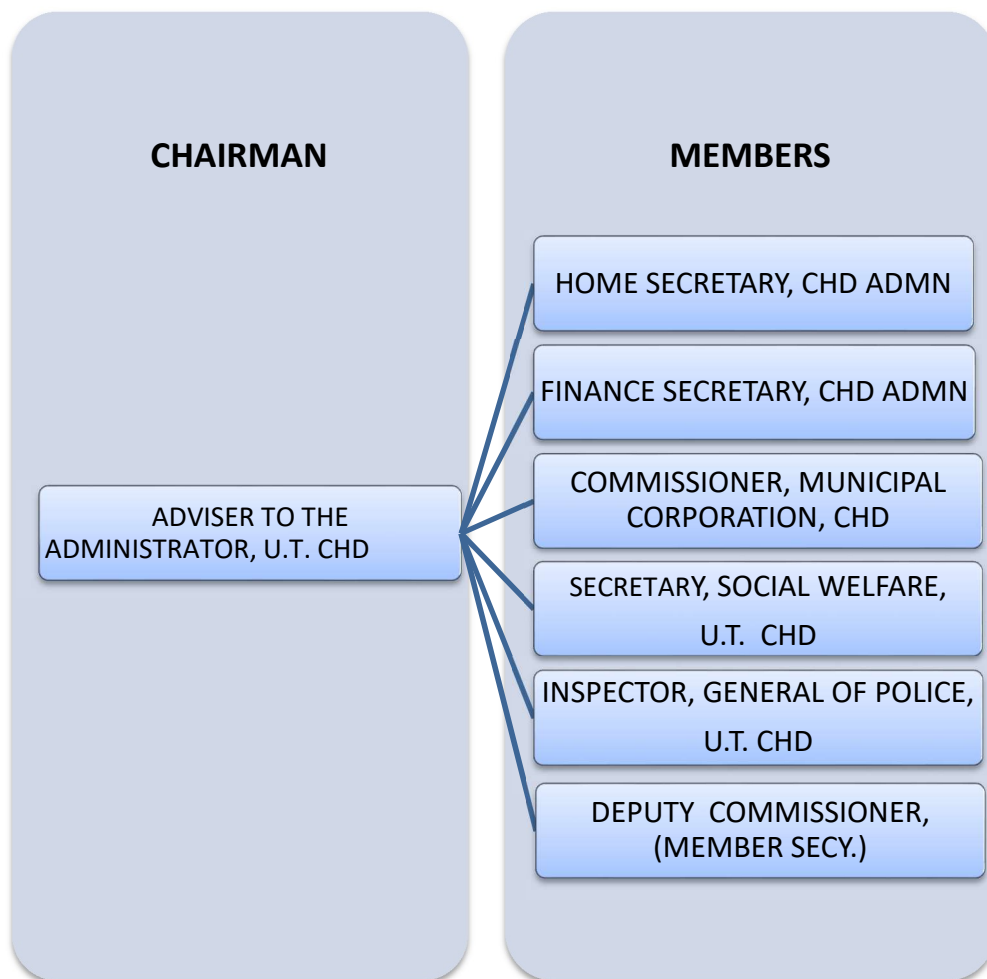
❖ Tap	:NA
❖ Handpump	:NA
❖ Tubewell	:34 Nos.
❖ Well	:Nil
❖ Other sources	:Nil

CHAPTER-04

DISASTER MANAGEMENT SETUP

4.1 STATE DISASTER MANAGEMENT AUTHORITY

State Disaster Management Authority has been formed in Chandigarh under the Chairmanship of the Adviser to the Administrator, U.T, to evaluate the disaster preparedness for different type of calamities. This Authority is the pioneer Committee in the U.T to take stock of the situation, monitor routine preparedness and to suggest improvements in the response mechanism. This has been done to ensure coordinated mitigation, preparedness and response measures whenever disaster strikes. The State Disaster Management Authority comprises of the following officers:



4.2 DISASTER MANAGEMENT STRATEGY

Optimum strategy is to be followed in accordance with the comprehensive District Disaster Management Plan to combat the effects of the disaster and to minimize the loss of life and property. Different stakeholders from district administration, public, NGO sector, civil defense, interest groups are required to play a major role in disaster mitigation. Broadly it has been divided into three major strategies viz., **Pre Disaster Phase, Impact Phase and Post Disaster Phase.**

PRE DISASTER PHASE - PREPAREDNESS IN “NO- DISASTER SITUATION”

In the Pre Disaster Phase –prevention, Mitigation and Preparedness activities are undertaken. The key activities are:-

1. Formation of the District Disaster Management Committee.
2. Formulation of District Disaster Management Plan for the running year.
3. Risk Assessment and Vulnerability Analysis
4. Resource Inventory.
5. Allocation of responsibilities to the individual actors/Groups/Institutions/ Organizations.
6. Broadly defining the responsibilities and operational jurisdiction.
7. IEC Programme.
8. Training and capacity building.
9. Logistics arrangement – Cyclone/Flood shelters (immediate/permanent), Food items like Rice, Kerosene, Drinking water, Medical facilities, Clothing, Other essential commodities, etc.
10. Establishing Communication network like wireless system / VHF, HAM- Radio, V-Sat, Vehicle and Boat, Power Boat, Fire Brigades etc.
11. Check memo, Do's & Don'ts.

IMPACT PHASE – EMERGENCY RELIEF MEASURES AND RELIEF

This Phase includes measures taken immediately after the disaster. Decision-making, deployment of manpower and material resources are the key activities undertaken by the administration. The key activities are:-

1. Rescue operation/Evacuation by teams (already identified) and providing basic infrastructure and movement to rescue centres.
2. Functioning of District Control Room (DCR) & other Sub-Divisional/Block/Tehsil/Line Departmental Control Rooms.
3. Dissemination of Warning/Information, Media management and Community management.
4. Coordination meeting with officials at District Control Room at each 12 hours interval to take stock of the situation.
5. Alerting Field Officers (Revenue/Line Dept.) to remain in readiness to gear up into action immediately.
6. Immediate freezing of reasonable POL stock with different Petrol Pumps.
7. Management of Rescue Shelters.
8. Monitoring Disaster Management by ensuring a line of Control through Police & Paramilitary forces, Civil Defence, Fire services, Civilians, PSUs, NGOs and Essential Service Departments by the District Collector.
9. Daily stock of the situation by District Magistrate and Addl. District Magistrate.
10. Administration of Relief.
11. Preparation of Daily Situation Report.
12. Check Memo

POST DISASTER PHASE- DAMAGE ASSESSMENT AND LONG TERM RELIEF

All measures at this stage aim at speedy return of the affected areas to normalcy and to mitigate the long-term consequence of the disaster. The key activities are:-

1. Assessment & enumeration of damage.
2. Developing a Reconstruction and Rehabilitation plan.
3. Distribution of Relief / Emergent Relief as per the provision of ORC.
4. Monitoring Relief Operation organized by outside agencies/ UN Agencies/Red Cross/ NGOs/ PSUs/ other states etc through District Administration.
5. Restoration of Communication – Roads & Railways.
6. Restoration of Electronic Communication System.
7. Immediate arrangements of free kitchen in the cut off/shelter camps and inaccessible areas.
8. Ensuring transportation of relief materials to affected pockets.
9. Ensuring safeguarding of belongings of the evacuees.
10. Maintenance of Law & Order.
11. Ensuring safe availability of Drinking Water.
12. Provision of Medical facilities and Minimum sanitation.
13. Removal of debris and disposal of carcasses.
14. Helping the evacuees to return to their homes.
15. Special care to Children, Lactating Mothers, Old & infirm.
16. Meeting Officers of both District Level and Field level in every 24 hours to take stock of the situation.
17. Collection of Information and submission of daily situation report to Govt. through District Collector.
18. Keeping liaison with field and state Govt.
19. Documentation of the entire event – Black & white/Audio & Video.
20. Check Memo.

4.3 DISTRICT DISASTER MANAGEMENT COMMITTEE-CHANDIGARH

District Disaster Management Committee is the high-powered committee at District level to look after disaster management and emergency response. This high-powered committee would be chaired by the Deputy Commissioner with all policy makers from the District/Nodal Officer of each line department/ADC /SDMs and nodal officers from various organizations as its members. ADC would be the convener of District Disaster Management Committee (DDMC).

Inclusion of new members and removal of existing members of the DDMC, as it is required, would be under the discretion of the DDMC. Also members from RWA, and MC councilors etc shall be nominated on rotation basis, so that maximum stakeholder ship can be assured.

A District Project Officer would be appointed in the district directly under the Deputy Commissioner to look after the day-to-day affairs of disaster management in the district.

The DDMC members would meet at least once in two months in normal situation and once in a month or more in case of a crisis situation.

Duties of DDMC Members

The major functions and responsibilities of the District Disaster Management Committee members are given in the table below. Besides these functions as DDMC member, each nodal officer will be accountable to his own department in terms of disaster management. District Disaster Management Committee (DDMC) is an apex planning body and will play a major role in preparedness and mitigation.

DUTIES OF DDMC MEMBERS:

DESIGNATION	RESPONSIBILITIES
DEPUTY COMMISSIONER-INCIDENT COMMANDER	<ul style="list-style-type: none"> ▪ Overall planning, coordination and supervision of the Disaster. ▪ Management initiatives including Disaster Risk Management Programme act as Incident Commander during disaster. ▪ To implement District Disaster Risk Management Programme in Consultation of DDMC at district level ▪ To direct and coordinate district administration through various departments and line agencies for the Disaster Management
ADDITIONAL DEPUTY COMMISSIONER	<ul style="list-style-type: none"> ▪ To set up the District Emergency Operation Centre (EOC) and facilitate setting up of mobile coordination. ▪ To constitute DMC's at Sub-division, wards and Committee level. ▪ To ensure preparedness among communities by generating awareness and building capacities. ▪ To ensure community participation in all the stages of disaster operation in order to maintain community morale and confidence, maximize the use of local resource, reduce the cost of operation and promote a faster recovery. ▪ To coordinate activities of voluntary organization and NGOs to ensure community participation. ▪ To procure/hire/purchase/pre-contract material for the District Relief Management Programmes. ▪ To coordinate with all fields of responses including

	<p>transit camps, relief camps, feeding centers and cattle camps in an emergency.</p> <ul style="list-style-type: none"> ▪ To facilitate updating of the India Disaster Resource Network and other Disaster Relief Management web site. ▪ To chair the DDMC meeting in a regular period of time. ▪ To supervise and monitoring of disaster management and relief activities within the district. ▪ To implement district level mock drills at least biannually. ▪ To convene DDMC meeting regularly period of times and circulate the minutes of the meeting among the members. ▪ To coordinate with the Chairman of DDMC and assist to carry out any DRM activities in the District. ▪ To officiate the DDMC meeting and other proceedings in the absence of DC/Chairman of DDMC
MP, MC COUNCILORS	<ul style="list-style-type: none"> ▪ To lobby for disaster management in the policy formulation meetings. ▪ To oversee and endorse Community Based Disaster Management Plan.
ALL OTHER MEMBERS OF DDMC	<ul style="list-style-type: none"> ▪ To assist the Dy. Commissioner in preparation of District Disaster Management Plan (DDMP) ▪ To prepare Disaster Management Plan for his/her own Department (DMPD) and the subordinate units of the department like police stations, duty stations, vital installations, schools, hospitals etc ▪ To convey such (DMPDs) to the Emergency Operation Centre

	<ul style="list-style-type: none"> ▪ To provide desirable staff for disasters preparedness among communities by generating awareness and building capacities ▪ To assist in preparation of Community Based Disaster Management plan (CBDM) and training to the DMTs for various operations of disasters. ▪ To organize regular sensitization cum training on disaster management for their own departmental staff. ▪ To constitute/update and train Quick Response Teams (QRTs) and Field Response Teams (FRTs) at their department level ▪ To coordinate the Support Agencies of the Emergency Support Functions (ESFs) and organize periodic meetings. ▪ To organize Mock Drills in their own departments level and the subordinate units level biannually in coordination with the DC. To assist the functioning of District Emergency Operation Centre ▪ To coordinate with the Dy. Commissioner during emergency and provide appropriate help. ▪ To report to the Chairman of DDMC periodically on progress on disaster preparedness in their department. ▪ To provide all possible human resource/equipment resources/communication resources available in the department to the Incident Commander in a disaster situation ▪ To provide all possible human resource/equipment resources to the deputy commissioner for organizing training programmers on disaster management.
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	<ul style="list-style-type: none"> ▪ To promote the disaster resistant technologies and seismic engineering in construction pertaining to the department. ▪ To negotiate/implement retrofitting methods for the existing vital/lifeline installations under the department. Any other responsibility as the Incident Commander cum Chairman of DDMC allocates, as per the Disaster Management Act.
DISTRICT INFORMATION OFFICER	<ul style="list-style-type: none"> ▪ To update the India Disaster Resource Network (www.idrn.gov.nic.in) web site and other such web portals launched by the government and the district.
DISTRICT PROJECT OFFICER EX-OFFICIO MEMBER	<ul style="list-style-type: none"> ▪ To assist the ADC in implementing the DRM programme in the district. ▪ To negotiate with UNDP/NGOs/INGOs/and other bilateral agencies in implementation of the DRM Programme. Any other responsibility as the Incident Commander cum Chairman of DDMC allocates, as per the Disaster Management Act.

4.4 DISTRICT WORKING GROUPS

District Disaster Management Committee is a multi-disciplinary committee for disaster management activities in the district. The major functions of this committee are related to preparedness, mitigation and planning of disaster management. In order to simplify the functions of the DDMC, three working groups would be constituted in Chandigarh with certain focused functions. These are:

- A. WORKING GROUP FOR PREPAREDNESS AND MITIGATION
- B. WORKING GROUP FOR RELIEF AND REHABILITATION

C. WORKING GROUP FOR DISTRICT PLAN REVIEW AND UPDATION

WORKING GROUP FOR PREPAREDNESS AND MITIGATION will be responsible for all disaster management preparedness and mitigation activities in the district. They may direct and review the preparedness measures in the district. Also they assist the DDMC in coordinating preparedness activities in line departments and organizations. The major preparedness measures are:

- Organising Warden service in the city
- It is proposed that Warden Service consisting of Chief Warden with a team of 6-7 wardens will be constituted in each sector. The Resident Welfare Association could also be activated and mobilized in this regard.
- Overlooking and monitoring awareness programmers of the public and government departments
- Organizing/overlooking training and capacity building programmers for the task forces, various committees and staff of line departments
- Facilitate preparation of disaster management in Educational institutions, hospitals and Territory of Resident Welfare Associations and institutions.
- Initiate and monitor mock drills in various levels
- **Lobbying for** policy formulation for disaster management

It is mandatory for all institutions in Chandigarh - viz. schools, colleges, hospitals, cinema halls, any other big institution where more than 50 people gather at a time or at different times in a day - to provide assistance to this working group for better implementation of disaster awareness/training programme in their institution or to implement disaster management programme directed by the working group on their own as the incident commander demands.

WORKING GROUP FOR RELIEF AND REHABILITATION is to assist the Incident Commander particularly in a disaster situation. They will be responsible for all relief and rehabilitation related activities in the district, in case of a disaster. It is their

responsibility to prepare code of rehabilitation and updating it yearly in advance of a disaster. Other functions of the group are:

- Preparation and updation of necessary formats and performas for disaster assessment, monitoring, relief distribution and situation reports
- Identifying storage spaces and godowns for collecting relief materials.
- Engaging in to pre-contract well in advance
- Fair and transparent distribution of relief materials
- Prepare strategy for rehabilitation

This working group under the direction of the Incident Commander may have full powers to occupy/take over any vital installations - viz. schools, colleges, hospitals, cinema halls, underground godowns, or any other big institution where they feel that sufficient storage facility is there – for storage of relief materials or any other thing during or immediately after a disaster.

WORKING GROUP FOR DISTRICT PLAN REVIEW AND UPDATION.

The group has to review the existing district plan biannually and suggest amendments in it. Similarly they will look after plan documents of all line Departments/Organizations and suggest modifications as well as monitor progress of Community/school/Hospital disaster management plan preparation. It would be mandatory for all institutions in Chandigarh - viz. schools, colleges, hospitals, cinema halls, any other big institution where more than 50 people gather at a time or at different times in a day - to prepare their own disaster management plans based on the guidelines issued time to time by the district administration and to share a copy of the same with this working group. Also they may execute the modifications provided by this group and intimate changes they made in the plan document.

4.5 EMERGENCY OPERATION CENTRE

Chandigarh shall have an exclusive Emergency Operation Centre (EOC) at the District Headquarters. This shall be a round the clock set up with sufficient manpower and most

modern equipments. Considering the unique responsibility of the district Emergency Operation Centre, the equipments provided to it shall not be taken for any purpose other than disaster management. This centre is intended to coordinate all disaster related activities in the district starting from preparedness to rehabilitation and reconstruction. There shall be permanent sitting place for each Emergency Support Functions (ESFs) in the EOC and they shall be provided with sufficient telephone connections. Only the Nodal ESFs are to sit in the EOC and coordinate the disaster management activities in the district with their support agencies. There shall be dedicated telephone lines and other communication facilities.

THE ROLE OF EMERGENCY OPERATION CENTRE IN NORMAL TIME:

The Deputy Commissioner of Chandigarh is empowered to appoint an Administrative Officer as Officer-in-charge of EOC. He will be responsible for the effective functioning of the EOC. Responsibilities of the EOC in charge in normal time include:

- Ensure that all equipments in the EOC are in working condition;
- Collection data on routine basis from line departments for disaster management
- Develop status reports of preparedness and mitigation activities in the district;
- Ensure appropriate implementation of District Disaster Management Plan
- Maintenance of data bank with regular updation
- Activate the trigger mechanism on receipt of disaster warning/occurrence of disaster

THE ROLE OF EMERGENCY OPERATION CENTRE DURING DISASTER:

On the basis of the message received from the forecasting agencies, warning has to be issued for the general public and the departments, which play a vital role during emergencies. Issuing correct and timely warning would be one of the prime responsibilities of EOC. For effective dissemination of warning, EOC should have a well-planned line of communication. The DC shall be the competent authority to

disseminate a disaster warning. The warning on occurrence of a disaster will also be communicated to:

- All Emergency Support Functions
- Members of DDMC
- Hospitals in the disaster area/CAT etc
- Emergency Operation Centre in the neighboring districts
- National/State Emergency Operation Centre
- People's representatives from the district

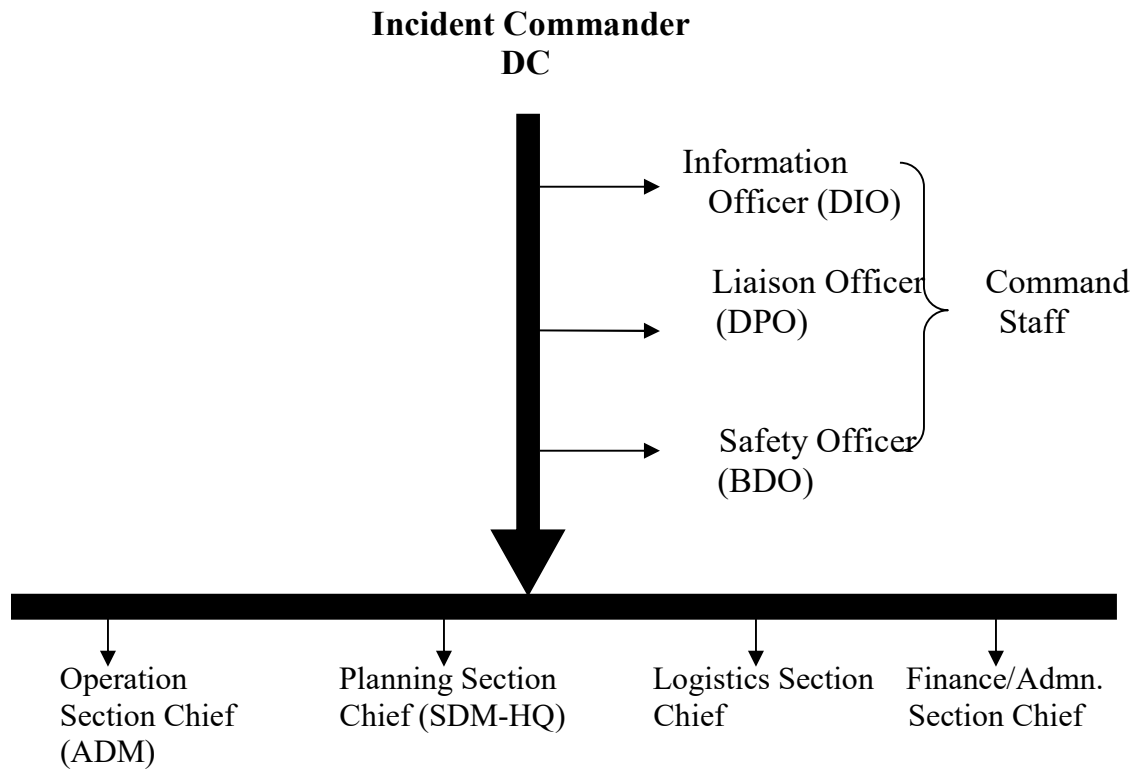
Apart from this, the District Emergency Operation Centre must arrange desks for the Emergency Support Function in its complex for better coordination and help. Simultaneously the onsite EOCs are to be set up with the help of the district EOC. Constant communication between the District EOC and Onsite EOC is mandatory for updates on the disaster.

4.6 INCIDENT COMMAND SYSTEM IN CHANDIGARH

The Incident Command System (ICS) is a recent inception in the disaster administrative mechanism of the country. This is a tested institutional mechanism with clear objective of coordinating all manpower's, and other resources. In an administrative circle where there is large number of line departments with unique features exist, a mechanism like Incident Command System is much useful. In this chain of system, the Deputy Commissioner/District Magistrate is the commanding officer in case of emergency, pertaining to his own district.

In Incident Command System under the Deputy Commissioner Chandigarh, there shall be an operation section with a chief and associates, planning section with a leader and associates, logistics section with a leader and section chief and finance section with a leader and associates. All team leaders will be in the rank of ADM/Line Department Heads in the district who are senior level officers.

TREE DIAGRAM THE INCIDENT COMMAND SYSTEM



If the disaster is in more than one district, the DC/DM of the district that has maximum loss will act as Incident commander. It is mandatory that all line departments/Organizations/individuals should obey the command of the Incident Commander as condition demands. He can divert all mechanisms and resources in the district to fight against a scenario leading to disaster/calamity in the district.

The SDMs shall not be given any responsibility in the incident command chain since they are to look after the onsite EOC in their territory or as assigned to the affected areas as well as they are the Team Leaders of Incident Management Teams (IMTs) in each Onsite Emergency Operation Center.

The Civic bodies like the MCD, District Health Department, District Senior/junior Accountant or any nodal officer capable of doing the same can be given this assignment.

This is the sole discretion of the Incident Commander to appoint the Section chief. These section chiefs are vested with commanding authority and logistic assistance to deliver the concerned responsibility.

4.7 STANDARD OPERATING PROCEDURE

A Standard Operating Procedure (SOP) is a set of instructions having the force of a directive, covering those features of operations that are to be undertaken at the time of a disaster. It consists of a set of definite procedures that yield desirable results by ensuring effectiveness.

OFFICER IN CHARGE OF THE DISTRICT CONTROL ROOM:

The Deputy Commissioner-cum-Director, Civil Defence, Chandigarh is the controller of Civil Defence Organisation. *The office of the Deputy Commissioner, U.T, Chandigarh has been entrusted with the responsibility of looking after all matters that fall within the ambit of Department of Disaster Management for Union Territory, Chandigarh.* During crisis, in the absence of Deputy Commissioner, ADC or any other officer on duty at that point of time shall remain in overall charge of the Control Room. The person in charge of control room shall be personally responsible for implementing the Standard Operating Procedure as indicated hereafter and sign on behalf of the Collector on all reports & act on each point of SOP for effective management of the situation.

- 1. CALL UP THE OFFICERS** and ensure that they remain in the Headquarters until the situation is normalized.
- 2. PREPARE A LOGBOOK** for recording the chronological sequence of events from time to time.
- 3. FOOD AND KEROSENE:**
 - 1) Check up availability of food and kerosene at block headquarters, with storage agents and other inaccessible pockets. District Food and Supplies and Consumer Affairs Officer (DFSO) shall contact all Storage Agents. He shall personally visit

the Godowns and verify the stocks. The Agents shall remain present at the store round the clock. DFSO shall immediately depute one officer to the place where the storage godowns are located. The DFSO should be informed to remain alert for procurement of dry foods/essential commodities on short notice.

- 2) Direct the private stockiest / wholesaler and FCI to remain open on all days, including Sundays and holidays, till the situation is normalized.
- 3) Place requisition to the Director Transport for deployment of vehicles.
- 4) Start movement of food stock with the help of DFSO and Kerosene Oil to the affected areas.

4. CHECK AVAILABILITY OF SAND BAGS

Engineering Division	Sandbags
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5. HEALTH SECTOR: Make a rapid assessment of the following:

- 1) Check up the stock of medicines, bleaching powder, and halogen lights. If necessary, send immediate requisition to CDMO.
- 2) Start movement of medicines, bleaching powder, etc. to PHCs / CHCs.
- 3) Ensure that medical officers are in place at the PHCs and CHCs through DHS, Police stations, Blocks and Tehsildars.
- 4) DHS shall decide the locations of camps.
- 5) All CDPOs shall be teamed up with the MO of PHC/CHC with their vehicles and supervisors.

6. VEHICLES: Requisition vehicles immediately as per need.

7. EMPOWER FIELD OFFICIALS to requisition vehicles. Send 10 requisition forms to each Tehsildar, BDO and Police station.

8. BOATS: Requisition of boats within district.

9. Ask DFSO, U.T, Chandigarh to remain in readiness for supply of stocks of rice, chuda & other essential commodities.

10. Close Educational Institutions after making an assessment of the magnitude of the emergency.

11. **VETERINARY MEASURES:** Immediately tie up the supply of cattle feed. Department of Animal Husbandry shall make assessment of vaccines and fodder availability.
12. **AIR DROPPING ZONES:** Prepare a list of places where air dropping may be needed.
13. Each JE shall keep ready at least a team of 20 persons with **axes** and **saws**. They will also have one chain-pulley system ready.
14. Supply of road cleaners and mobile saw with trained operator to be ensured.
15. Deployment of army personnel / Police personnel to be ensured in rescue operation & maintenance of law & order.
16. Requisition the services of officers who have been effective in the past. Allot areas to them with full powers of decision making on the spot.
17. Make a thorough assessment of relief items available in stock at different places of field as well as District Headquarter.
18. **FUNCTIONAL DISTRIBUTION OF WORK:** Following functional distribution of works shall be done. Each team will have staff and resources. The team leader will have full powers to take individual decisions.
 - 18.1 Transportation team.
 - 18.2 Stock and Store team.
 - 18.3 Finance team.
 - 18.4 Information and office documentation team.
 - 18.5 Food and other relief items team.
 - 18.6 Civil Society and International Organizations co-ordination team.
 - 18.7 Liaison team.
19. **CIVIL SOCIETY ORGANISATIONS:** Get in touch with civil society organizations. Allot them areas or functions and introduce them to the field functionaries. Ask them to prepare a list of volunteers. Make a quick inventory of their resources. Contact UNICEF, UNDP, WFP, CARE, OXFAM, Action

Aid and other international agencies. Make a quick assessment of district needs and expectations from different agencies.

- 20. PRESS BRIEFINGS:** Press briefings play a very important role in disaster management. Daily press briefs will be issued at 1600 hours. Written information will be issued. The following format will be used:

U.T., Chandigarh Press Note No.		Dated:		
		Total	Affected	Remarks
1.	Blocks/towns			
2.	Villages			
3.	Population			
4.	Severely affected areas			
5.	Rescue measures			
	Boats deployed			
	Army/Navy/Coast Guard			
	Police/Fire brigade			
	Other agencies			
	Exemplary events			
6.	Relief measures	Qty/Beneficiaries	Area covered	Days covered
	Free Kitchens			
	Rice			
	Chuda			
	Other dry food			
	Kerosene Oil			
	Polythene sheets			
	Tents			
	Cattle feed			
	Halogen lights			
	Medicines			
7	Casualties			
8.	Missing reports			
9.	Bovine death			
10.	Civil Society Organizations			
11.	Damage to property	Number	Approx Value	
	i. Roads			
	ii. Embankment breaches			
	iii. Schools			
	iv. Other public buildings			

	v. House damage			
	vi. Electrical installations			
	vii. Others.			
12.	Prospects in next 24 hours.			
13.	Message to people			
14.	Other details.			

21. **THE MESSAGE TO PUBLIC** should be specific. Apart from the warning, it should include the following points.

21.1 Remain alert.

21.2 Take shelter in nearest pucca building / shelters / School & Other such places.

21.3 Keep cattle tied in open spaces/let free.

21.4 Keep sufficient dry food.

22. **REGULAR CONTACT** at intervals with IMD, Home Secretary etc.

23. Written orders shall be issued for identifying places for starting free kitchens for atleast 3 days.

24. Check up **www.imd.ernet.in, www.nidm.net, www.ndmindia.nic.in** and other web sites.

25. Keep spare copies of district maps. Jurisdiction maps of all subdivisions shall be kept ready in sufficient number.

26. Place requisition with S.S.P/GM telecom for supply of temporary VHF sets for all nodal officers and officials involved in disaster management.

27. Requisition all **rest sheds**.

28. Requisition School/ College buildings for army/Police forces.

29. Direct all field officers to hire generators and keep sufficient oil for running them.

30. Direct all police stations to keep spare batteries for VHF.

31. Looking at the onset of emergency and after making quick preparations, convene emergency meeting of important official and non-official agencies.

32. Make a Duty Roster of Important Officials for uninterrupted functioning of District Control Room & immediate implementation of the Relief/Rescue Programme.

PROFORMA FOR “IN” MESSAGE REGISTER

Sl. No.	Date	Time of receipt	In Message Sr. No.	Received From	Address to	Message Transferred to	Copies to	Mode (WL/Tel/Message) of receipt	Instruction/follow up to be done
01.									
02.									
03.									

PROFORMA FOR “OUT” MESSAGE REGISTER

Sl.No.	Date	Time of Dispatch	Out Message Sr. No.	Related in Message No. If any	Address from	Address to	Copies to	Mode (WL/Tel/Message) of receipt	Instruction/follow up to be done
01.									
02.									
03.									
04.									

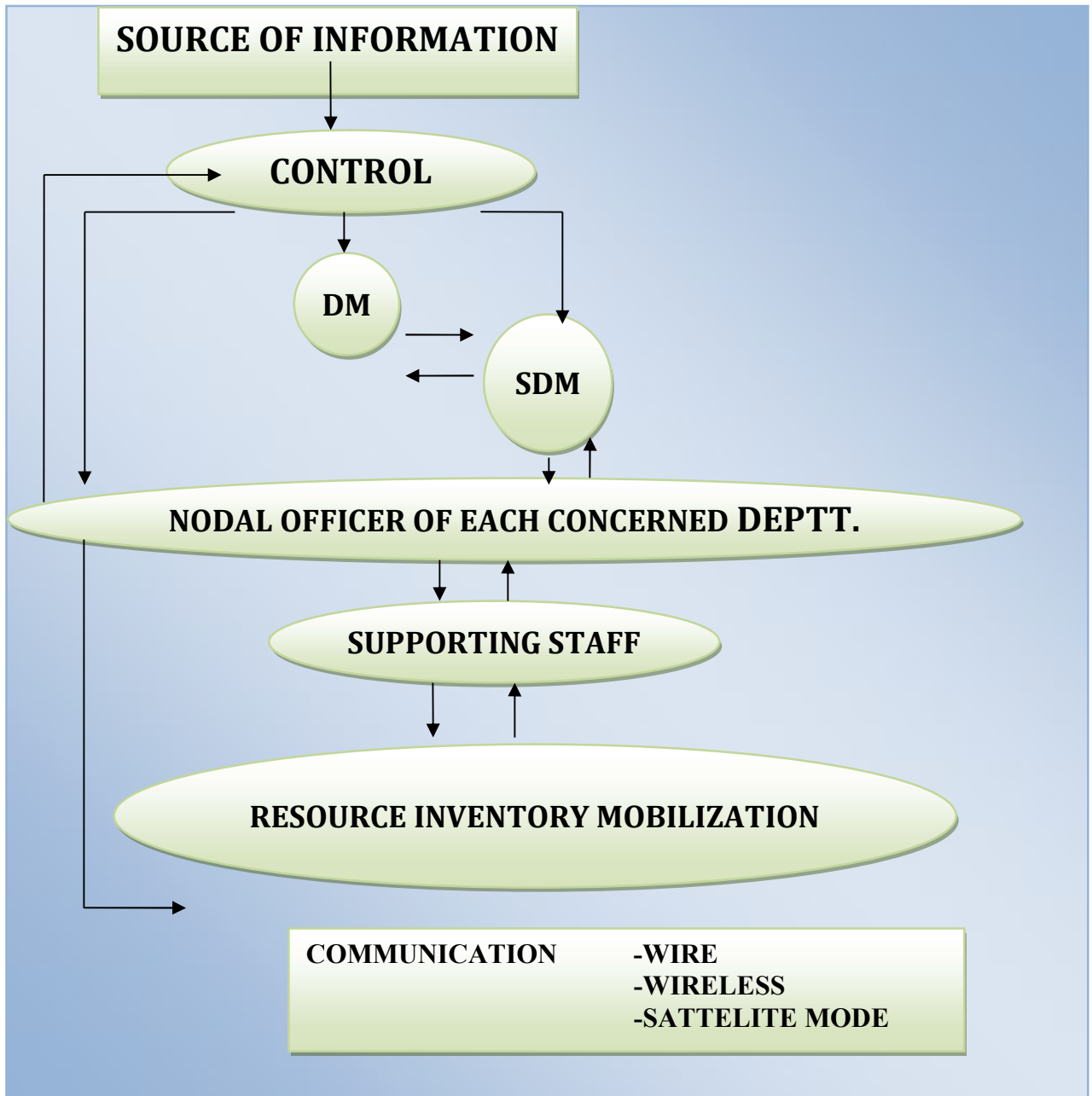
4.8 TRIGGER MECHANISM: -

Trigger mechanism is an emergency quick response mechanism, which would spontaneously set in motion all disaster management activities for response and recovery without loss of critical time. This would entail all the participating managers to know in advance the task assigned to them and the manner of response.

The Trigger Mechanism has been envisaged as a preparedness plan whereby the receipt of a signal of an impending disaster or on the occurrence of sudden disaster would simultaneously energize and activate all response and mitigation mechanism without loss of crucial time. This would necessitate the participating managers to know in advance the tasks assigned to them and the manner of response. **Identification of available resources, manpower, material, equipment and adequate delegation of financial and administrative powers are pre-requisites to the successful operation of Trigger Mechanism.**

The Trigger Mechanism is, in essence a Standard Operating Procedure (SOP), which lays down in a scientific and comprehensive manner the implementation plans on receipt of a warning of impending disaster or plans to respond quickly to disasters that give no warning. Activities such as evacuation, search and rescue, temporary shelter, food, drinking water, clothing, health and sanitation, communication, accessibility and public information are important components of disaster management, which would follow on the activation of Trigger mechanism. These activities are common to all types of disasters and will require the preparation of sub-action plans by each specified authority.

TRIGGER MECHANISM



4.9 EMERGENCY SUPPORT FUNCTIONS (ESF)

ESF 1 COMMUNICATION

Background: The communication ESF is primarily responsible for restoration of communication facilities. The ESF on Communication should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at state level in response efforts.

SITUATION ASSUMPTIONS:

1. There would be congestion in the network because of increased calls to control rooms due to panic created in the community.
2. The initial reports on damage may not give a clear picture of the extent of damage to communication network.
3. The affected site may be cut off from the state control rooms and the officials on site may find difficulty in communicating to the District/State EOC.

Nodal agency: (BSNL)

Supporting agencies: NIC, Police/Revenue Wireless, HAM Reps, and private telecom/mobile operators

SOP'S FOR THE NODAL AGENCY:

- Team leader (TL) of Communication ESF will activate the ESF on receiving the intimation of occurrence of the disaster from the District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL would establish contact with the district EOC for First Information Report
- TL requests for reports from local ESF contact persons (this would be the local office of ESF Nodal Agency) to understand the current situation and action taken
- Based on information given by the supporting agencies, TL decides on the need to launch an assessment mission to estimate the extent of damage to telecom

services and network as well as to come up with possible arrangements to establishing reliable and appropriate network.

- TL communicates situation to supporting agencies and also requests to provide details on the status of equipment and infrastructure in the affected area(s).
- TL informs the Incident Commander on the status of telecom services.
- TL works out a plan of action for private telecom companies and convenes a meeting of all ESF members to discuss and finalize the modalities.
- TL issues orders to establish systems and reports to District EOCs on the action taken. New phone numbers and details of contact persons would also be communicated.
- TL gets the temporary telephone facilities established for the public. Prior information on this would be announced through media
- HAM radio operators would be informed about the current requirements and coordination mechanisms shared.
- TL monitors the situation and arranges emergency staff required to operate established systems.
- TL sends the District Quick Response team at the affected site with the required equipments and other resources.

SOPS FOR QUICK RESPONSE TEAM ON COMMUNICATION:

- The QRT (Quick Response Team) members will reach the nodal office as soon as they will get instructions from the TL.
- Once the QRTs receive any intimation from the nodal officer to reach at the site they would rush to the site.
- At the emergency site QRT members will take stock of the situation from the IC and would also know about their counterparts.
- QRTs would assess the ground situation and would send sectoral report to the District ESF agency. A sectoral report would contain the following:
 - An assessment of overall damage, listing specifically

- Overhead route damage (in miles/kilometers)
- Cable damage (in yards/meters)
- Specific equipment damaged.
- Establish a temporary communication facility for use by the public
- Identify requirements of manpower, vehicles and other materials and equipments Give priority and concentrate on repairs and normalization of communication system at disaster-affected areas.
- Begin restoration by removing and salvaging wires and poles from the roadways with the help of casual laborers.
- Carry out temporary building repairs to establish a secured storage area for the equipments and salvaged materials.
- Report all activities to head office
- Begin restoration by removing and salvaging wires and poles from the roadways through recruited casual labourers.
- Establish a secure storage area for incoming equipments and salvaged materials.

ESF 2 EVACUATION

Background: The ESF on evacuation is primarily responsible for establishing evacuation plans, identification of fastest evacuation routes and alternate routes and coordinating evacuation logistics during field operations.

SITUATION ASSUMPTIONS

- Most of the buildings would be damaged and would not remain serviceable.
- Many structures would be damaged and there would be an urgent need to evacuate.

NODAL AGENCY: MC

SUPPORTING AGENCIES: Police, Civil Defense, NCC, Army

SOP FOR NODAL AGENCY:

- Team leader (TL) of Evacuation ESF would activate the ESF on receiving the warning of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of supporting agencies about the event and ESF activation.
- TL will direct the QRTs to be deployed at the affected site.
- TL will gather information on availability of predefined evacuation routes.
- Where the predefined evacuation routes are not available, the nodal officer would coordinate through District EOC with other ESFs nodal officers and the support agencies about clearing of routes and identifying alternate routes.

SOP FOR QUICK RESPONSE TEAM ON EVACUATION

- The QRT members will reach the nodal office as soon as they get instructions to do so from the TL.
- Once the quick response teams receive an order from the nodal officer for reaching the site they would rush to the site.
- On reaching at the site the QRT members will take stock of the situation from the Incident Management Team at the site and their counter parts.
- The quick response teams with the help of local task forces will start evacuating people to safe shelters or open areas.
- The QRT members should concentrate more on evacuation in areas that have been worst affected by the disasters.
- Reporting about all the activities to head office

ESF 3 SEARCH AND RESCUE

BACKGROUND: Search and Rescue operations are one of the primary activities taken up in a post disaster situation. The promptness in these operations can make a remarkable difference to the amount of loss of life and property.

SITUATION ASSUMPTIONS

- Local community task forces will initiate search and rescue at residential level
- Spontaneous volunteers will require coordination
- Access to affected areas will be limited.

NODAL AGENCY: Fire Service

SUPPORT AGENCY: Police, Civil Defence, NCC, Army and Health Reps

SOPS FOR NODAL AGENCY

- IC will call the TL of Primary Agency and get the ESF activated.
- TL of primary agency will call nodal officers of supporting agencies.
- TL would activate the District Quick Response Team.
- Quick Assessment of the S& R operations through Aerial surveys
- Assessments of the specific skill sets and the other equipments required.
- Using IDRN network to check and map the availability of resources in and round the disaster site.

SOP FOR QUICK RESPONSE TEAM ON SEARCH & RESCUE

- Assessment of damage (locations, number. of structures damaged, severity of damage)
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipment required for conducting the S&R
- QRTs will report the situation and the progress in response activities to the respective EOCs.

ESF 4: LAW AND ORDER

BACKGROUND: The ESF on Law and Order maintains the law and protects the property and valuable commodities. It is mainly responsible to control crowd and avoid riots situations.

SITUATION ASSUMPTIONS

- There would be panic and people will gather at a place.
- The crowds may go out of control.
- Riots may also take place

NODAL AGENCY: Chandigarh Police

SUPPORT AGENCIES: Home guards, Civil Defense, Army, Home Reps

SOP FOR NODAL AGENCY:

- IC will call the TL of Primary Agency and get the ESF activated.
- TL of primary agency will call nodal officers of supporting agencies.
- TL would activate the District Quick Response Team.
- The QRTs will be deployed at the affected site.
- Cordoning of area to restrict movement of onlookers, vehicular and pedestrian traffic should be done.
- Any additional requirements at site to be taken care of

SOP FOR QUICK RESPONSE TEAM ON LAW AND ORDER:

- Quick assessment of law and order situation in affected areas
- Support and coordinate with Local Administration
- Prepare updates on the law and order situation every 4-6 hours and brief the Authorities
- Controlling situations like rioting and looting, and cordon off sensitive areas
- QRTs will guide property and valuables in affected areas.
- Control and monitor traffic movement.
- QRTs will provide diversion of traffic on alternate routes as and when it is necessary.
- The QRTs will also provide information about traffic flow along various corridors, especially heavy traffic or congested roads.
- QRTs will communicate to police control rooms, details on the field activities including deployment and reinforcement of staff and resources and communicate nature of additional requirements.

ESF 5 MEDICAL RESPONSE AND TRAUMA COUNSELING

BACKGROUND: The ESF on Medical Response and Trauma Counseling will look after emergency treatment for the injured people immediately after the disaster take place.

SITUATION ASSUMPTIONS

- Emergency medical services will be required by affected population
- Likely outbreaks of epidemic diseases after the disaster.
- Hospital services would be affected

NODAL AGENCY: Health Department

SUPPORT AGENCIES: DHS, Indian Red Cross, Civil Defence, NSS

SOPS FOR NODAL AGENCY:

- IC will call the TL of Primary Agency and get the ESF activated.
- Team leader (TL) of primary agency will call nodal officers of supporting agencies.
- In coordination with the transportation ESF, it will be ensured that a critical number of medical professionals reach at the site including specialists from other districts.
- If temporary housing arrangements are being made for the affected population, the ESF must ensure high standards of sanitation in settlements in order to reduce epidemic outbreak.
- Ensuring the provision and continuous supply of medical facilities (medicines, equipment, ambulances, doctors and manpower etc) required at the disaster affected site and the hospital health centers catering to disaster victims.
- In case of orthopedic care required in disasters like earthquakes the immediate response would have to be complimented by a follow up treatment schedule for a majority of the patients in/ near their place of residence.
- Trained professionals should be mobilized by psychosocial support.
- Ensuring setting up of temporary information centers at hospitals with the help of ESF through help lines and warning dissemination system.
- TL will coordinate, direct, and integrate state level response to provide medical and sanitation health assistances.
- On the recommendations of the EOC, the TL is also responsible to:
 - Send required medicines, vaccines, drugs, plasters, syringes, etc.

- Arrange for additional blood supply. Send additional medical personnel equipped with food, bedding and tents etc.
- Send vehicles and any additional medical equipment.

SOP FOR QUICK RESPONSE TEAM (QRT) ON MEDICAL RESPONSE AND TRAUMA COUNSELING:

- QRTs will provide situation and progress reports on the action taken by the team to the respective EOCs
- QRT's will assess type of injuries, number of people affected and possible medical assistance needs
- QRTs will ensure timely response to the needs of the affected victims such as:
 - Establishing health facility and treatment centers at disaster sites.
 - Providing medical services as reported by the District Civil Surgeon
 - Procedures should be clarified in between
 - Peripheral hospitals
 - Private hospitals
 - Blood banks
 - General hospitals and
 - Health services established at transit camps, relief camps and affected villages.
- QRTs should maintain check posts and surveillance at each railway junction, ST depots and all entry and exit points from the affected area, especially during the threat or existence of an epidemic.

ESF 6 WATER SUPPLY

BACKGROUND: The ESF on drinking water and water supply will ensure provision of basic quantity of clean drinking water and water for other purposes in a manner that does not allow the spread of diseases through the contamination of water.

SITUATION ASSUMPTIONS:

- Existing water storage bodies will be damaged and unusable.
- There would be an urgent need of water to assist victims in rescue operation.
- Break down of sanitation system.
- Contamination of water due to outflow from sewers or due to breakage of water pipelines.

NODAL AGENCY: Municipal Corporation

SOPS FOR NODAL AGENCY:

- Team leader (TL) of ESF on Water Supply will activate the ESF on receiving the intimation of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL will ensure special care for women with infants and pregnant women.
- Provide for sending additional support along with food, bedding, tents
- Send vehicles and any additional tools and equipments needed.

SOP FOR QUICK RESPONSE TEAM (QRT) ON WATER SUPPLY:

- QRTs will ensure that supply of drinking water is made available at the affected site and relief camps
- QRT's will ensure the temporary sewerage lines and drainage lines are kept separate.
- QRTs will report the situation and the progress on action taken by the team to the EOC.
- QRTs will intimate their TL of the additional resources needed.
- Carry out emergency repairs of all damages to water supply systems.
- Assist health authorities to identify appropriate sources of potable water.
- Identify unacceptable water sources and take necessary precautions to ensure that no water is accessed from such sources, either by sealing such arrangements or by posting the department guards.

- Arrange for alternate water supply and storage in all transit camps, feeding centers, relief camps, cattle camps, and also the affected areas, till normal water supply is restored.
- Ensure that potable water supply is restored as per the standards and procedures laid down in “Standards for Potable Water”.
- Plan for emergency accommodations for staff from outside the area.
- QRTs will ensure timely response to the needs of the affected victims
- QRTs will set up temporary sanitation facilities at the relief camps.

ESF 7 RELIEF (FOOD AND SHELTER)

BACK GROUND: In the event of a disaster there would be a need of disbursing relief materials due to massive destruction of life and property taken place. The ESF on Relief should ensure coordination of activities involving with the emergency provisions of temporary shelters, emergency mass feeding and bulk distribution of relief supplies to the disaster victims as also the disaster managers and relief workers.

SITUATION ASSUMPTIONS

- Probability of shortage of a critical resources
- Immediate assistance to the community at the time of resource shortage particularly when affected area is larger.

NODAL AGENCY: Department of Food and Civil Supplies

SUPPORT AGENCY: Department of Revenue, Indian Red Cross, NGOs

SOPS FOR NODAL AGENCY

- TL will activate the ESF on receiving the information of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL will coordinate with all state and district level suppliers as identified with under IDRN.

- TL with coordinate with other ESFs related to transportation, debris and road clearance to ensure quality supply chain management of relief materials.
- Ensuring composite relief with availability of complimentary relief material.

SOP FOR QUICK RESPONSE TEAM (QRT) ON RELIEF

- QRTs will report to site of the relief camps.
- QRTs will be responsible to management and distribute relief items to the affected victims.
- QRT's will be responsible for reporting the progress on action taken by the team to the EOC.
- QRTs will provide information to their TL about the need of additional resources.
- Clearing of the areas to establish relief camps
- Setting up relief camps and tents using innovative methods that can save time.
- Assist local authorities to set up important telecom and other service related facilities.
- Initiate, direct and market procurement of food available from different inventories and ensuring food supplies to the affected population.
- Preparing take-home food packets for the families.
- Ensuring distribution of relief material to the all the people including vulnerable groups of the target area such as women with infants, pregnant women, children, aged people and handicapped.
- Ensuring support to Local Administration.
- Locating adequate relief camps based on damage survey.
- Develop alternative arrangements for population living in structures that might be affected even after the disaster.

ESF 8 EQUIPMENT SUPPORT, DEBRIS AND ROAD CLEARANCE

BACKGROUND: The importance of this ESF emanates from the fact that most large-scale hazards such as earthquakes, cyclones, and floods primarily affect the building structures.

SITUATION ASSUMPTIONS

- Access to disaster-affected area would depend upon the re-establishment of ground and water routes.
- Early damage assessment may be incomplete, inaccurate and general. A rapid assessment may be required to determine response time.
- Engineers and masons may be required in large scale for the inspection of present buildings

NODAL AGENCY: Municipal Corporation and Engineering Department

SUPPORT AGENCIES: CHB

SOPS FOR NODAL AGENCY:

- Team leader (TL) will activate the ESF on receiving the information of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL will coordinate with the supporting agency to mobilize equipments from the warehouses through IDRN database
- The respective supporting agencies will contact their respective personal to move the equipments to central warehouse
- The equipments like JCB, concrete cutters identified as per the need will be transported to the site.
- As per the information the nodal officer of Debris road clearance will make an assessment on of the damages of roads and built structures at the site and surrounding areas
- The nodal officers of Supporting Agencies will immediately start debris clearance operation to enable movement to the affected site.
- Review of the current situation is taken up by the nodal agency to update the

support agencies and to delegate their respective personnel to take precautionary measures to plan de-routes for the transportation ESF's to be operational.

- All supporting agencies will inspect the road and rail network and structures within the disaster site and the surroundings.
- TL will also ensure proper corpse disposal and post mortem by coordinating with ESF on medical response.

SOP FOR QUICK RESPONSE TEAM ON EQUIPMENT SUPPORT, DEBRIS AND ROAD CLEARANCE:

- Damage assessment including locations, number of structures damaged and severity of damage
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipment as compiled from IDRN resource inventory required for conducting the debris clearance
- The QRTs will report the situation and the progress in response activities to the respective EOCs.
- Undertake construction of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- Repairing of all paved and unpaved road surfaces including edge metalling, pothole patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.

ESF 9 HELP LINES, WARNING DISSEMINATION

BACKGROUND: The ESF on help lines and warning dissemination should process and circulate information about the welfare of citizens of affected area and managing the tremendous flow of information. The help lines will be responsible for providing, directing and coordinating logistical operations.

SITUATION ASSUMPTIONS

- There may be a flood of information and confusion about the injured population.
- The communication with affected area may be partially impaired.

NODAL AGENCY: Department of Revenue

SUPPORT AGENCIES: NIC/NGO Reps

SOPS FOR NODAL AGENCY:

- IC will call the TL of primary agency and get the ESF activated.
- TL of primary agency will call nodal officers of supporting agencies.
- TL would activate the District Quick response Team.
- The QRTs will be deployed at the affected site.
- QRTs will report the situation and the progress in response activities to the respective EOCs.
- Sending flash news of latest updates/donation requirements for disaster area all over the district.
- Assisting the EOC in providing updated information to national as well as at the District level.
- Setting up of toll free numbers for emergency information assistance.

SOP FOR QUICK RESPONSE TEAM ON HELP LINES, WARNING DISSEMINATION

- The QRT members will reach to the nodal office as soon as they will get instructions.
- QRT teams would reach to the site immediately after receiving instructions from the nodal officer
- On the site QRT members will take stock of the situation from the IC at the site and their counter parts.
- The QRTs will coordinate, collect, process, report and display essential elements of information and facilitate support for planning efforts in response operations.

ESF 10: ELECTRICITY

BACKGROUND: The ESF on electricity will facilitate restoration of electricity distribution systems after a disaster. In the event of a disaster there would be major electricity failure and many power stations damaged.

SITUATION ASSUMPTIONS

- Prolonged electricity failure.
- The affected victims may be panicking
- Halt of all activities specially jamming communication-networking systems in the affected site.

NODAL AGENCY: Electricity Department

SOPS FOR NODAL AGENCY:

- IC will call the TL of Primary Agency and get the ESF activated.
- TL of primary agency will call nodal officers of supporting agencies.
- TL would activate the District Quick response Team.
- The QRTs will be deployed at the affected site.
- TL will dispatch emergency repair teams equipped with tools, tents and food.

SOP FOR QUICK RESPONSE TEAM ON ELECTRICITY:

- The QRT members will reach the nodal office as soon as they get instructions to do so from the TL.
- QRT members would reach to the site immediately after receiving instructions from the nodal officer
- On the site QRT members will take stock of the situation from the IC at the site and their counter parts.
- The QRTs will coordinate, collect, process, report and display essential elements of information and facilitate support for planning efforts in response operations.
- Begin repairing and reconstruction work
- Assisting hospitals in establishing an emergency supply by assembling generators and other emergency equipments, if necessary.
- The members of QRTs will establish temporary electricity supplies for other key public and private water systems.

- The members of QRTs will establish temporary electricity supplies for transit camps, feeding centers, relief camps, District Control Room and on access roads to the same.
- The members of QRTs will establish temporary electricity supplies for relief material godowns.
- Compile an itemized assessment of damage, from reports made by various electrical receiving centers and sub-centers.
- Report about all the activities to the head office.

ESF 11: TRANSPORTATION

BACKGROUND: The ESF on Transport should ensure smooth transportation links at state and district level. Within the disaster context, quick and safe movement of material and humans are a priority. It should coordinate the use of transportation resources to support the needs of emergency support forces requiring transport capacity to perform their emergency response, recovery and assistance missions.

SITUATION ASSUMPTIONS

- The state civil transportation infrastructure will sustain damage, limiting access to the disaster area.
- Access will improve as routes are cleared and repaired.
- The movement of relief supplies will create congestion in the transportation Services.

NODAL AGENCY: Department of Transport

SOP FOR NODAL AGENCY:

- TL of Transportation ESF will activate the ESF on receiving the intimation of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL establishes contact with the district EOC for FIR
- TL requests for reports from local Transportation ESF contact person

- TL communicates situation to support agencies and requests for detailed information on the status of transportation infrastructure in the affected area(s).

SOP FOR QUICK RESPONSE TEAM ON TRANSPORT:

- The QRT members will reach to the nodal office as soon as they will get instructions to do so from the TL.
- As quick response teams will receive instructions from the nodal officer they would reach to the site immediately.
- QRTs would report the situation and the progress on action taken by the team to the respective EOCs
- QRT will send a requirement schedule for the different modes of transportation e.g. trucks, boats, helicopters to be put on stand-by.
- QRTs will ensure timely re-establishment of the critical transportation links.
- The members of QRTs will establish temporary electricity supplies for relief material godowns.
- Compile an itemized assessment of damage, from reports made by various electrical receiving centers and sub-centers.
- Reporting about all activities to the head office.

CHAPTER-05

DISASTER MITIGATION PLAN

DISASTER MITIGATION PLAN

Disaster mitigation is defined as any cost-effective action that has the effect of reducing, limiting, or preventing vulnerability of people, property, and/or the environment to potentially damaging, harmful, or costly hazards. Disaster mitigation actions, which can be used to eliminate or minimize the risk to life and property, fall into three categories: first, those that keeps the disasters away from people, property, and structures: second, those that keeps people, property, and structures away from the disasters: and third, those that do not address the hazard at all but rather reduce the impact of the disasters on the victims such as insurance.

Disaster mitigation actions must be practical, cost effective, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages. Capital investment decisions must be considered in conjunction with natural hazard vulnerability. Capital investments can include; homes, roads, public utilities, pipelines, power plants, chemical plants, warehouses, and public works. These decisions can influence the degree of hazard vulnerability of a community. Once a capital facility is in place very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to hazard vulnerability. It is for these reasons that zoning ordinances, which restrict development in high vulnerability areas, and building codes, which ensure that new buildings are built to withstand the damaging forces of disasters, are the most useful mitigation approaches a city can implement.

In the past, mitigation has been the most neglected aspect within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures are neglected

in favor of high-profile events. Mitigation success can be achieved, however, if accurate information is portrayed through complete disaster identification and impact studies, followed by effective mitigation management. Disaster mitigation is the key to greatly reducing long-term risk to people and property living in Chandigarh from natural hazards and their effects. In Chandigarh there shall be two approaches in disaster mitigation viz. structural mitigation and non-structural mitigation.

5.1 NON-STRUCTURAL MITIGATION PLAN

Chandigarh lying in seismic zone IV is at a high risk of earthquakes. The non structural mitigation is basically framed in such a way that the whole population of the district is sensitized on disaster management and their capacity is developed to cope up with a hazardous situation.

PREPAREDNESS METHODOLOGY

Instead of waiting for a disaster to occur and then to manage it, this concept envisages to make people part of the management process. The plan contains a series of measures for preparedness in schools, colleges, hospitals, and all other vital institutions and ultimately the community itself.

SENSITIZATION/AWARENESS CAMPAIGNS

The District administration must reach out to the local residents and general public of the district with various level sensitization programmers. Sensitization programmers shall be conducted for schools, hospitals, colleges, communities, policy makers and all other specific sectors .The basic information shall be given in forms of booklets reading materials, audiovisual material etc. The broad objectives of such programmers shall be as follows:

- To bring awareness about disasters among the inmates of all institutions and residents of all communities in Chandigarh.
- To pave way for strict enforcement of building rules in construction departments and contractors.

- Preparation of Building Evacuation Plans and training the general public on basics of self defence thereby building capacities of people for saving lives in the event of an Earthquake or Fire accidents or any other disaster.
- To sensitize officers from the District Administration, Dept. of Education, Police, Hospital, Fire Service and all other parallel agencies.

SOME SAMPLE TECHNIQUES AND METHODS FOR AWARENESS GENERATION ARE LISTED BELOW:

- Public meetings and loud speaker announcements
- Group meetings of Wardens/RWAs and other logical units
- Wall painting in the communities
- Distribution of reading materials to the general public
- Distribution of posters and other Information Education and Communication (IEC) materials to children and community people
- Street plays, documentaries and films on the subject
- Use of electronic media, especially cable channels
- Quiz-painting competitions, special types of books, etc for students

TRAINING AND CAPACITY BUILDING

- A series of training programmes shall be organized for specialized groups like, district DMTs, sub division and community level office bearers, teachers and principals, doctors and engineers, architects and masons and builders and contractors etc.
- There are organizations like Civil Defence, NYK, NCC, NSS etc, which have thousands of volunteers from each nook and corners of the district.
- The district must train their volunteers and the wardens of these bodies in the district. The administration can take appropriate decision for paying any honorariums for their services.

- Training programmes should be organized with Wardens/RWAs and NGOs in the district or they shall be funded for organizing such programmes. Corporate sponsors should be contacted to hold such massive training programmes.

DISASTER MANAGEMENT PLANNING

The first responder of any disaster anywhere is none other than the local people who are also the victims. The strategy of planning shall be as follows:

- The territory of each Chief Warden/RWA can be taken as logical unit for planning
- Every school in the district, irrespective of size, shall be a logical unit
- Every Hospital with more than 10 bed shall have Disaster management plans
- All Cinema Halls, Clubs, religious centers etc where gatherings are possible, shall have Disaster management plans
- Every Government office/building/department shall have separate disaster management plans
- Every Merchant Traders Associations (MTA), shopping center and district center shall have a DM plan.
- All industries in the district, irrespective of size and nature to have disaster management plans.

THE PREDOMINANT OBJECTIVES OF THE INITIATIVE SHALL BE:

- To create awareness on disasters and disaster management among community leaders and general public.
- To prepare Disaster Management plan for each logical unit with Hazard and Resource Maps.
- To form Disaster Management Committees (DMC) and Task Forces within the logical unit, to manage disasters and train them specifically.
- To exercise Mock Drills in each Community in a regular interval of time including evacuation exercises.

Each logical unit shall collect the template/modal plan document from the EOC at

the district administration and after preparation a copy of the same shall be submitted to the EOC and the other shall be with the logical unit. This plan document shall be updated at least bi annually and the updated information shall be given to the EOC in writing. The district EOC shall help the logical unit in conducting the planning exercises as and when they request the same.

ENFORCING EXISTING CODES AND LAWS

Lists of codes are already in place to monitor the construction practices in the district. Bureau of India Standards, National Building codes of India and subsequent amendments in various acts provides sufficient legal protection to the enforcing agencies for safe construction practices. In Chandigarh, the major government bodies undertaking construction and granting permission to the private players' viz. MC, CHB, and Engineering dept. would undertake sufficient measures to enforce the building codes.

5.2 STRUCTURAL MITIGATION MEASURES

It is immensely pivotal for the planning community to respond towards disaster management positively. Urban disaster management is intimately connected to the wholesome process of urban development and therefore needs a sincere incorporation in the development planning itself.

The industrial relocation/location, unauthorized-regularization issue, slumming, over densification and continuous influx of population to Chandigarh are some of the open concerns and that besides a planning challenge it is a concern for disaster management. The district shall take steps for structural mitigation of disaster management. The departments that are associated with development of residential and commercial plots shall stick to the NOC norms. The Building codes shall be strictly enforced in the district. Only seismically oriented engineers, contractors and masons shall be given certificates for multi story constructions and real estates.

Simultaneously retrofitting is to be promoted with the expert advice. The possible two structural measures for disaster protection are Retrofitting of the existing building and Earth Quake Resistant new construction.

RETROFITTING

For an existing building, Retrofitting or Seismic Strengthening is the only solution to make it disaster resistant. In Chandigarh, all lifeline buildings such as major hospitals, Schools with large space for storage, district administration offices and other vital installations shall be retrofitted in the first phase. In the second phase all other significant buildings shall be given priority for seismic strengthening. Before carrying out retrofitting, a panel of experts shall be approached for assessing the structure and to suggest the type of retrofitting required.

EARTH QUAKE RESISTANT CONSTRUCTION

Promotion of Earth quake Resistant construction mainly includes construction safety, quality control and inspection. In the previous decades, there were no specific guidelines on EQ resistant constructions and seismic strengthening. Due to the very fact, most of the buildings till 1990s were built without any safety measures. But in the present scenario, there are building byelaws and guidelines. Civic Bodies like MC and CHB in the district shall try to enforce these laws. Construction shall be carried out under the supervision of the Construction Engineer on Record or Construction Management Agency on Record for various seismic zones. They shall be given a certificate based on the norms on completion of the construction. Illegal constructions, encroachments, unapproved additions, alterations etc of residential buildings and conversion of residential building in to commercial purpose etc shall be checked by the District Administration.

CHAPTER-06

ACTION RESPONSE PLAN FOR ESF'S

ACTION (RESPONSE) PLAN FOR EMERGENCY SUPPORT FUNCTIONS

“The disaster scenario offers a range of opportunities for affected communities to respond to the crisis, how community responds to a disaster and post disaster aid sets the tone for the transition from disaster to development”. (IDR, Oxford, 2000).

Disaster management is a multi faceted discipline that needs different mechanisms with diverse methodology. The action plan contains two approaches; 1) short term plan and 2) long term response plans.

The district administration, Chandigarh has to take pre-action on these two approaches to tackle a disaster scenario.

6.1 SHORT TERM RESPONSE PLAN

Short-term response plan contains the actions to be taken immediately after a disaster. Once an information has been reached the district EOC or any of the Disaster Managers in the district either from authentic or unauthentic sources, it has to be verified soon for authenticity. Once the information is found correct, it has to be reported to the Incident Commander via fast communication system. The Incident Commander shall take the following actions.

- Disseminate warning/alert to the potential victims
- Disseminate information to vertical and horizontal EOCs
- Disseminate information to vertical and horizontal Administrators and DMTs
- Declare Disaster based on the severity/vulnerability

RESCUE OPERATIONS

Immediately after a disaster the Deputy Commissioner, Chandigarh shall act as the District magistrate and incident commander and take over disaster management. He/she shall coordinate the rescue operations with the help of the Working Group for relief and

rehabilitation and the Emergency Support Functions. Along with the rescue operations the Incident Commander shall do the following measures:

- Activate the Incident Command System
- Call meeting of Crisis Management Group
- Coordinate the ESFs in disaster management
- Set up Site/Onsite Operation Centers and activate relief camps.
- Collect preliminary assessment report from the onsite EOCs
- Activate the pre-contract vendors and collect relief materials for distribution
- Brief the situation to the Higher authority as well as to the press/media people
- Ensure basic logistic arrangements for disaster managers and the Operation Centers.
- Mobilize resources/ call assistance from various stakeholders.

RELIEF OPERATIONS

Once the rescue phase is over, the district administration shall provide immediate relief assistance either in cash or in kind to the victims of the disaster. The office of Deputy Commissioner is responsible for providing relief to the victims of natural & man made disasters like fire, flood, drought, earthquakes, riots, terrorist attacks, accidents etc. The relief is provided as per the following scale fixed by the government.

REHABILITATION

In short term response rehabilitation is the final step. The incident Command System shall be deactivated as the rehabilitation phase is over. Thereafter the normal administration shall take up the remaining reconstruction works in the disaster-affected areas. These activities shall be performed by the Working Group for relief and rehabilitation under the direction of the DC.

6.2 LONG TERM RESPONSE PLAN

The long-term response plans are related with Recovery and Reconstruction activities on one side and institutionalizing disaster management in district administration on the other side. The former one includes Standard Operation Procedures (SOPs) for the Emergency Support Functions. In long term measures the following actions shall be duly undertaken:

- Constitution of Emergency Support Functions, Disaster Management Teams, Quick Response Teams, Field Response Teams
- Refresher trainings for all such teams in a regular interval of time and exercise of Mock Drills
- Continuous awareness/sensitization programmes for the stakeholders and the general public.
- Getting pre-contract with vendors and merchant establishments to procure relief materials in times of disaster

Most of the Line Departments in the District, Autonomous Bodies and Organizations are part of the Emergency Support Functions. It shall be ensured that these actions plans are updated bi annually and practiced through mock drills in the district.

6.3 ACTION PLAN FOR POLICE

RESPONSE ACTIVATION:

- The Nodal Officer from Chandigarh Police will activate the Quick Response teams.
- The Quick Response Teams will be deployed at the Onsite EOCs.
- As per the information, more officers may be sent at site.

Actions to be taken:

- If felt, cordoning of area to restrict movement of onlookers, vehicular and pedestrian traffic should be done.

- Quick assessment of law and order situation in affected areas.
- Prepare updates on the law and order situation every 2-3 hours and brief the Incident Commander.
- Arrangements for controlling situations like rioting and looting.
- QRTs will guard property and valuables in affected areas.
- Control and monitor traffic movement.
- QRTs will provide diversion of traffic on alternate routes as and when it is necessary.
- The QRTs will also provide information about traffic flow along various corridors, especially heavy traffic or congested roads.
- QRTs will communicate to police control rooms, details on the field activities including deployment and reinforcement of staff and resources and communicate nature of additional requirements.

6.4 ACTION PLAN FOR FIRE SERVICE

RESPONSE ACTIVATION:

- As soon as the Nodal Officer gets information about the disaster, he should reach the EOC.
- The Quick Response Teams will be deployed at the Onsite EOCs.

Actions to be taken:

- At the site, QRTs should contact the local volunteers and local people to gather information about vulnerable areas so that search and rescue operation can take place through a proper channel in heavily dense areas, large buildings, community centers, hotels, hospitals, public buildings and any other area having large gathering.
- Locate the damaged and collapsed structures and rescue the population buried and trapped under the rubble.
- The injured people should be taken out of damaged buildings etc with utmost care.

- Special care to women and children groups should be given as they are expected to be more affected and helpless in case of any emergency situation
- Coordinate with the Transportation ESF if a large number of medical professionals need to be sent to the affected sites and/or a large number of victims need to be transported to health facilities.

6.5 ACTION PLAN FOR CIVIL DEFENCE & HOME GUARDS

RESPONSE ACTIVATION:

- As soon as the Nodal Officer gets information about the disaster, reach the EOC.
- The Quick Response Teams will be deployed at the three sites.

Actions to be taken:

- Support and coordinate with the Incident Command System of Chandigarh for Law and Order, Search and Rescue and Medical Response and Trauma Counseling functions.
- Locate the damaged and collapsed structures and rescue the population buried and trapped under the rubble.
- The injured people should be taken out of damaged buildings etc with utmost care.
- Special care to women and children groups should be given as they are expected to be more affected and helpless in case of any emergency situation.
- In case of fire, the CD team members should do fire fighting.
- First Aid should be provided along with the members of ESF on Medical Response
- Demonstrate Search and Rescue.

6.6 ACTION PLAN FOR BSNL

The BSNL is primarily responsible for restoration of communication facilities. The BSNL should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at state level in response efforts.

RESPONSE ACTIVATION:

- Soon after receiving information about disaster (from any source), Nodal Officer will contact State/District Emergency Operations Centre.
- The Nodal Officer from BSNL will activate the Quick Response Teams
- The Quick Response Teams will be deployed at the three incident sites.

Actions to be taken:

- Communicate situation to support agencies (Tata, Airtel, Hutch, Idea, NIC, and HAM etc.) and request for detailed information on the status of equipment and infrastructure damage in the affected area(s).
- Launch assessment mission to understand better the nature of damage to telecom services and network.
- Ensure possible arrangements for establishing reliable and appropriate network.
- Work out a plan of action for private telecom companies and convene a meeting to discuss and finalize the modalities.
- New numbers and details of contact persons to be communicated to Emergency
- Establish telephone facilities for the public and information on this should be announced through media.

Equipments to be brought:

- Emergency Communication Van with GSM and CDMA services
- Other necessary equipments to restore communication network / set-up alternative emergency communication

6.7 ACTION PLAN FOR PRIVATE MOBILE OPERATORS

The private operators should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at state level in response efforts.

6.8 ACTION PLAN FOR MCC**Actions to be taken**

- MCC will bring debris of heavy RCC structures (having beams/columns) and put dummies beneath the debris. This will facilitate demonstration of search & rescue operations. Soon after search and rescue team leave the site, MCC will mobilize equipments for debris clearance
- MCC will assume main role in equipment support, debris and road clearance, on receiving the intimation of the disaster from State EOC.
- MCC will coordinate with the supporting agency's officers to mobilize equipments from the ware houses
- The respective supporting agencies will contact their respective personal to move the equipments to central warehouse
- The equipments like JCB, concrete cutters identified as per the need will be transported to the site.
- On receiving intimation on the intensity of the damages of structure, the nodal officer will make an assessment on of the damages of roads and structures reported at the site and surrounding areas
- The Supporting Agencies nodal officers will call for personal to immediately start debris clearance operation to enable movement to the affected site.
- A review of the current situation is taken up by the nodal agency to update the support agencies to delegate their respective personnel to take precautionary measure to plan de-routes for the transportation ESF's to be operational
- All supporting agencies will inspect the road/rail network and structures within the disaster site and surrounding.
- MCC will also ensure proper corpse disposal and post mortem by coordinating with ESF on medical response.
- Assessment of damage (locations, no. of structures damaged, severity of damage)
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipment as compiled from resource inventory required for conducting the debris clearance

- The QRTs will report the situation and the progress in response activities to the respective EOCs.
- Undertake construction of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- Undertake repair of all paved and unpaved road surfaces including edge metalling, pothole patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.
- Ensure a critical number of medical professionals to reach the site including specialists from outside the state.
- If temporary living arrangements are being made from the affected populace, the MCC must ensure high standards of sanitation in settlements in order to prevent the multiplicity of the disaster.
- It should also ensure the provision of medicine and other medical facilities required at the disaster site and the hospital health centers catering to disaster victims.
- In case of orthopedic care required in disasters like earthquakes the immediate response would have to be complimented by a follow up treatment schedule for a majority of the patients' in/ near their place of residence.
- Mobilizes different modes of transportation e.g. trucks, etc to be put on stand-by
- Assist timely re-establishment of the critical transportation links.
- Establish temporary electricity supplies for relief material
- Compile an itemized assessment of damage, from reports made by various receiving centers and sub-centers.

CHAPTER-07

TERROR ATTACK MITIGATION PLAN

TERROR ATTACK MITIGATION PLAN

The recent terror attacks in Bengaluru and Ahmedabad have re-emphasized the need for a strong mitigation plan against any terror attacks. Chandigarh owing to its strategic location and being a capital of two states and itself being an UT may be a potential target as the terrorists are now aiming at B class cities. The various sites vulnerable to terrorists attacks include those areas where people congregate in large number like the Sukhna lake, Sector- 17 market complex, Cinema halls, Schools, Colleges and Hospitals, etc. These critical areas are provided in Annexure I and II).

The mitigation plan includes the activities taken in response to a terror attack in any part of Chandigarh. The Chandigarh administration follows a two-pronged strategy to tackle the terror attacks viz., Preventive action and Remedial action.

PREVENTIVE STRATEGIES:

- Creation of awareness amongst the public about the terrorist activities and their role in mitigating the same.
- Regular monitoring in the border nakas along with the CRPF jawans
- Regular Anti-sabotage checking of suspected persons in Bus stand and Railway station
- Secret search and raids in sensitive regions of the city. This includes Political Structures, Boarding Schools, Campus Hostel of Colleges and University, Technical Centres, PG etc.
- Maintaining an anti-terrorist Operation cell with the Police
- Regular check up of Identity in Cyber cafes and PCO booths

- Regular feedback from the Hotels and Restaurants about suspicious persons
- Regular Census operations to find out new person's credentials in sensitive areas during state festivals like Independence day, Republic day, etc.
- Regular Coordination meeting with IB, Punjab police and Haryana police
- Regular drills at schools for any terrorists activities

REMEDIAL STRATEGY:

During a terror attack the Deputy Commissioner and the Senior Superintendent of Police play the role of coordinating the various departments and personnel. The SSP acts in tandem with the Deputy Commissioner by mobilizing the man and material resources to provide quick rescue and relief to the victims. The various agencies that are involved in providing rescue and relief are:

- **Creation of Marshals** at School Levels
- **Emergency Evacuation Teams** - The team comprises of the Fire brigade, Civil defense, Home guard volunteers, Local Police and Military
- **Red Cross Society**- for providing ambulances and blood supply for the victims
- **Director Health Services**- for providing medical services in the Hospitals
- **Bomb Disposal Squad** - The Chandigarh police has its own Bomb Disposal Squad. It will seek the help of the Military Bomb Disposal Squad at Chandi Mandir depending upon the gravity of the situation
- **Military** - for rescue efforts, bomb disposal and law & order maintenance if required
- **Operation cell** – Special wing for Anti-terror activities
- **Special Investigation Cell** – in investigating the terror attacks

The **Site management** includes **Cordoning** a site immediately after an attack, **Rescuing** the Victims simultaneously and **Gathering Evidences** for Investigation.

The **Traffic management** is crucial as any attack creates panic that brings chaos in the traffic. The traffic division of the Chandigarh police coordinates the traffic regulation.

The Media management is very critical in maintaining law and order during any terror attack.

There are 33 vital installations in Chandigarh having access control system and CCTV cameras, the list of which is placed at Annexure II. The location of the QRT's is placed at Annexure III.

Access control is being maintained through:

- (1)Pass System, Visitor Register, Frisking/searching
- (2)X-Ray Baggage Machine
- (3)Display of I-cards by staff
- (4)Vehicle checking with mirror
- (5)CCTV surveillance

7.1 TACKLING A TERROR ATTACK

If you get a Bomb threat try to ask as much information from the caller possible regarding the Bomb viz., where it is planted? When it will explode? How does it look like? What kind of bomb, etc.

The blast may cause serious injuries because of the Bursting shrapnel which may lead to

- Bleeding wounds.
- Burns
- Penetrating injuries
- Blunt trauma
- Effect on ears
- Splinter Injuries

DO'S AND DON'TS WHILE DEALING WITH A BLAST INJURY

WHILE DEALING WITH A BLAST INJURY PLEASE FOLLOW THE INSTRUCTIONS GIVEN BELOW:

DO'S

Protect yourself by using a barrier

Raise limb above heart level and keep applying pressure

Wrap a roller bandage around limb to hold dressing in place

Make sure the bandage is tight enough to apply pressure but does not cut off the circulation

Press the artery against the bone to stop blood flow and bleeding

DON'TS

Put pressure on an object in a wound

Put pressure on a head wound if the skull may be injured

Use a tourniquet to stop bleeding except as an extreme last resort

CHAPTER -08

NUCLEAR DISASTER MANAGEMENT

India has traditionally been vulnerable to natural disasters on account of its unique geo-climatic conditions and it has, of late, like all other countries in the world, become equally vulnerable to various man-made disasters. Nuclear and radiological emergencies as one such facet of man-made disasters is becoming of relevance and concern to us. Any radiation incident resulting in or having a potential to result in exposure and/or contamination of the workers or the public in excess of the respective permissible limits can lead to a nuclear/radiological emergency.

The sad memories of the use of nuclear weapons dropped on Hiroshima and Nagasaki, and the wide publicity given to the reactor accidents at Three Mile Island (TMI) in USA, Chernobyl in erstwhile USSR, and lately Fukushima in Japan have strongly influenced the public perception of any nuclear emergency or disaster to be most often linked, erroneously though, to only these events. Even though such situations may not easily be repeated, one must be prepared to face nuclear/radiological emergencies of lower magnitudes and ensure that the impact of such an emergency (which, for a given magnitude, is likely to be much greater today because of higher population densities coupled with an enhanced urban infrastructure due to economic prosperity) is always kept under control.

The UT of Chandigarh as such does not have any nuclear reactor in its vicinity so it can be safely said that it is safe from the radiation fallout from an accident involving a nuclear reactor. However it must be observed that the UT of Chandigarh is located very close to the international border and the city as such is a strategically important area being the capital of two important north Indian states. Thus the city is always vulnerable to a nuclear attack at the time of war or rogue nuclear attack. At the same time, it is also obvious that Chandigarh with an area of only 114 Sq kms. is densely

populated in a small and compact area , due to which the damage and destruction to both life and property caused by a nuclear blast would be quite severe in case of nuclear attack. Thus the UT should always prepare for any eventuality.

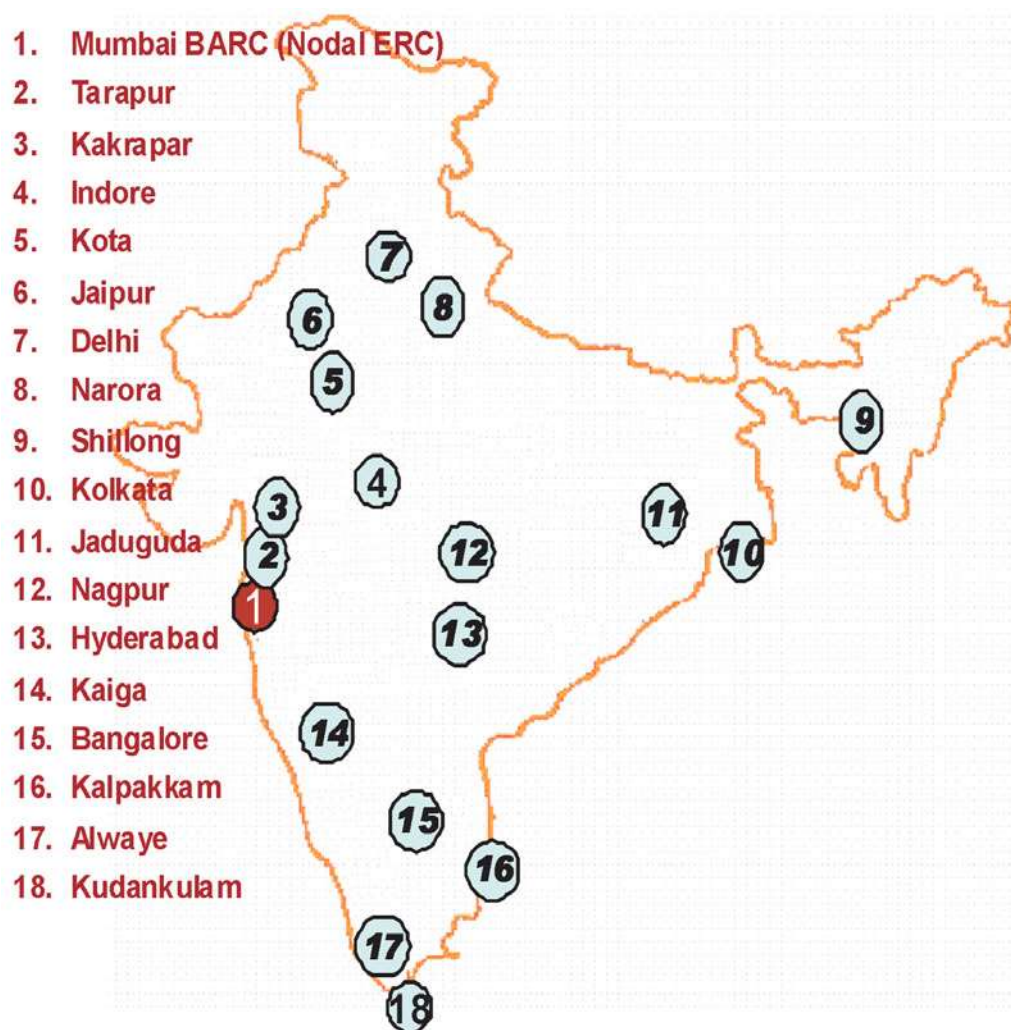
Incidentally, a section of Chandigarh Police has been trained by Army to undertake operations during an event of any Nuclear Disaster.

8.1 TYPES OF NUCLEAR DISASTERS

Any radiation incident resulting in, or having a potential to result in, exposure to and/or contamination of the workers or the public, in excess of the respective permissible limits can be termed as a nuclear/ radiological emergency. These emergencies, which are usually well within the coping capability of the plant/facility authority (along with neighboring administrative agencies, if required) can be broadly classified in the following manner:

- i) An accident taking place in any nuclear facility of the nuclear fuel cycle including the nuclear reactor, or in a facility using radioactive sources, leading to a large- scale release of radioactivity in the environment.
- ii) A ‘criticality ’ accident in a nuclear fuel cycle facility where an uncontrolled nuclear chain reaction takes place inadvertently leading to bursts of neutrons and gamma radiation (as had happened at Tokaimura, Japan).
- iii) An accident during the transportation of radioactive material.
- iv) The malevolent use of radioactive material as RDD by terrorists for dispersing radioactive material in the environment.
- v) A large-scale nuclear disaster resulting from a nuclear weapon attack (as had happened at Hiroshima and Nagasaki in Japan) which would lead to mass casualties and destruction of large areas and properties. Unlike a nuclear emergency, the impact of a nuclear disaster is beyond the coping capability of local authorities and calls for handling at the national level.

Location of the Emergency Response Centres (ERCs) established by BARC*



* More of these are planned to be established
in due course

8.2 PREVENTION: THE BEST WAY TO ACHIEVE RADIATION SAFETY

A unique feature of the application of nuclear/radiation technology in India, as is the case the world over, is the concept of ensuring safety by incorporating design features to prevent any incident or accident which

will lead to a nuclear or radiological emergency. This concept is applied equally to nuclear power plants, nuclear facilities and even in smaller applications like the use of radiation sources in laboratories.

PREVENTION OF RADIOLOGICAL DISPERSAL DEVICE AND IMPROVISED NUCLEAR DEVICE INCIDENTS

The best available physical protection systems using state-of-the-art surveillance and monitoring systems will be provided at all nuclear/radiological facilities. Similarly, by implementing appropriate safety and security measures, strict accounting procedures and quick detection/identification devices, the plant authorities will strengthen the prevention of (i) illicit trafficking of radioactive sources and Special Nuclear Materials (SNMs) and (ii) their falling into the hands of unlawful elements and/or terrorists. These measures will also prevent a radioactive source from being lost, stolen or abandoned (leading to what is termed an ‘orphan source’).

The first step to counter RDD is to ensure security for all radioactive sources in the country. In this regard, regulatory requirements regarding the security and safety of radioactive sources should be enforced across the country. This will be backed by measures to prevent the smuggling or illicit trafficking of radioactive materials, especially fissile materials. The controlling of such activities calls for setting up a comprehensive national/international security system, auditing and a detecting and monitoring methodology for such materials. Nuclear materials must have material protection, control and accounting, and should have coverage of vigilance and intelligence.

Highly sensitive detectors/dirty bomb detectors capable of detecting the smuggling of radioactive sources or explosives will be installed by MHA at all entry and exit gates of the various possible routes (airports, sea ports, border crossing areas, etc.) to prevent radiological terrorism. On detection of radioactive materials, these detector systems will generate an alarm on real time basis. All nuclear facilities will also have monitoring systems installed at the entry and exit gates to detect any unauthorised movement of radioactive materials. Police patrolling vehicles will also be provided

with portable radiation monitors to detect the presence of unauthorized sources in the public domain.

8.3 EMERGENCY/DISASTER MANAGEMENT FOR METROS AND IMPORTANT CITIES

All the major metros and certain other bigger cities can be considered vulnerable from a nuclear emergency/disaster point of view. A list of monitoring instruments and other equipment required for this purpose can be worked out with the help of DAE. The training of first responders at these places should be taken up immediately. The civil defence set-up of these cities will also be activated. Detailed operational plans followed by SOPs will be prepared for all these locations. To prepare all these units to cope with a nuclear emergency/disaster, huge resources, both in terms of manpower and equipment will be needed.

To start with, an effort will be made to cover all cities with a population of 20 lakh or more in the first phase by the SDMA/SECs and DDMA concerned, in consultation with DAE/DRDO. The satellite towns around the target cities will also be considered as available resources by preparing them to provide the necessary assistance in the event of any nuclear/ radiological disaster. This is most important for the metros in the country. The coverage will be progressively extended to include cities with population of approximately 10 lakh or more after three years and on completion of the first phase.

Emergency exercises will be conducted at all such places to test the preparedness of first responders as well as the community. However, such exercises, purely for handling of a nuclear emergency, may create panic in the public and may send wrong signals to various agencies. The exercise for nuclear emergency will, therefore, be carried out as part of the overall emergency exercise (conducted to get prepared to face various types of natural and man-made calamities).

LIST OF INSTRUMENTS AND EQUIPMENT, AND PROTECTIVE GEAR FOR SPECIALISED RESPONSE TEAMS

S.No.	Equipment and Instruments
1	Ambulance with radiation monitoring and decontamination facility
2	Portable gamma ray spectrometer for isotope detection
3	Requirement for aerial survey monitoring: (a) Aerial monitoring system (b) Monitors, protective equipment, PC/laptop, etc.
4	Environmental Radiation Monitor with Navigational Aid (ERMNA) with monitoring vehicle
5	Alpha, beta and gamma counting setup
6	Digital dosimeter
7	GPS for monitoring van
8	T.L. dosimeter
9	Portable contamination monitor
10	CBRN suit with respirator, rubber clothes, gloves and gum boots
11	Dust mask
12	Comfo respirator
13	Decontamination kit including monitoring facility
14	Potassium Iodide/Potassium Iodate tablets
15	Operational manuals for all equipment training and guidance literature
16	Protective coverall, cotton gloves, caps, socks and shoes
17	Electric generator
18	Torch
19	Binoculars
20	Miscellaneous sampling kits: (a) Charcoal papers and cartridges (for iodine sampling/protection) (b) Plastic sheets (for packing of contaminated material) (c) Spare batteries

21	Micro R Survey meter
22	Mini Rad meter
23	GM Survey meter
24	Teletector
25	Portable Alpha Contamination monitor
26	First aid kits
27	Radiation tags/symbols
28	PA system
29	Battery operated air sampler with filter paper
30	Cordoning tape
31	Tongs (2 ft) and lead flask of 1" thickness and 5" diameter
32	Breathing apparatus set with spare cylinders

8.4 EFFECTS OF A NUCLEAR EXPLOSION

The effects of a nuclear explosion depend upon the yield and type weapon, height of burst (ground, air, upper atmosphere or water), location of burst (ground zero), time of burst and wind conditions at various heights. The explosion energy is transferred in the surrounding medium in three distinct forms; **blast**, **thermal** and **nuclear radiations**. Broadly, for a 20 kT fission device exploded at a height of 180m or higher above the ground, the distribution of the energy released in the form of blast, thermal and nuclear radiations (both prompt and delayed) are 50%, 35% and 15%, respectively.

BLAST EFFECT

A sudden burst of a large amount of energy causes very high temperature and pressure in the surrounding air, resulting in extremely hot and compressed gases. The hot and compressed air expands and rises rapidly initiating a powerful blast wave or shock wave in other medium like water or earth (in case of underwater or underground explosion), causing widespread destruction of property or rupture of ear drums. This is accompanied by a hurricane type, very strong wind (resulting from the strong negative pressure cycle), causing further damage, including picking up people or vehicles and hurling them into any other object.

THERMAL EFFECT

The extreme high temperature of the air causes intense **flash of light** accompanied by a powerful pulse of heat (thermal) radiation, sufficient to set fire and cause third degree burns up to a distance of few kilometres, depending upon the yield. Finally, it results in a firestorm due to the availability of more and more combustible materials.

INITIAL NUCLEAR RADIATIONS

The nuclear explosion is accompanied by an intense pulse of highly penetrating ionising radiations called ‘initial radiation’ that is capable of delivering a lethal radiation dose to the people but in a region which might already be devastated due to the thermal and blast wave. Generally, the initial nuclear radiation refers to the radiations emitted in the initial one minute after the explosion.

RADIOACTIVE FALLOUT

Finally, the residual radioactive substance which might be either in the form of gases or may get attached to the dust particles, sucked up from the earth by the rising fire ball (if it touches the ground, depending upon the height of burst) will come down slowly and will contaminate a very large area—up to several tens or hundreds of kilometers—depending upon yield, height of burst and weather conditions. This fallout of radioactive material will have its effect on the people and the environment for years to come. The fallout may be greatly reduced, if the explosion occurs in the air at an altitude greater than a height called the ‘optimum height’.

ELECTRO-MAGNETIC PULSE (EMP)

The ionising radiations, while passing through the air, produce a large number of free electrons and residual ions. The concentration of electrons at high altitudes can seriously disturb the propagation of radio waves, thereby disturbing the communication over a large area, depending upon the height of burst. The movement of these electrons (causing electric current) will be affected by the earth’s magnetic field causing intense

pulses of electromagnetic fields called EMP that is capable of damaging unprotected electronic and electrical systems including communication, command and control centres, power plants, etc., located over a very large area, causing blackouts and disruption in communication, resulting in high economic losses.

1. RADIATION DOSE LIMITS

Presently the nuclear facilities, including those handling radioactive sources, are following the dose limits given by ICRP in its report, ICRP-60, in 1991. With minor modifications, these recommendations have been accepted by AERB and are in force in our country since 1991. The dose limits prescribed by ICRP in its report for application in occupational exposure are summarized in Table 1 below:

RECOMMENDED DOSE LIMITS AS GIVEN IN ICRP-601

Application	Dose Limit	
	Occupational	Public
Effective dose	20 mSv per year averaged over defined period of 5 years ²	1 mSv in a year
Annual equivalent dose in the		
i) lens of the eye	150 mSv	15 mSv
ii) skin	500 mSv	50 mSv
iii) hands and feet	500 mSv	-

Note 1: The limits apply to the sum of the relevant doses from external exposure in the specified period and the 50-year committed dose (to age 70 years for children) from intakes in the same period.

Note 2: With the further provision of ICRP that the effective dose shall not exceed 50 mSv in any single year, AERB has put a further restriction in India that the effective dose shall not exceed 30 mSv in any single year. However, all other restrictions of ICRP apply.

2. EFFECTS OF NUCLEAR RADIATION

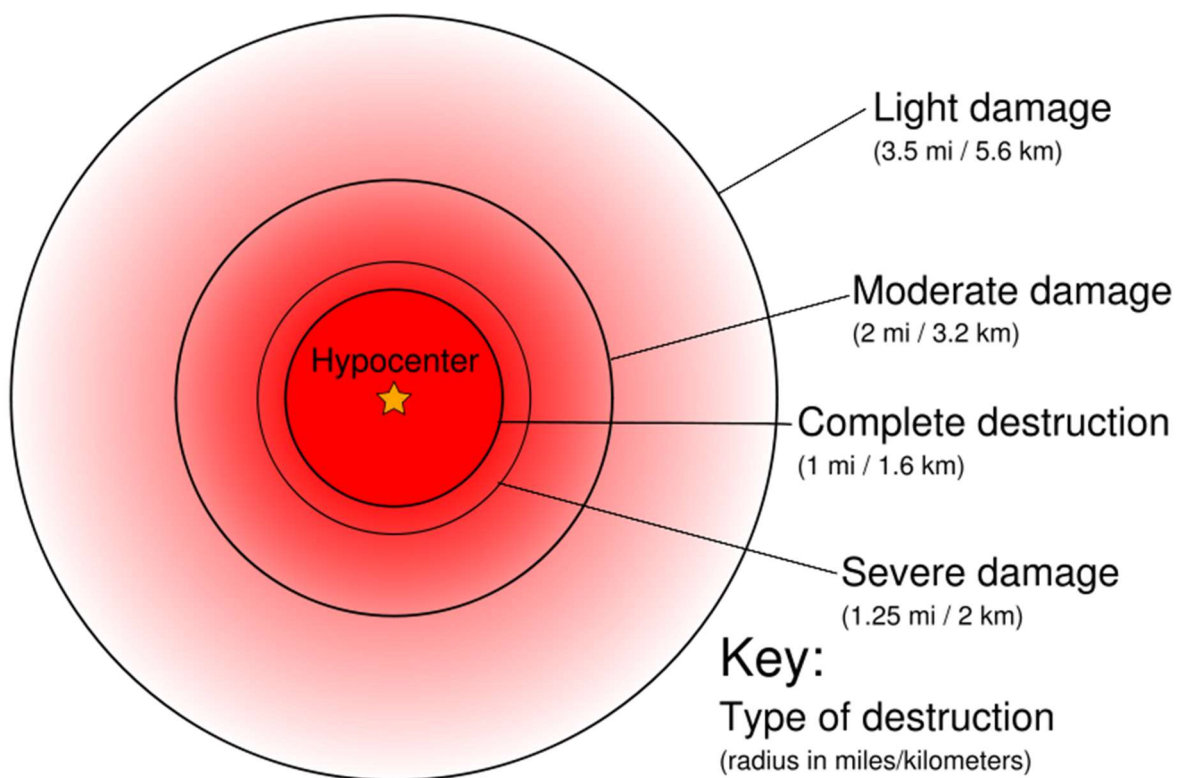
HEALTH EFFECTS

The exposure to large doses of radiation or due to deposition of radioactive material externally or internally within the body may lead to radiation injuries or radiation effects which manifest immediately or during the lifetime of an individual (such individual effects are called somatic effects) or hereditary effects, which may appear in the future generations. Immediate somatic effects could be radiation sickness, death of the individual and early or late expression of damages in radiosensitive organs. Such effects are termed as deterministic effects (Table 2) and include hematopoietic syndrome, gastrointestinal syndrome, Central Nervous System (CNS) syndrome, pneumonitis, cataract, sterility, skin erythema, skin burns, etc. Exposure during pregnancy can result into prenatal death, neonatal death, mental retardation, childhood cancer, etc. Induction of cancer and genetic disorder in the progenies of the exposed are the two main stochastic effects, (which do not have threshold of dose as the case with the deterministic effects).

Dose (Gy)	Effects
Up to 1.5	No short-term effects
1.5–2.5	Nausea and vomiting within 3–6 hours, lasting up to 24 hours. Symptoms reappear 10–14 days after irradiation and last for 4 weeks.
2.5–3.5	Nausea and vomiting within 1–6 hours, lasting for 1–2 days. Symptoms reappear 1–2 weeks after irradiation and last up to 6 weeks. Fatalities: up to 30 %.
3.5–6	Nausea and vomiting within 1–6 hours, lasting for 1–2 days. Symptoms reappear 1–4 weeks after irradiation and last up to 8 weeks. Fatalities: 30–90 % within 2–12 weeks.
6–10	Nausea and vomiting within 15–30 minutes, lasting for 2 days. Fatalities: 90–100 % within 1–6 weeks.
10–25	Nausea and vomiting within 5–30 minutes; no latent period at higher doses. Fatalities: 100 % within 4–14 days.
>25	Immediate nausea and vomiting. Fatalities: 100 % within a day or two.

PSYCHO-SOCIAL EFFECTS

Radiation exposure in a radiation accident or nuclear explosion can result in numerous psychiatric disorders in exposed individuals, depending upon the type of accident, distance of the patient from the site of accident, psychological characteristics of the patient, time elapsed after the accident, etc. Common post-disaster disorders include anxiety, Acute Organic Brain Syndrome, Post Traumatic Stress Disorder (like flashbacks, nightmares, irritability, dysfunction in normal routine, etc.), depression, numbness, acute burst of fear, panic, or aggression.



CHAPTER 09- **CHEMICAL DISASTER MANAGEMENT**

India is developing as a key global player in the industrial and technology sector. Rapid industrialization has increased the hazard, risk and vulnerability to the industry and the environment. Major Chemical (Industrial) disasters are low in frequency but are very significant in the terms of loss of lives, injuries, environmental impact and property damage. Frequency and severity of chemical disasters has increased in last few years due to rapid development of chemical and petrochemical industries and increase in size of plants, storage and carriers, specifically in densely populated areas. There are more than 1500 MAH units and other small and medium-sized industries all across the nation and new industries are also establishing at a rapid rate. Chemical accidents can occur due to lack of safety measure, technical break down, or due to a human error. It, thereby, initiates a series of uncontrolled physiochemical phenomenon such as runaway chemical reactions, large spills, fires and explosions. These phenomenon eventually targets both human and non-human in the form of immediate and residual or long term consequences. Thus, it is imperative to develop preventive measures like adoption of safer engineering practices, improved performance of safety device and reduction of human errors by regular checks.

As per the RVA the following installations of Chandigarh are vulnerable to Chemical disasters:

Sr. No	Industrial Location	Nature of Hazard	Vulnerable Areas
1	Industrial Area – Phase I	Chemical Spills, Effluent Discharge, Fire, etc.	Sector 28, 29, Sukhna Choe, Reserved Forest
2	Industrial Area – Phase II	Chemical Spills, Effluent Discharge, Fire, etc.	Sector 31, Karsan Rehabilitation Colony
3	Industrial Area – Phase III	Chemical Spills, Effluent Discharge, Fire, etc.	Mauli jagran Rehabilitation Colony
4	Sewerage Treatment Plant	Sewer Leakage, Methane Gas leakage, Drinking water pollution, etc.	Sectors 47 & 48, Karsan Rehabilitation Colony

9.1 ROLES & RESPONSIBILITIES OF VARIOUS STAKEHOLDERS

The important roles of different stakeholders related to CDM shall be spelled out more clearly to further increase their effectiveness:

- A. **The chemical industry** should fulfill its total obligations as described earlier. Complete coordination should be ensured between the industry and district authority. The chemical industry shall also specifically address the following:
 - i. Selection of safe technology by industry shall be the prerogative of the industry based on their need, size and availability of inputs as an important preventive measure for CDM.
 - ii. On-Site emergency plan and periodic mock drills.
 - iii. Supporting district authorities in mitigation, rescue and rehabilitation, with resources identified and agreed with the authorities in advance. Such areas shall be included in Off-Site plans.
- B. **The district authority** is responsible for the Off-Site emergency plan and it shall be equipped with up-to-date MAH units, website, control room etc., with provisions for monitoring the level of preparedness at all times. Regular meetings of various stakeholders of CDM will be conducted by district administration/DDMA to review the preparedness for CDM.
- C. **The police** will be an important component of all disaster management plans as they will be associated with investigation of accidents/disasters. Police take overall charge of the Off-Site situation until the arrival of the district collector or its representative at the scene.
 - i. Special training should be imparted to the police personnel for the investigation of a transport emergency involving HAZCHEM. The police personnel should use the information available with the driver of the HAZMAT vehicle involved in the incident/accident for handling the emergency.
 - ii. Any disciplinary action, if warranted, against the driver or cleaner should not get precedence over the investigative procedure.
- D. **The fire services** are one of the first responders and shall be adequately trained

and equipped to handle chemical emergencies. The fire services need to be updated in terms of equipment and trained manpower. Necessary regulations will also have to be evolved to empower them to handle chemical emergencies. The general perception of their functioning is that they are involved in fire fighting only. At times they have inhibitions to handle chemical emergencies. The fire services shall be strengthened to handle not only emergencies arising out of fire but also those arising out of HAZCHEMs. Fire services are to acquire a thorough knowledge of likely hazards at the incident site and the emergency control measures required to contain it. The infrastructure and capacity building of the NFSC and the fire brigades shall be augmented on a priority basis. A national-level programme shall be introduced to strengthen and train the entire fire-service sector, along with its capacity building.

- E. In a chemical emergency, the **revenue department** shall coordinate with other agencies for evacuation, establishment of shelters and provision of food, etc.
- F. When required for evacuation purposes in a chemical emergency, the **department of transport** should make transport promptly available.
- G. The role of **civil society and private sector** in the Off-Site plan shall be defined.
- H. **The health department** needs to assure that all victims get immediate medical attention on the site as well as at the hospitals/health-care facility where they are shifted. In addition, the department needs to network all the health-care facilities available in the vicinity for effective management and also take effective measures to prevent the occurrence of any epidemic.
- I. **Pollution control boards** need to ascertain the developing severity of the emergency in accordance with responsive measures by constant monitoring of the environment. If and when an area is fit for entry will depend upon the results of the monitoring. A decontamination operation would be required to be carried out with the help of other agencies and industries.
- J. **The NDRF and SDRF** are the specialized forces to manage these disasters in a longer run according to the severity and nature of the disaster. Their

specialized training is an effective measure that needs to be built up and maintained with time for achieving a higher standard of preparedness. They need to coordinate with other local agencies such as the Central Industrial Security Force that may be responsible for security at the industrial site.

9.2 PREPAREDNESS REGARDING CHEMICAL DISASTERS

The major areas of preparedness are given below.

A. EDUCATION AND TRAINING

Education on CDM is necessary for all the stakeholders. Disaster-related topics shall be included in the syllabi of professional colleges at appropriate levels.

- i) Regular educational programmes in the form of symposia, exhibitions and demonstrations shall be encouraged.
- ii) Educational programmes shall be conducted in various languages according to geographical locations. Disaster-related manuals and pamphlets will be published in the vernacular so that they can easily be understood by less-educated people.
- iii) Electronic media will be used to impart educational knowledge to the community at large.
- iv) Disaster-related education material will be available for all stakeholders at various levels.

Training plays an important role in proper implementation of various disaster-related activities. It plays an important role in understanding the probable root causes that can lead to a chemical disaster at installation sites.

B. CREATION OF APPROPRIATE INFRASTRUCTURE

Creation of proper infrastructure both in On-Site and Off-Site plans will

serve as a strong back-up for the management of chemical disasters.

The infrastructural facilities will stress on the following areas:

- Identification, budgeting and time-bound provision of infrastructural facilities in installations individually or collectively for achieving good engineering practises, backup facilities, monitoring and recording facilities and facilities for On-Site management of emergencies.
- Preparation and inclusion of a 'Resources Directory' with complete details (source, availability, person/officers to be contacted, phone numbers, addresses etc.) is to be made available.
- In the context of small-scale industries and other industrial clusters being promoted by the government, it is suggested that resources pertaining to DM be provided in proportion to the risks being assessed.
- Mobilisation of resources from other districts/ states during emergencies needs to be built within On-Site and Off-Site plans.
- Identification of infrastructural facilities for Off- Site responders for efficient management of industrial (chemical) disasters and transport emergencies is an evolutionary process in line with the economic and industrial growth of the country.

C. CAPACITY DEVELOPMENT

Capacity development requires the all round development of human resources and infrastructure for establishment of a well-focused and functional organization and the creation of a supportive socio- political environment. Proper attention is to be paid in development of infrastructural facilities in terms of trained manpower, mobility, connectivity, knowledge enhancement, and scientific up- gradation for all stakeholders concerned with the management of chemical disasters. Capacity development is an important component of preparedness for the management of chemical disasters.

D. AWARENESS GENERATION

A well-informed community is an asset both for industry and local authorities. Rapport with the community creates tremendous goodwill for industry. Effective two-way communication contributes to proper understanding and prevents the probable conversion of a small incident into a potential disastrous event. To be effective, community awareness activities should be undertaken as per the strategy developed after due deliberations among the stakeholders in the LCG. The essential features of such a strategy are:

- **Credibility**—It is absolutely necessary to ensure that the information provided to the community and the activities undertaken for its propagation are absolutely credible. Since the LCGs represent all the stakeholders and community awareness is one of their functions, the information and activities should be approved by the LCG and released/undertaken on its behalf.
- **Need-based**—The information provided should be need-based relating to HAZCHEM handled and the type of accidents/emergencies encountered in the industrial area to which the community belongs. Too much detail should be avoided.

- **Regularity**

An on-off approach must be avoided

A regular system should be in place so that the community can seek information on its own as and when required. Further, a visible difference can only be ensured if awareness/education activities are undertaken regularly.

- **Community Information Representative (CIR)**

A suitable nodal person may be designated by the LCG to function as a CIR and made known in the industrial area. Such a person could be from a reputed NGO represented on the LCG. The CIR should use the facilities (lecture hall, audio visual aids, etc.) already available in the industrial area.

- **Effective Communication**

The information released should be simple, supported by pictorial

representations as far as possible and issued in the local languages, Hindi and English. Further, for effective communication, it is not enough to issue only written information through leaflets. It should be supplemented by regular awareness sessions (about 2 hours duration). The use of video along with the lecture would contribute to the proper understanding of CDM. A required number of community educators can be trained in making the communication effort more effective. Besides general information, specific information on chemicals used in the industrial area should be given to individuals who ask for such information.

- **Target Groups**

These should be carefully selected by discussion in the LCGs. Opinion makers who interact with the community and are respected by it, such as college/school teachers, students, office bearers of Mahila Mandals and residential cooperative societies, hospital representatives, etc., can play an important role in developing community awareness and should be selected. The number of people to be exposed to such training and awareness programmes should be estimated carefully.

- **Supplementary Activities**

To supplement the above activities, community awareness information could be displayed in places frequently visited by the public, such as the municipal ward office, rationing office, hospitals/ dispensaries, school/colleges, bus stops, railway stations, etc. Various other innovative/creative means such as shopping bags, inserts in the telephone directory etc., as decided by the LCG could also be used effectively. Community festivals could also be used.

E. MEDICAL PREPAREDNESS

Medical preparedness will include the recognition of the impact of chemical disasters, and shall focus on injuries, illness and public health problems including psychosocial trauma that results in their wake. It shall address integration of medicine and public health with On-Site and Off-Site emergency plans, and crisis management at the hospital. Medical preparedness shall also address the necessity of planning and practice, exercises involving local, district, state, central government and voluntary agencies. It must include problem solving, based on the past experience of disasters. Employee State Insurance Corporation (ESIC) hospitals will also play an important role in the medical management of chemical disasters.

9.3 RESPONSE, RELIEF AND REHABILITATION

Disasters of major dimensions require prompt and effective response mechanisms and dedicated operations of long durations for relief and rehabilitation. Coordination between national, state, district bodies, institutions and industries to develop an integrated teamwork is a key component of relief and rehabilitation measures. Rehabilitation will be comprehensive and will take into account all the measures that will lead to normalcy in relation to financial, education, shelter, social and health aspects. Efficient and quick response to disasters depends upon the state of preparedness of all the stakeholders of On-Site and Off-Site emergency plans. The response activities shall be a multi-hazard concept so as to minimize the impact of the disaster in terms of life, environment and property.

The psychological impact of a chemical disaster manifested as psychosocial trauma including psychological reactions, post-traumatic stress disorder and other psychological ailments in displaced disaster victims, needs to be addressed. Counseling by psychologists and psychiatrists for those suffering from mental trauma is an essential element of medical rehabilitation.

The relief and rehabilitation measures will be prompt and best achieved by the collective and constructive action of all stakeholders.

9.4 GUIDELINES FOR TRANSPORT ACCIDENTS

HAZCHEMs are transported across international borders. Hence, there is a need to comprehensively address the safe transportation of hazardous substances whether they are transported via air, ship, railways, roads or pipelines etc.

AIR TRANSPORTATION

Air transport of dangerous goods is required to conform to the International Air Transport Association (IATA) Dangerous Goods Regulations which govern the packaging and labeling of HAZCHEM. A set of technical instructions for the safe

transport of dangerous goods by air was also issued by International Civil Aviation Organization (ICAO) in 1982–83.

RAIL TRANSPORTATION

Railways have their own safety manual for the transportation of hazardous goods. The same needs to be strengthened keeping all requirements for management of transport accidents in view. There will be increased awareness of railway personnel dealing with transportation of HAZCHEMs. Rail transport of dangerous goods, especially petroleum products, also follows the international code of labeling in transportation. However, toxic and hazardous gases/ liquid are not generally permitted in bulk quantities in transportation as practiced in developed countries.

ROAD TRANSPORTATION

Road transport carries the bulk of dangerous goods in India while sea transport handles the import and export of dangerous goods. Presently, road transportation of dangerous goods is a very weak area under prevention and management of chemical disasters and, therefore, needs to be adequately addressed by the MoSRT & H, with the help of the MoEF in fine-tuning the present legislative framework by introducing fresh rules, guidelines and facilities for the prevention and management of transportation emergencies through a focused approach of all the responders including the community, in the proximity of highways.

SOME SPECIFIC SAFETY PROVISIONS FOR THE SAFE TRANSPORTATION OF PETROLEUM PRODUCTS

Petroleum products are the major bulk HAZCHEM material transported by various means of transportation. The products mainly include gasoline (petrol), diesel, compressed gases and others. The Petroleum Rules, 2002, covers a majority of the safety aspects related to its handling, transportation, etc. The following

recommendations are in accordance with the above Rules specifically for liquid products:

- a) No leaky tank or container shall be used for transportation of HAZCHEM.
- b) Filled barrels and drums should be loaded with their bung upwards.
- c) No ship, vessel and vehicle shall carry petroleum if passengers or any combustible cargo is present on board.
- d) Smoking, matchsticks, lighters or other fire inducing appliances should be strictly prohibited during loading/unloading and while transportation.
- e) Loading/unloading of petroleum after sunset shall be prohibited unless adequate lighting and fire- fighting facilities with trained personnel are kept in place.
- f) Transportation of petroleum by land requires strict provisions for safety of the tank vehicle. The tank vehicle shall be built, tested and maintained as per the third schedule of The Petroleum Rules, 2002. The tanker shall be fabricated and mounted on the chassis by an approved manufacturer conforming to the approved fabrication/mounting drawings. The schedule also gives details about correct structural relationship between various components of the tank vehicle.

CHAPTER-10

BIOLOGICAL DISASTERS-BIO-TERRORISM

DEFINITION

Apart from the natural transnational movement of the pathogenic organisms, their potential use as weapons of biological warfare and bio-terrorism has become far more important now than ever before. Utilization of organisms causing smallpox and anthrax by such terrorist groups can cause greater harm and panic. Biological agents are living organisms or their toxic products that can kill or incapacitate people, livestock, and plants. Bio-terrorism can be defined as the use of biological agents to cause death, disability or damage mainly to human beings. Thus, bio-terrorism is a method of terrorist activity to prevail mass panic and slow mass casualties. The three basic groups of biological agents, which could be used as weapons, are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are very long lived. Biological agents can be dispersed by spraying them into the air, by infecting animals that carry the disease to humans, and by contaminating food and water. Potentially, hundreds of human pathogens could be used as weapons; however, public health authorities have identified only a few as having the potential to cause mass casualties leading to civil disruptions.

10.1 CAUSES AND METHOD OF DELIVERY

There are number of causes why biological weapons are potentially more powerful agents to mass casualties leading to civil disruptions. To attract widespread attention and to harm a selected target, these outfits can utilize possibly any biological material, which fulfils some of the criteria of bio-weapons.

- Biological agents can be disseminated with readily available technology. Common agricultural spray devices can be adopted to disseminate biological pathogens of the proper particle size to cause infection in human population

over great distances.

The perpetrators can use natural weather conditions, such as wind and temperature inversions as well as existing building infrastructures (e.g. ventilation system) or air movement related to transportation (e.g. subway cars passing through tunnels) to disseminate these agents and thus to infect or intoxicate a large number of people.

- The expense of producing biological weapons is far less than that of other weapon systems.

The methods of bio-logical agent dissemination and delivery techniques include:

- Aerosols - biological agents are dispersed into the air, forming a fine mist that may drift for miles. Inhaling the agent may cause epidemic diseases in human beings or animals.
- Animals – some diseases are spread by insects and animals, such as fleas, mice, flies, mosquitoes, and livestock.
- Food and water contamination - some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water. Most microbes are killed by boiling water for one minute, but some require longer. Follow official instructions.
- Person-to-person - spread of a few infectious agents is also possible. Humans have been the source of infection for smallpox, plague, and the Lassa viruses.

10.2 TYPES

There are three categories of biological agents potential enough to cause mass casualties. However, those in category A have the greatest potential for fear and disruption and most significant public health impacts. The list of these biological agents with a very brief description about them is given below:

ANTHRAX

The disease anthrax is caused by the gram-positive, non-motile *Bacillus anthracis*. *Anthrax* has been a scourge of cattle and other herbivores for centuries. During the industrial revolution, the inhalation form was first recognized as an occupational pulmonary disease in workers in the wool industries of Europe. Anthrax makes an ideal biological weapon. The inhalation form of disease is highly lethal. The spores can maintain virulence for decades and they can be milled to the ideal particle size for optimum infection of the human respiratory tract. Different clinical forms of the disease are observed, depending on the route of exposure. Inhalational anthrax presents with non-specific symptoms that cannot be distinguished from many more common diseases based on early clinical manifestations or routine laboratory tests. Therefore, despite aggressive medical care sometimes develop rapidly progressive disease and die.

SMALLPOX

If used as a biological weapon, *smallpox* represents a serious threat to civilian population because of its case fatality rate of 30% or more among unvaccinated persons and the absence of specific therapy. Smallpox has long been considered as the most devastating of all infectious diseases and today its potential for devastation is far greater than at any previous time. Smallpox virus is a member of genus Orthopox virus, and it is closely related to the viruses causing cowpox, vaccinia and monkey pox. It is one of the largest DNA viruses known, and it has a bricklike appearance on electron microscopy. Transmission of this virus can occur in several different ways:

generally by droplets, occasionally by aerosol, by direct contact with secretions or lesions from a patient, and rarely by fomites contacted with the infection virus from a patient. Transmission risk increases if the index patient is coughing or sneezing or if he or she has hemorrhagic disease. Typically, the virus enters the respiratory mucosa and then travels to regional lymph nodes where it replicates. The incubation period from infection to onset of rash ranges from 7 to 17 days, averaging 12 to 14 days. Smallpox scabs remain infectious until they fall off, whereas chickenpox is no longer infectious once the lesions are crusted.

PLAGUE

- The mere mention of the word ***plague*** conjures up many images because it has already demonstrated a historical potential to kill millions of people across the globe. It is a disease that results from infection by non-motile, gram-negative coccobacillus *Yersinia pestis*. When stained, its bipolar appearance is often described as resembling a safety pin. *Pestis* has two important properties that differentiate it from *B. anthracis*- person-to-person transmissibility and a lack of spore production. Following the bite of an infected flea, plague bacilli are carried via the lymphatic to the regional lymph nodes where they multiply exponentially. This is only weapon besides smallpox, which can cause devastation beyond those persons who are initially infected. With modern air travel, containing an outbreak of plague could be challenging. A vaccine for plague does exist; however, it is no longer being produced, and it does not demonstrate efficacy against infection by aerosol.

BOTULISM

- **Botulism** or Botulinum toxins are deadly. A toxin is any toxic substance that can be produced in an animal, plant, or microbe. The toxins produce serious disease in human beings. Many natural toxins can be produced by chemical synthesis or can be expressed artificially. Toxins are natural and non-volatile and generally do not penetrate intact skin, which happens in case of chemical weapons. There are

different types of toxins and they are immunologically distinct, meaning that antibodies developed against one do not cross-react against others. Those that most commonly cause human disease are types A, B, and E. Humans can be intoxicated either by oral means, inhalation, or wound infection. Mass casualties can be produced through contamination of food source or by aerosol dissemination. The incubation period of botulism can range from as short as 24 to 36 hours to several days from the time of inhalation.

TULAREMIA

- ***Tularemia*** is caused by *Francisella tularensis*, which is a gram-negative, non-motile coccobacillus. Tularemia is a zoonotic disease acquired in a natural setting by humans through skin or mucous membrane contact with the body fluids or tissues of infected animals or from being bitten by infected deerflies, mosquitoes, or ticks. It can remain viable for weeks in the environment or in animal carcasses and for years if frozen. Unlike anthrax, which requires thousands of spores to infect someone, tularemia can cause illness with as few as 10 to 50 organisms. After an incubation period of 2 to 10 days, pneumonia symptoms develop associated with weight loss and non-productive cough. The drug of choice for treatment is streptomycin with other aminoglycosides.

IMPACT

Even a small-scale biological attack with a weapon grade agent on an urban center could cause massive morbidity and mortality, rapidly overwhelming the local medical capabilities. For example, an aerosolized release of little as 100kg of anthrax spores upwind of a metro city of a size of Washington D C has been estimated to have the potential to cause up to three millions of deaths.

10.3 PREVENTION & MITIGATION MEASURES: GENERAL MEASURES OF PROTECTION

1. The general population should be educated and the made aware of the threats and risks associated with it.
 - Only cooked food and boiled/chlorinated/filtered water should be consumed
 - Insects and rodents control measures must be initiated immediately.
 - Clinical isolation of suspected and confirmed cases is essential.
2. An early accurate diagnosis is the key to manage casualties of biological warfare. Therefore, a network of specialized laboratories should be established for a confirmatory laboratory diagnosis.
3. Existing disease surveillance system as well as vector control measures have to be pursued more rigorously.
4. Mass immunization programme in the suspected area has be more vigorously followed up.
5. Enhancing the knowledge and skills of clinicians plays a vital role in controlling the adverse impact of the attack. As bio-terrorism related infections will remain rare events, creative ongoing strategies will be required to sustain attention to potential new cases.

10.4 ACTION PLAN FOR BIOLOGICAL DISASTER MANAGEMENT IN INDIA

Biological Disaster could arise from a source located either inside the country or outside the country (warfare). Management of such a situation could be dealt effectively only if there is a disaster plan well integrated in the system and also there is mechanism of post disaster evaluation.

INTER-DISASTER STAGE:

This is the period between two disasters in which pre-disaster planning in terms of system development should be done. One of the simplest & easy method to suspect is to take notice of a situation during which more patients with similar ailments from a particular locality start consulting health guide at village level,

(a) Constitution of a Crisis Management Structure

- Identification of Nodal Officers for Crisis Management at District, State & Central Level.
- Identification of Focal points for control of epidemic at District, State & Central Level.
- Constitution of advisory committees - Administrative and Technical
- Preparation of contingency plan including Standing Operating Procedure at District, State & Central Level.

(b) System of Surveillance.

System of information collection at District, State & Central Level.

- System of data analysis
- System for flow of information from District to State and to Central Level during crisis period.
- Establishment of control rooms at District, State & Central Level. (c)

System of Epidemiological Investigation.

- System of field investigation
- System of active surveillance

- Arrangement for support facilities

(d) Confirmation of pathogens by laboratory set up.

- System of laboratory investigation at District, State & Central Level.
- Quality Control of Laboratory Practices.

(e) Training to different level workers.

PRE IMPACT STAGE OF WARNING (EARLY DETECTION):

EARLY WARNING SIGNALS

Early identification of an outbreak of disease of international public health importance shall require knowledge of early warning signals amongst all the echelons of health care providers. Some of the suggested early warning signals which must command quick investigation by professionals may include followings :

- Sudden high mortality or morbidity following acute infection with short incubation period
- Acute fever with haemorrhagic manifestations
- Acute fever with altered sensorium and malaria and JE excluded in endemic areas
- Even one case of suspected plague or anthrax
- Occurrence of cases which are difficult to diagnose with available clinical and laboratory support and their non-responsive to conventional therapies
- Clustering of cases/deaths in time and space with high case fatality rate
- Unusual clinical or laboratory presentations

A comprehensive list of all the trigger events that shall attract immediate attention of local public health machinery need to be developed by a group of experts.

- **By suspicion:**

Management Plan should aim to identify crisis situation at a very early stage preferably confined to a limited area. This can be done only by suspecting danger of impending disaster by local health employees (at village by village health guide, at sub centre level by multi purpose worker and PHC level by doctors at PHC).

- **Alertness of institution dealing with emergency health, medical services/ Confirmation by identified laboratories :-**

If such a situation arises, after providing symptomatic treatment at PHC level, services of well **established laboratory at district or medical college level may be requisitioned to identify the organism** and also to seek guidance for specific treatment and management.

- **Constant surveillance and monitoring till there is no risk of any outbreak.**

DISASTER STAGE:

When disaster strikes following actions would be needed:

PUBLIC HEALTH CONTROL MEASURES:

Aim of control measures, is to contain the disease initially but eliminate ultimately by following public health measures:

- Identification of all infected individuals based on an established case definition
- Eliminating or reducing source of infection (Isolation and treatment of patients) identified by epidemiological and laboratory studies
- Interrupting Transmission of disease: Spread of disease depend of mode of transmission which could be prevented by:
 - Possibility of reducing direct contacts with patients;
 - Vector control: Rodents/Mosquitoes control.
 - Food control

- Environmental control: Transmitted by water/air.
- Control through sewerage system.
- Protecting persons at risk (Community) Immunisation and Health Education plays major role in protecting person at risk.

TRIGGER MECHANISM: The trigger mechanism is an emergency quick response mechanism like ignition switch when energised spontaneously sets the vehicle of management into motion on the road of disaster mitigation process.

- System of alert and mechanism of activation of Disaster Plan.
- Immediate organization of field operation for curative and preventive medical care including immunization.
- Checking of initial information on an epidemic.
- Preliminary analysis of the situation.
- Arrangement for laboratory support.
- Emergency health services advisory committee meeting to take stock of the situation and to advise further action.
- Field investigation about:
 - Safety pre-cautions
 - Case finding
- **Deputation of Quick Response Teams**
 - Search for source of infection and contact tracing
 - Special investigation for common source of infection.
 - Analysis of investigation data to identify type, source of out break and mode of transmission:
 - Ecological data

- Clinical data
- Epidemiological data
- Laboratory data
- Entomological data
- **General control measures to prevent further out break:**
 - Protective measure for contacts & Community
 - Control of common source of outbreak like food water or mosquito etc.
 - Immunization, emergency mass immunization and specific immunization, mass chemoprophylaxis.

POST DISASTER STAGE:

Evaluation after disaster is most important step in disaster management in order to rectify deficiencies in the management and to record the entire operation for future guidance for which following measures are necessary:

- Evaluation of control measures
- Cost effectiveness
- Post-epidemic measures
 - Sharing of experience
 - System for documentation of events.

Management of Biological disaster on above principles and steps should be taken by the health authorities of the State Government with the available infrastructure.

10.5 FUTURE PLAN

The followings are the some of the key issues and concerns across the globe that need to be included in the future plan of bio-terrorism management.

- Since vaccines against a number of potential biological warfare agents have already been developed and some have already been in use, mass immunization of the population would be done on a priority basis.
- Vaccines against remaining agents would have to researched and developed.
- Mass public awareness before, during and after such an attack must be emphasized upon.

The strategies that must be incorporated include accurate threat intelligence, physical countermeasures, medical countermeasures and education and training of physicians and ancillary health care providers including first-aid providers.

10.6 DOS & DON'TS IN A BIOLOGICAL WAR ATTACK

BEFORE:

Children and older adults are particularly vulnerable to biological agents. Ensure from a doctor/the nearest hospital that all the required or suggested immunizations are up to date.

DURING:

- In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. It will take time to determine what the illness is, how it should be treated, and who is in danger. Close the doors and windows when a biological attack is imminent.
- Watch television, listen to radio, or check the Internet for official news and

information including signs and symptoms of the disease, areas in danger, if medications or vaccinations are being distributed, and where you should seek medical attention if you become ill.

- The first evidence of an attack may be when you notice symptoms of the disease caused by exposure to an agent.
- Be suspicious of any symptoms you notice, but do not assume that any illness is a result of the attack.
- Use common sense and practice good hygiene.

However, if you notice of an unusual and suspicious substance nearby:

- Move away quickly.
- Cover your head and nose
- Wash with soap and water.
- Listen to the media for official instructions.
- Seek medical attention if you become sick.

If you are exposed to a biological agent:

- Ultra efficient filter masks can be used
- Follow official instructions for disposal of contaminated items such as bag and cloths.
- Take bath with soap and put on clean clothes.
- Seek medical assistance. If required and advised, stay away from others or even quarantined.

AFTER:

Pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical

protocols for handling exposure to biological agents are the same as for any infectious disease. It is important for you to pay attention to official instructions via radio, television, and emergency alert systems.

EQUIPMENT FOR NBC EMERGENCIES

(For a team of 100 People split up in to 3 units of 30 men each with 10 in reserve)

S/No.	NAME OF ITEM	QTY. REUIRED
1	Teletector	36
2	GM Survey Meter	100
3	Contamination Monitor	100
4	Mini Rad Meter	36
5	Portable Alpha Contamination Monitor	18
6	Electronic Dosimeter	500
7	Beta Gama Counting System	06
8	Alpha Counting System	02
9	Battery Operated Air Sampler with Filter paper	36
10	Micro Survey Meter	36
11	Breathing Apparatus set with Spare Cylinders	36
12	Integrated Hood Masks	54
13	Respirator (gas mask) with 2 Canisters	500
14	Butyl Rubber Gloves (Inner & Outer)	500
15	NBC Over boots	500
16	Thermo Luminescent Dosimeter (TLD)	500
17	Resuscitator	100
18	Water Poison Detection Kit	18
19	Residual Vapour Detection Kit	18
20	Three colour detection paper	500
21	Personnel Decontamination Kit	500
22	Auto Ejector Set	250
23	NBC First Aid Kit Type A	72
24	NBC First Aid Kit Type B	12
25	Portable Decontamination Apparatus	36
26	NBC Suits Decontamination	200
27	NBC Permeable Suits MK-IV	500
28	Portable Gama Spectrometer	02
29	CW Sampling Kit	24
30	Decontamination Kit (Sets)	18
31	Iodate Tablets	4500
32	Naps Tablet (60 mg/20 tables packs)	600
33	Hazmat Vehicle	01

EUIPMENT FOR NBC EMERGENCIES

DETECTION & LOCATION EQUIPMENT		
S/No	Name of Item	Qty Required
1	Plastic Sheets (Meters)	900
2	Plastic Suits with Comfo Respirators	40
3	Plastic Bags 2'x 3'	1000
4	Cordoning Tap 100 Meters rolls	400
5	Latex Gloves (pairs)	1000
6	Tongs (2 feet)	80
7	Casualty Bags (full)	50
8	Casualty Bags (Half)	25
9	Medical Triage (50 meters sets)	50
10	Bleaching Powder (Kgs)	600

CHAPTER 11: **DO'S AND DON'TS DURING DISASTER AND** **DISASTER TACKLING TECHNIQUES**

11.1 FLOODS

DO's

1. Regular listening to Radio/TV/Public Addressing System for advance information and advice
2. Disconnect all electrical appliances and move all valuable personal and household belongings out of reach of floodwater, in case advance warning is given.
3. Move Vehicles, essential commodities, farm animals and movable goods to the elevated place nearby.
4. Turn off gas or may shift it with you if you have to leave the house.
5. Lock all outside doors and windows before leaving for safer place.
6. If you have to evacuate, do not return until you are directed to.

DON'T'S

1. Do not enter into floodwater without any support.
2. Never wander around a flooded area.
3. Do not drive into water or unknown dearth and current.
4. Do not eat food or drink water contaminated by floodwater.

11.2 EARTHQUAKE

DO'S

1. Listen to the TV/Radio/Public addressing system for advance information and advice.
2. Teach all family members how to turn off electricity, water supply and gas supply.
3. Protect yourself by staying under the lintel of an inner door, in the corner of a room, under a table or even under a bed.
4. Keep away from old, tall or ditched buildings, electricity wires, slopes and walls, which are liable to collapse.
5. Stop the vehicle away from buildings, walls, slopes, electricity wires and cables.
6. Leave your badly damaged house
7. Collect water containers, food items and common use medicines.

DON'TS

1. Do not run and wander round the streets.
2. Do not rush to the doors or exits, never use the lifts, keep away from windows, mirrors, chimneys and furniture
3. Avoid places where there is use of electric wires and do not touch any metal object in contact with them.
4. Do not enter badly damaged buildings

WHAT TO DO DURING AN EARTHQUAKE WHEN YOU ARE INDOOR, OUTDOOR OR IN A CAR

INDOORS


1. Stay indoors until the shaking stops and you're sure it's safe to exit.
2. Stay away from glass windows, as these are the first to break.
3. Don't use candles, matches, or lighters during or after the earthquake.
4. If there is a gas leak, there may be an explosion.

OUTDOORS

1. Find and move to a clear area away from buildings, trees, downed electrical wires and power lines.
2. Drop to the ground until the shaking stops.
3. Keep looking around to be aware of dangers that may demand movement.

IN A CAR

1. Stay inside the car until the shaking stops. While driving, pull over to the roadside and stop.
2. If you are in a life-threatening situation, call EMS.
3. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

FAMILY PREPAREDNESS PLAN Emergency meeting place _____ Meeting place _____ Address _____ Phone _____ Closest Relative living away from your City _____ Phone _____ Name and Address _____		EMERGENCY SUPPLIES Keep enough supplies in your home to meet your needs for at least three days. Assemble an emergency Supplies Kit with items you may need in an evacuation. Store these supplies in sturdy, easy-to-carry containers such as backpacks, duffel bags or covered trash containers. Include: A three day supply of water (4 litres per person per day) and food that won't spoil. One change of clothing and footwear per person, and one blanket or sleeping bag per person. A first aid kit that includes your family's prescription medications. Emergency tools including a battery-powered radio, flashlight and plenty of extra batteries. An extra set of all important keys and a credit card, cash or traveller's cheques.	UTILITIES Locate the main electric fuse box, water service main and natural gas main. Learn how and when to turn these utilities off. Teach all responsible family members. Keep necessary tools near gas and water shut-off valves. Turn off the utilities only if you suspect the lines are damaged or if you are instructed to do so.	EARTHQUAKE EMERGENCY SURVIVAL GUIDE GOVERNMENT OF INDIA Ministry of Home Affairs NATIONAL DISASTER MANAGEMENT DIVISION
DURING Do not panic. Remain calm! Do not jump from the building. If inside: If you are NEAR AN EXIT, leave the building as soon as possible. Put your arms over head to protect yourself against possible objects falling from above and move away from nearby buildings. Watch out for traffic. If you can not reach the exit quickly or you are situated in HIGHRISE BUILDING UPSTAIRS stay inside... do "DROP, COVER AND HOLD". Sit or lie beside or underneath sturdy furniture. Hold on to the furniture. Cover as much of your head and your upper body as you can. When the shaking stops get up and evacuate the building. Don't use the elevators. If outdoors: Move to an open area away from all structures, especially buildings, bridges, and overhead power lines. If driving: Stop in an open area away from all structures, especially bridges, overpasses, tunnels and		BEFORE Develop a family emergency plan and practice it regularly. Identify an out-of-area phone contact person to call and check in with. Choose a couple of family meeting places; pick easy to identify, open and accessible places that you can likely walk to. Prepare to be self sufficient for a minimum of three days. Assemble an emergency supply kit: include food, water, prescription medications and first aid supplies, a battery operated radio, flashlight, extra batteries, shelter clothing, sturdy shoes and personal toiletries. Have knowledge about first aid. Quake-proof your house by securing heavy furniture and objects. IMPORTANT TELEPHONE NUMBERS Police 100 Fire 101 Ambulance 102	AFTER STAY CALM! Allow a little time for objects to fall before moving. Move cautiously and check for unstable objects and other hazards above and around you. Check yourself for injuries. Help those around you and provide first aid. Only use phones (including cell phones) if a life is at stake. Listen to the radio or watch local TV for emergency information and additional safety instructions. Inspect gas water and electric lines. If there are leaks or, if there is any doubt about leaks, shut off mains; evacuate immediately if you hear or smell gas and can't shut it off. Report leaks to the authorities. Anticipate aftershocks, especially if the shaking lasted longer. Stay out of damaged buildings.	 DROP, COVER & HOLD

What to do DURING an earthquake?



Drop



Cover



Hold

During earthquakes, drop to the floor, take cover under a sturdy desk or table, and hold on to it so that it doesn't move away from you. Wait there until the shaking stops.



If you are in a structurally sound building, stay there.



If you are inside an old weak structure, take the fastest and safest way out.



Do not use elevators.



After the shaking stops, take the staircase to reach open space



If you are **not near an exit** or, you are situated in **high-rise building/ upstairs** stay inside. **Do not panic**; stay calm and take necessary action.



If you are **near an exit**, leave the building as soon as possible. **Do not rush** to the exit point. Get out calmly in an orderly manner.



Move away from power lines, posts, walls, false ceiling, parapet, falling flowerpots and other elements that may fall or, collapse.



Stay away from buildings with glass panes.



If you are on a steep hillside, move away in case of landslides and falling rocks.



When driving a vehicle pull to the side of the road and stop.



Do not attempt to cross bridges/flyovers, which may have been damaged.

Source: www.ndmindia.nic.in

11.3 HEAT WAVE

DO'S

1. Listen to public addressing system for advance information and advice.
2. Finish the work in the morning or leave it to the evening
3. Drink sufficient water and take food before leaving for outside.
4. Keep your head away from direct heat. Use wet clothes, cap, umbrella or glasses.
5. Keep stock of water with you.
6. Wear light dresses.

DON'TS

1. Avoid Standing under direct sun.
2. Avoid long drives.
3. Avoid drinking water during unconsciousness.

11.4 FIRE

How To Control The Fire

1. Break the **fire triangle** i.e. Oxygen, Fuel and Heat.
2. Interrupting the chain reaction of fire.
3. Using fire extinguisher.

How To Respond To Fire In Office, When

A. You Get Trapped In A Room

1. Feel the door.
2. Place wet blanket along the bottom of the door to keep out smoke.
3. Hang any material out the window to attract attention

B. There Is Smoke In Corridor

1. Stay in your room
2. Place wet blanket or towel along the bottom of the door to keep out smoke.
3. To escape from the corridor, crawl along the floor.

C. Clothes On Fire

1. Use water to put out fire.
2. Use blanket to cut off oxygen supply.
3. Remove victim's constricting clothes & jewelry.

ANNEXURE-I

SUB DIVISION-EAST

NAME OF S.D.M: SH ARJUN SHARMA, IAS, 2679010 (O)

NAME OF ASP/SDPO: DR GUR IQUBAL SINGH SIDHU, IPS (9779580988), 2750053(O)

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS East	Sh B. K Dhawan Executive Engg, Public Health Div-3 Chandigarh. 98725-11246	Sh. Vijay Premi, SDE-7, # 1271, Sector 22-B, Chandigarh 9872511245	Sh.Angrej Singh 9872511366	Electrician-I Diesel Mech-I Fitter- I Helper-4
PS 19 SHO , Sh Ashwani Kumar (9779580919)		-do-	Sh Yashpal Sharma 9872511351	-do-
PS Indl. Area , Sh. Z. P Khan (9779580929)		-do-	Sh Harminder Singh 9872511241	-do-
PS Mani Majra, Sh. Karmchand (9779580950)		-Sh Gurmukh Singh SDE-8 9872511251	Sh I D Sharma 9872511231	-do-
PS 26 SHO Sh Jaspal Bhullar (9779580926,				

SUB DIVISION-SOUTH**NAME OF S.D.M: SH SOURABH MISHRA, 2676016 (O)****NAME OF DSP/SDPO: DR NAVDEEP SINGH BRAR, IPS, 9779580912, 2676000(O)**

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS South	Sh.Sham Lal, Executive Engg., MC Public Health-1 9872511229	Sh.Harish Kumar Saini, SDE-10 9872511254	Sh. Parminder Singh 9878040260	Electrician-I Diesel Mech-I Fitter- I Helper-4
PS 31 SHO Ms Gurjeet Kaur (9779580931)		-do-	-do-	-do-
PS 34 SHO Sh. Ajay Kumar (9779580934)		-do-	-do-	-do-
PS 36 SHO Sh. Naseeb Singh (9779580936)		-do-	Sh Jai Dev 9872511234	-do-
PS 39 SHO Sh. Rajdeep Singh (9779580939)		-do-	Sh. Nirmal Singh 9872511234	-do-

SUB DIVISION-CENTRAL**NAME OF S.D.M: SH VIRAT, HCS, 2700115 (O)****NAME OF ASP/SDPO: SH SATISH KUMAR, IPS(9779580908),(2700357)(O)**

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh.Sham Lal, Executive Engg., MC, Public Health-1 9872511229	Sh. Yogesh Aggarwal, SDE-I 9872511336	Sh Rakesh Kumar 9872511235	Electrician-I Diesel Mech-I Fitter- I Helper-4
PS North		-do-	Sh. Rajinder Kumar 9872511338	-do-
PS West		-do-	Sh. Jagdish Singh 9872511337	-do-
PS 17, SHO Sh. Maninder Singh 9779580917		-do-	-do-	-do-
PS 03, SHO Sh Sher Singh 9779580933		-do-	-do-	-do-
PS 11, SHO Sh Lakhbir Singh 9779580911		-do-	-do-	-do-

ANNEXURE-I

SUB DIVISION-EAST

NAME OF S.D.M: SH ARJUN SHARMA, IAS, 2679010 (O)

NAME OF ASP/SDPO: DR GUR IQUBAL SINGH SIDHU, IPS (9779580988), 2700357

Police Station	SHO	Contact No.
PS 19	Sh Ashwani Kumar,	M(9779580919, 2700364)
PS Indl Area ,	Sh. Z P Khan,	M(9779580929, 2679013)
PS ManiMajra,	Sh. Karmchand	M(9779580950,2751020)
PS 26	Sh Jaspal Bhullar	M(9779580926, 2750049)

SUB DIVISION-SOUTH

NAME OF S.D.M: SH SOURABH MISHRA, IAS, (, 2676016)

NAME OF DSP/SDPO: DR NAVDEEP SINGH BRAR, IPS,(9779580912, 2676000)

Police Station	SHO	Contact No.
PS 31	Ms Gurjeet Kaur	M(9779580931, 2679023)
PS 34	Sh. Ajay Kumar	M (9779580934, 2676034)
PS 36	Sh. Naseeb Singh	M (9779580936, 2676031)
PS 39	Sh. Rajdeep Singh	M(9779580939, 26770391)

SUB DIVISION-CENTRAL

NAME OF S.D.M:, SH VIRAT, HCS (2700115)

NAME OF ASP/SDPO: SH SATISH KUMAR, (9779580990, 2700357)

Police Station	SHO	Contact No.
PS 17,	Sh. Maninder Singh	M (9779580917, 2700453)
PS 03,	Sh Sher Singh	M(9779580933, 2760008)
PS 11,	Sh. Lakhbir Singh	M(9779580911, 2760002)

MC- ROADS WING**SUB DIVISION-EAST****M.C. Roads Division No. 2, M.C. Chandigarh**

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS East	Sh. Jai Pal Singh Executive (Roads Division No. 2 M.C., Chandigarh (M 9915701344)	Sh.P.K.Aggarwal, Sub Divisional Engineer, Roads Sub Division -2 M.C. Chandigarh (M -9872511307)	Sh. Sandeep Kuma J.E., (M,9872511143), Sh. Suresh Handa, J.E.	Sh. Suresh Handa.
PS Indl Area	-do-	-do-	Sh. Tarlochan Singh J.E.9872511140	
PS Mani Majra	-do-	Sh. Gursaran Dass, Sub Division No. 5, M.C., Chandigarh (M) 9872511225	Sh. Anurag Bishnoi, J.E. (M 9872511362)	Sh. Amrik Singh Work Munshi (M 98767-04418)
PS 26	-do-	Sh.Sudhir Narang, Sub Divisional Engineer, Roads Sub Division No. 4,(M) 9872511139	Sh. Dalbir Singh , J.E. (M 99157-11417)	Sh. Suresh Chand, Mortar Mate
PS 19	-do-	-do-	-do-	-do-
PS 31	-do-	-do-	-do-	-do-

SUB DIVISION-SOUTH

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS South	Sh. Zorawar Singh, Executive Engr, Divn. No.1, M.C. 9872511192(Mob)	Sh.Bhupinder Singh ,SDE (Sub_Div-1), MC, #779, Sec69, Mohali 98725-11230(M)	Sh.Ram Singh,#552, Sec 22A,Chd. 98725-11134 (M) Sh. Jitesh Sharma	Sh. Amrik Singh, #3094,Sec 38D,Chd. Sh. Jagtar Singh
PS 39	-do-	-do-	-do-	-do
PS 36	-do-	-do-	-do-	-do-

SUB DIVISION-CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh. Inderjeet Gulati, Executive Engineer, Roads Divisions, No.1, M.C., Chandigarh (M 9872937600)	Sh. Maninder Singh Sub Divisional Engineer SDER-1, M.C., # 918, Phase-7, Mohali (M -8427778918)	Sh. Harjinder Singh, Junior Engineer (CDC) #1362, Sector 23, Chandigarh. (M 9915711471)	Sh. Harjinder Singh, Work Munshi, # 1362, Sector 23, Chandigarh. (M 9915711471)
PS North	-do-	-do-	-do-	-do-
PS West	-do-	-do-	-do-	-do-

MC-HORTICULTURE WING

SUB DIVISION-EAST

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS East	Sh. K.P.Singh, Executive Engineer, Horticulture Division, M.C. Chandigarh 9872511160 (M)	Sh. K.P.Singh, Sub Divisional Engineer 9872511160 (M) Sh. Subhash Chaudhary, (M-9872511259)	Sh.Sawatantar Singh, 9915711493) Sh. Hari Mohan Meena, (M 9915699776)	Sh.Harwinder Singh, Supervisor, Sh. Vir Bahadur, Hort Supervisor
PS 19	-do-	-do-	-do-	Sh. Hatinder Kumar, Electrician
PS Ind Area	-do-	-do-	-do-	-do-
PS 31	-do-	-do-	-do-	-do-
PS Mani Majra	-do-	-do-	-do-	-do-

SUB DIVISION-SOUTH

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS South	Sh. K.P.Singh, Executive Engineer, Horticulture Division, M.C. Chandigarh 9872511160 (M))	Sh Pritpal Singh Sub Divisional Engineer (M – 9915711482)	Sh. Ashni Kumar (M 98972511162) Sh. Kirandeep (M 9915711492)	Sh. Ravinder Singh, Hort Supervisor
PS 39	-do-	-do-	-do-	-do-
PS 36	-do-	-do-	-do-	-do-

SUB DIVISION-CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh. K.P.Singh Executive Engineer, Horticulture Division, M.C., Chandigarh (Mob 9872511160)	Sh. Subhash Chaudhary Sub Divisional Engineer (M 9872511259)	Sh.Sh.Jangsher Singh 98725-11163 (M) Sh. Navjeet Singh 98725-11121 (M) Sh. Hari Mohan Meena 9915699776 (M)	Sh.Jaswinder Singh, Sh. Vir Bahadur, Supervisor Sh. Rakesh Kumar,
PS North	-do-	-do-	-do-	-do-
PS West	-do-	-do-	-do-	-do-

MC-STREET LIGHT WING

SUB DIVISION-EAST

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS East	Sh. S.P.Singh Executive Engineer, Electrical Division, M.C., Chandigarh (M-9815652636)	Sh. Kuldeep Singh, Sub Divisional Engineer (CDC) Electrical Sub Division No. -I M.C., Chandigarh 98725-11144	Sh. Sanjiv Kumar Junior Engineer (M – 9646754338)	Sohan Singh, Electrician Sh. Daljit Singh, Electrician
PS Mani Majra			-do-	Sh. Harinder Kumar, Electrician
PS 19		-do-	Sh. Varinder Pal Singh, Junior Engineer (M 8146660517)	Sh. Kuldeep, Electrician Sh. Sanjay Rawat, Electrician
PS 15		-do-	Sh. Gurpreet Singh Junior Engineer (M 8146360009)	Sh. Balbir Singh Electrician Sh. Baljinder Singh, Electrician
PS Ind Area		-do-	-do-	-do-
PS 31		-do-	-do-	-do-

M.C. ROADS DIVISION NO. 1, M.C., CHANDIGARH
SUB DIVISION CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh. Inderjeet Gulati, Executive Engineer, Roads Division, No. 1, M.C., Chandigarh (M-9872937600)	Sh. Maninder Singh Sub Divisional Engineer SDER-1, M.C., # 918, Phase-7, Mohali (M-8427778918)	Sh. Harjinder Singh, Junior Engineer (CDC)# 1362, Sector 23, Chandigarh (M-9915711471)	Sh. Harjinder Singh, Work Munshi,# 1362, Sector 23, Chandigarh (M-9915711471)
PS North		-do-	-do-	-do-
PS West		-do-	-do-	-do-

M.C. ROADS DIVISION NO. 3, M.C., CHANDIGARH
SUB DIVISION CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Sector 36,39 & 24	Sh. Arjeet Singh, Executive, Roads Division, No. 3, M.C., Chandigarh (M-9872511138)	Sh. Ravinder Sharma, Sub Divisional Engineer SDER-2, M.C. (M-9872511135)	Sh. Ram Singh, Junior Engineer (M - 9872511134)	Sh. Ashok Kumar, (M-9915593249)
PS Sector 3& 11		Sh. Ram Pal Bains, SDEr-3, M.C. (M 9872511128)	Sh. R.D. Sharma A.A.E. (M9915711467)	Sh. Rikhi Ram (M 9915593249)
PS Sector 39 & 24		Sh. Vinod Vyas, SDE, R-8, M.C (M-98725-11145)	1. Sh. Jaswinder Sharma, Junior Engineer (M 9872511369) 2. Sh. Prem Singh, junior Engineer (M-9872511131)	-do-
PS Sector 39 & 36		Sh. Arjeet Singh, SDE R-9, M.C. (M-9872511138)	Sh. Rajesh Kumar, Junior Engineer (M-9915711494)	Sh. Lalit Mohan (M 9872511180)

SUB DIVISION-SOUTH

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS South	Sh.Surinder Singh Khandola, Executive Engr, Electrical	Sh Kuldeep Singh, SDE-I (Acting) 98725-11144	Sh.Ashwani Kumar, J.E. (2259-B, Sec-19-C, Chd, 9871511150(M)	Sh.Tulsi Ram, Sh. Charanjit Singh, Sh. Deepak Singh Sh Baljinder Singh, Ajaib Singh, Jaswinder Singh, Daljit Singh, Anil Kumar, Sh Ravinder Singh
PS 39	Divn., Electrical Department.	-do-	-do-	Sh. Baljinder Singh Sh. Prem lal
PS 36	98725-11147 (Mob)	-do-	-do-	Sh.Tulsi Ram Sh.Charanjit singh Sh. Deepak Singh Sh. Baljinder singh

SUB DIVISION-CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh.Surinder Singh Khandola, Executive Engr, Electrical Divn., Electrical Department.	Sh Kuldeep Singh, SDE-I (Acting) 98725-11144	Sh.A.S.Minhas, #3511,Sec-71, Mohali. 2226102(R) 98146-61022 (Repatriated)	ShBalbir singh Sh Rajinder Singh Sh. Gurmeet Singh Sh. Parkinder pal singh
PS North	98725-11147	-do-	-do-	-do-
PS West		-do-	-do-	-do-

MC-FIRE WING

SUB DIVISION- EAST

Police Station	Nodal officer	Supporting staff
PS East	Sh.S.K.Gosain	LFM-1 Fireman-2 Driver-1
PS 19	-do-	-do-
PS Ind area	-do-	-do-
PS 31	-do-	-do-
PS Manimajra	-do-	-do-

SUB DIVISION- SOUTH

Police Station	Nodal Officer	Supporting staff
PS South	Sh.M.L.Sharma	LFM-1 Fireman-2 Driver-1
PS 47	-do-	-do-
PS 36	-do-	-do-

SUB DIVISION- CENTRAL

Police Station	Nodal officer	Supporting Staff
PS Central	Sh. M.L. Sharma	LFM-1 Fireman-2 Driver-1
PS North	-do-	-do-
PS West	-do-	-do-

TRANSPORT

Nodal officer	Supporting Staff
General Manager (Traffic), Ph. 2679002, 2679003	C.D. Negi, Station Supervisor Sh.Ganesh Ram, Sr.Asstt (Incharge Computer Centre)

ENGG- PUBLIC HEALTH WING

SUB DIVISION-EAST

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS East	Sh. Rajinder Singh, Executive Engineer, P.H Divn. No. 3. 2740648 (O) 9872511227(M)	Sh. M.L.Verma 2740648 (O) 75081-85440 (M)	Sh. Amit Gupta 75081-85470(M)	Plumber-4 Helper-4
PS 19	-do-	-do-	-do-	-do-
PS Ind Area	-do-	-do-	Sh. Vinod Kumar 7508185464(M)	Plumber-3 Helper-3
PS 34	-do-	Sh. Mukesh Kapoor 7508185442(M)	Sh. Inderjit Singh (M)7508185460	-do-
PS Mani Majra	-do-	-do-	Sh. Vinod Kumar 7508185464	-do-

SUB DIVISION-SOUTH

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS South	Sh. Sh Inderjeet Singh Gulati, Executive Engineer, Road Divn No. 01 9872937600	Sh. Sh Arjeet Singh, Executive Engg, Road Divn No. 3, MC, Chandigarh 9872511138	Sh. Sukhraj Singh 7508185457 (M)	Elect-1 Fitter-1 Helper-4
PS 39	-do-	-do-	Sh. S.P. Singh 7508185601	-do-
PS 36	-do-	-do-	Sh. Inderjit Singh 7508185470 (M)	Mason-1 Plumber-6 Helper-4

SUB DIVISION-CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Sub divisional Engineer	AE/Junior Engineer	Field Staff
PS Central	Sh. Rajinder Singh, Executive engineer, P.H Divn. No. 3. 2740648 (O) 9872511227(M)	Sh. M.L.Verma 2740648 (O) 7508185440 (M)	Sh. Amit Gupta 75081-85470(M)	Sh.Om Prakash Sh.Navjot Singh
PS North	-do-	-do-	Sh.Sukhraj Singh 7508185457(M)	-do-
PS West	-do-	-do-	Sh.Ishor Saini 7508185450(M)	Mason-1 Plumber-6 Helper-6

ENGG-ELECTRICITY WING
SUB DIVISION-EAST

Police Station	Nodal Officer	Supporting Staff		
		Executive Engineer	Assistant Engineer	Field Staff/ Complaint Centre Phone No.
PS East	Er. G.S. Mast, Executive Engineer, Electricity Operation, Division No.3, Sec-19-B, Chd 8054104513	Er. G.S. Mast, Executive Engineer, Electricity Operation, Division No.3, Sec-19-B, Chd 8054104513	Er. Balbir Singh Electricity Operation, Sub division No.2, Sector 10-A, Chandigarh 8054104502	20 Nos/ 9876018702
PS 19		Er. Deepak Bansal, Executive Engineer, Electricity Operation Division No.3, Sec-19-B, Chd 8054104101	Er. Rakesh Mahajan, Electricity Operation Sub Division No.3, Sec-18-A, Chd 8054104503	20 Nos/ 9876018703
PS Ind Area		Er. Sunil Sharma, 805410451, Executive Engineer, Electricity Operation Division No. 2, Indl Area, Ph-1, Chandigarh 8054104511	Er. Vijay Kumar, Electricity Operation, Sub Division No.5, Indl. Area Ph-1, Chandigarh 8054104505	20 Nos/ 9876018705
PS 31		-do-	Er. Vijay Kumar, Electricity Operation, Sub Division No.5, Indl.Area Ph-1, Chandigarh 8054104505	20 Nos/ 9876018705
PS Mani Majra		-do-	Er Ravinder Singh, Electricity Operation, Sub Division No. 8, backside Motor Market, Manimajra 8054104508	20 Nos/ 9876018708

SUB DIVISION- CENTRAL

Police Station	Nodal Officer	Supporting Staff		
		Executive Engineer	Assistant Engineer	Field Staff/ Complaint Centre Phone No.
PS/Central	Er. G.S. Mast, Executive Engineer, Electricity Operation, Division No.3, Sec-19-B, Chd 8054104513	Er. G.S. Mast, Executive Engineer, Electricity Operation, Division No.3, Sec-19-B, Chd 8054104513	Er. Madan Mohan, Electricity Operation Sub Division No.4, Sec-15-A, Chd 8054104504	20 Nos/ 9876018704
PS/North		-do-	Er. Balbir Singh, Electricity Operation Sub Division No.2, Sec-10-A, Chd 8054104502	20 Nos/ 9876018702
PS/West		-do-	-do-	20 Nos/ 9876018702

SUB DIVISION-SOUTH

Police Station	Nodal Officer	Supporting Staff		
		Executive Engineer	Assistant Engineer	Field Staff/ Complaint Centre Phone No.
PS South	Er. G.S. Mast, Executive Engineer, Electricity Operation, Division No.3, Sec-19-B, Chd 8054104513	Er. Deepak Bansal, Executive Engineer, Electricity Operation Division No.3, Sec-19-B, Chd 8054104101	Er. Dalip Kumar, Electricity Operation Sub Division No.7, Sec-35-A, Chd 8054104507	20 Nos/ 9876018707
PS/Sec.39		Er. S.C. Saini, Additional Superintending Engineer, Electricity Operation Division No. 4, Sector 34-C, Chandigarh 8054104521	Er. Raja Singh, 8054104507, Electricity Operation, Sub Division No. 10, Sector- 40 B, Chandigarh	20 Nos/ 9876018710
PS/Sec-36		Er. Deepak Bansal, Executive Engineer, Electricity Operation Division No.3, Sec-19-B, Chd 8054104101	Er. Dali Kumar, Electricity Operation Sub Division No.7, Sec-35-A, Chd 8054104507	20 Nos/ 9876018707

TELECOM

SUB DIVISION-EAST, SOUTH, CENTRAL

Nodal officer	Supporting Staff
Sh. Surinder Singh 9463304660 (M), 2701701(O)	2 SDE Other Supporting Staff

HEALTH SERVICES

Chairman:-Dr. Vandana Gupta, Medical Superintendent-cum-Jt. DH&FW

Sub Division	Nodal Officer	Doctors (Members)	Supporting Staff
East, South,& Central	Dr. G. Dewan, Deputy Medical Superintendent, Govt. Multi – Speciality Hospital, Sector 16, Chd. 2700260(o), 7837318503, 9876027113	Dr. Deepak Bakshi, MO I/c Casualty 7837318513 Dr. V.K. Nagpal SMO I/c Ortho 7837318507 Dr. K.S. Bal SMO I/C Surgery 7837318504 Dr. Charu Singla I/c Anesthesia 7837318512 Ms Satwinder Kaur Nursing Superintendent 7837318520	Sh. Raj Kumar, Jr. Asst. 8289035935 8289035935 Mrs. Kailash Rana Steno to DMS 2768103,9915032014 Pharmacist Medicine Store 7837318523 Store Keeper (General) 7837318522 Store Keeper (Line & Gas) 7837318524 Sanitary Inspector 9876062325 Receptions /Hospital enquiry 7837318510, 102, 2782457 Dietician 9501578855 Security Incharge 9417371829

MEDIA

Print Media: Newspapers

Languages

Dailies

English New Papers		EPABX No.
1	The Tribune	0172-2655066-72,5073681-4
2	The Time of India	0172-6624140
3	The Hindustan Time	0172-5050600,5097611
4	Indian Express	0172-5024401-20
5	The Pioneer	0172-4606592
6	The Hindu	0172-2584327
7	Financial World	0172-5004700
8	The Economic Times	0172-4028147
9	Financial Express	0172-5024401-20
10	Yug Marg	0172-4647043
Hindi		EPABX No.
1	Dainik Jagran	0172-2784632
2	Dainik Bhaskar	0172-5062001
3	Punjab Kesri	0172-3071775-92
4	Amar Ujala	0172-2591432
5	Dainik Tribune	0172-3050216
6	Ajit Smachar	0172-705215
7	Divya Himachal	0172-2584412
8	Hindustan	0172-5065321,8968212129
9	Arth Parkash	0172-2652743
10	Sampurn Coverage	0172-5002404
Punjabi		EPABX No.
1	Spokesman	0172-2542033
2	Jagbani	0172-3071779
3	Punjabi Tribune	0172-3050237
4	Ajit	0172-706506
5	Desh Sevak	0172-2657256-57
6	Chardikala	0172-5009265
7	Akali Patrika	0181-5008586
AIR Station		0172-2623844
Doordarshan Kendra		0172-2687989
NIC		0172-2740706

Local News Channels	
Siti Channel	N.A
Prime Channel	N.A
Sky Channel	N.A

• **MAJOR NON- GOVERNMENT ORGANIZATIONS**

Sr. No.	Name of Society	Name of Chief functionary	Telephone No.
Women and Children Welfare			
1	Association for Social Health in India (ASHI)-Savera	Mrs. Manjeet Sodhi	2662709
2.	Bharat Sewak Samaj, Sector 24, Chandigarh.	Sh.Brij Mohan Khanna	2710130
3.	Chandigarh Welfare Society (Regd)	Sh. M.P.Verma	
4.	Citizen Association for Relief, Education and Service (CARES) #1078/2, Sector 39-B, Chandigarh.	Col. D.S. Ahluwalia (Retd)	2691922
5.	Indian Council for Child Welfare UT Branch, Bal Bhawan, Secto 23-B,Chd	Sh.V.K.Garg, Organising Secy.	2704573 2721858 9988455418
6.	Indian Council for Child Welfare Branch, Punjab	Mrs. Jasbinder Kaur Grewal	2651054
7.	Syrval of young and Adolescent (SURYA) Foundation, # 3139, Sector 28-D, Chandigarh.	Dr. Ramnik Sharma	2655661
8.	Women and Child Care society, 621, Sector 45-B, Chandigarh.	Dr. M.L.Saini	3923038 2692912
9.	Youth Technical Training Society, Room No. 13, Karuna Sadan, Sec11, Chandigarh.	Col. Ravi Bedi	27473329, 2747401, 9316353800
DISABILITY SECTOR			
10.	Cheshire Home India # 341/21A, Chandigarh	Maj. Gen. Amarjit Singh Kehlon (Retd)	2541364 2742697 (R) 9872511206
11.	Indian National Portage Association, Karuna Sadan, Sec11, Chandigarh.	Dr. Tehal Kohli	2600951
12.	Sadhana Society for the Mentally Handicapped, Raen Basera Building, Manimajra, Chandigarh.	Mrs. Bhawna Tayal	2737726
13.	Sahayta Charitable Welfare Organization, Sahayata	Mrs. Neelu Tuli	2722454

	Cancer Kendra, 1257, Sector-15-B, Chandigarh		
14.	Society for the care of the blind, Sec 26, Chandigarh	Sh. K.R.Sood	2791154 2793958
15.	Society for the rehabilitation of mentally challenged, Sector 36-C, Chandigarh.	Mrs. Promilla Chandra Mohan	2672704
16.	Vatika High School for Deaf & Dumb Sec 19, Chandigarh.	Mrs. Kamal B.J. Singh	2549101 (O) 2710060 (R)
17.	Prayaas Rehabilitation Centre for physically handicapped children	Dr. BNS Walia	9316135608
HEALTH SECTOR			
18.	Health Care India	Dr. Brig M.L.Kataria	2623365 2547748
19.	Society for service to voluntary agencies north (SOSVA). R.No 18-20, 1 st Floor, Kaurna Sadan, Sec 11, Chandigarh.	Sh. P.H. Vaishnav	2744197 2746258
20.	Society for Social health (SOFOSH)	Mrs. Kamaljit Saini	2627310
21.	The Environment Society of India	Sh. S.K.Sharma	2746832
22.	Voluntary Health Association of Punjab	Sh.Manmohan Sharma	27423557 5016299
MISCELLANEOUS			
23.	All India Rajput Students' Aid Society, Sector 25, Chandigarh.		2272986
24.	National Association for the Blind, India, Karuna Sadan, Sector 11, Chandigarh.		94170-58277 4675277
25.	Holiday Home Society, Sector 24-B, Chandigarh.		2715850
26.	Society for Rehabilitation of Mentally Challenged, Sector 36-C, Chandigarh.		2672704
27.	Citizens Welfare Association, 2343, Sector 22-C, Chandigarh		2700998
28.	K.L.Vishvas Sewa Kendra, # 1586, Main Bazar, Manimajra, Chandigarh.		2584991 2585991

29.	Gandhi Samark Bhawan, Sec 16-A, Chandigarh.		2770976
30.	Prayatan, Half Way Home, Sec 47, Chandigarh.		2633667
31.	Yuvsatta, 12 Karuna Sadan, Sec 11, Chandigarh.		3298551
32.	Chandigarh Senior Citizens Association, Room No. 9, Karuna Sadan, Sec 11, Chandigarh.		2748611
33.	Capital Christian Welfare Association, Samapark Centre, 1 st Floor, VPO Behlana, Chandigarh.		2637144
34.	Servants of People Society, Lajpat Rai Bhawan, Sec 15, Chandigarh.		2780611
35.	Humanity Welfare Society, #152, Sec 9- B Chandigarh.		
36.	Bal Niketan Society, Sec 15, Chandigarh.		
37.	Holiday Home Society, Indira Holiday Home, Sec 24, Chandigarh.		2715850
38.	Sadhna Society for Mentally Handicapped, Raen Basera Building, Manimajra, Chandigarh.		2737726
39.	Don Bosco Sawera, #3958- 2959, Sec 47-D, Chandigarh.		2783789
40.	Society for the Care of Blind, Sec 26, Chandigarh.		2791154
41.	Don Bosco Navjeevan Centre, Sec 24- B, Chandigarh.	Fr. Sebastian Jose	2711537
42.	Durga Dass Foundation	Mr. Atul Khanna	2713274
43.	Indian Red Cross Society	Deputy Commissioner	2744188
44.	Lions Club Chandigarh central	Sh. Sanjeev Gupta`	2581708-9
45.	SEWA Bharti (Regd).	Sh.Kapur Chand Agarwal	2651306 2265495 9216525601 2714879

LIST OF HAZARDOUS INDUSTRIAL UNITS

Sr. No.	Name & Address of MAH Unit	Nature of Industry	Name & Ph. No. of the Contact Person
1.	M/s Bhushan Power & Steel Limited, Plot No. 3, Indl. Area-Ph-I, Chandigarh.	Manufacturing of steel.	Sh. R.P.Goel Ph.3911700-3,3911712 Fax-3911704
2.	M/s Bhushan Power & Steel Limited, Plot No. 71, Indl. Area Ph-1, Chandigarh.	Manufacturing of Alloy steel.	Sh. R.P.Goel Ph.3911700-3,3911712 Fax-3911704
3.	M/s Bhushan Power & Steel Limited, Plot No. 141-142, Indl. Area Ph-1, Chandigarh	Manufacturing of Cold Rolled Sheets.	Sh. R.P.Goel Ph.3911700-3,3911712 Fax-3911704
4.	M/s Track Innovation (India), Pvt. Ltd., Near Railway station, Chandigarh.	Manufacturing of Cement Railway Track.	Sh. G.P.S Gill Ph.0172-2731947- Mob.9417007947 Fax-0172-2731950
5.	M/s Avon Ispat & Power Ltd., Plot No. 69, Indl. Area, Phase-I, Chandigarh.	Manufacturing of Bicycles Rims.	Sh. H.C. Sharma Ph.99148-33059
6.	M/s Groz Beckert Asia Pvt. Ltd. Plot no. 133-134, Indl, Area Ph-1 Chandigarh.	Manufacturing of Hosiery & Knitting machines needles and latches for hosiery needles.	Sh. Upender Kumar Singla Ph -0172-2651816 9814016609
7.	M/s A.K. Steels, Plot no.127, Indl. Area, Phase-I, Chandigarh.	Manufacturing of Alloy Steel Casting	Sh. Ramesh Dhiman Ph.0172-2651816 9814016609
8.	M/s Indian Oil Corporation Bulk Depot, sec-25, west, Chandigarh	Oil Depot	Neighbor of M/s Bharat Petroleum Depot, Sh. Niranjan Singh has inform that this Depot closed about three years.
9.	M/s Bharat Petroleum Corpn. Plot No 25, Bulk Depot, Chandigarh.	Oil Depot	Sh. Niranjan Singh, Incharge has inform that this Depot closed down its activity since two years.

LPG DISTRIBUTORS

Sr. No.	Name	Phone No.	Mobile No.
1.	Sun Rise Gas, SCO-179, Sec -7B (Back Side)	2790845	9872900047
2.	Bindlish Gas, SCO-184, Top Floor, Sec 7	2793649	9814707496
3.	Capital Gas, SCO- 179-80, Madhya Marg. Sec-8	5088772,2781535	9815991270
4.	Kang Gas, Booth-69, Sec-8 C	5003459	9872900047
5.	Parveen Gas, SCO-33, Back Side, Sec -11	2746958	9872900046
6.	Navdeepmala, Booth-79, Sec-16 D	2771311	9316293917
7.	Ramchandra & Sons, Booth -2, Sec - 30 C	2650888,2650999	9417725789
8.	Bhatia Gas, SCO-1025, Back Side, Sec-22 B	5003413,2705788	9417770661
9.	Shivalik Gas, SCO-36, Back Side, M Marg. S-26	2792073	9217935173
10	Premier Gas, SCO-13, Sec-27 C	2650889	9217489099
11	Nirmal Gas, SCO- 54, Sec-30	2655747	9814012235
12	Punia Gas, SCO-372, Sec-32 D	2660797,2603224	9814211971
13	Super Gas, Shop-66/10, Bear Chhaki, Vill- Attawa	2603260, 2604132	9463392008
14	City Gas, SCO-171, Sec 37 C	2692171,2693343	9876541402
15	Parnam Gas, SCO-388, Back Side, Sec-37 D	2690608,2690609	9814670100
16	Jai Gas, SCO-76, First Floor, Sec- 40C	2692588,2696582	9780750830
17	Sunshine Gas, SCO-89, Sec-44 C	2605270,2664971	9814600124
18	Sukh Gas, Shop-37, Kesho Ram Complex, Vill- Burail.	2603547,2606123	9872283333

19	Sabhyarwal Gas,, SCO-55, F Floor, Sec -47 C	2631978,2633580	9815011570
20	Arunita Gas, Booth-21, Sec 47 C	2661990	9872900047
21	Farid Gas, SCO-213, Moter Mkt, Manimajra.	2734064,2734684	9876704243
22	Mani Majra Gas, SCO-82, NAC, Manimajra.	2734733	9815500543
23	Chandigarh Gas, SCO-2, Back Side, Sec-17 E	2702925,2702926	9814003737
24	Durga Gas, SCO-74, First Floor, Sec-38 C	2697767	9815903141

LIST OF MS/HSD DISPENSING PUMPS

1. M/s IBP Auto Service IBP COCO pump, Sec-33, Chandigarh.
2. M/s IBP Auto Services, IBP COCO pump, Sec-42-C, Chandigarh.
3. M/s Shiva Filling Station, IOC dealer, Sec-44-C, Chandigarh.
4. M/s Pirzada enterprises, IOC dealer, Sec-55-A, Chandigarh.
5. IGP-Police Lines, Sec-26, Chandigarh.
6. Haryana Roadways, IOC dealer, I.Area-I, Chandigarh.
7. Punjab Roadways, IOC dealer, Iarea-I, Chandigarh.
8. Pepsu Roadways, Iarea-II, Chandigarh.
9. CTU Depot-I, Iarea-II, Chandigarh.
10. CTU Depot-II, I.Area-I, Chandigarh.
11. CTU Depot-III, Dadumajra, Chandigarh.

List of UT RO –Indian Oil Corporation Limited.

Sr. No	Name and Address of Indian Oil Corporation Limited	Contact Person	Phone No.
1	M/s Allied Service Station, IOC dealer, Sec-34-B, Chandigarh.	Anil Sood	98140-25117
2	M/s Capital Motors Store, IOC dealer, Sec-26, Chandigarh.	Amritapl Singh	9988006695
3	M/s Chandigarh Automobiles, IOC dealer, Sec-27-B, Chandigarh.	Gurdial Bhasim	98140-10040
4	M/s city Service Centre, IOC dealer, Sec-37-A, Chandigarh.	Raj Kumar	93161-05571
5	M/s Gurdial Singh & Sons, IOC dealer, Sec-22, Chd.	Parmajit Singh	95015-02325
6	M/s Kapoor Service, IOC dealer, Sec21-D, Chandigarh.	Harjit Singh	98155-55515
7	M/s Kay Tee Service Station IOC dealer, Sec-17, Chandigarh.	Sandeep Bhasin	98145-12005
8	M/s Pathania Service Station, IOC dealer Sector-34-B, Chandigarh.	S.S.Pathania	9317970008
9	M/s Sidhu Service Station, IOC dealer, Sector-7-C, Chandigarh.	Manider Singh	9814007071
10	M/s Sukhna Automobiles, IOC dealer, Sec-28 C, Chandigarh.	Amanpreet Singh	98551-09600
11	M/s Sukhana Automobiles (ADHOC), Sec-33 Chandigarh.	Amanpreet Singh	98551-09600
12	M/s CITCO LPG & Petrol Station, Sec-38, Chandigarh.	Hawa Singh	98888-12920
13	M/s CITCO Petrol Station, BPC dealer, Sec-56, Chandigarh	Piar Singh	98887-87975
14	M/s COCO-Sector44, IOC dealer, , Chandigarh.	Ishan Singh	99154-51989
15	M/s Karan Filling & Service Station, IBP dealer, Sec-52, Chandigarh.	Gari Cheema	99150-99900
16	M/s Mann Filling Station, IOC dealer, Sec-49,	Naveen Mann	94172-12123

	Chandigarh.		
17	M/s Mann Filling Station, (ADHOC),IOC dealer, Sec-46, Chandigarh.	Naveen Mann	94172-12123
18	M/s Pirzada Enterprises, Sector 55 A, Chandigarh.	Yadvinder Pirzada	94172-18966
19	M/s Sangam Filling Station, IOC dealer, Sec-46, Chandigarh.	Amarjit Randhawa	9878909878
20	M/s Tiwana Service Station, IBP dealer, Sec-43- B, Chandigarh	Sukvir Kaur	98140-10748

List of HPC

Sr.No	Name and Address of HPC	Phone No.
1	M/s OBEROI Motors, HPC dealer, Sec-10-D, Chandigarh.	98141-06633,0172-2742438
2	M/s Modern Automobile Engg., Sec-15, HPC dealer, Chandigarh.	9815086426,0172-5045525
3	M/s Bhagat Singh & Co., HPC dealer, M.Marg, Sec-17, Chandigarh.	9988428035
4	M/s Happy Service Station, HPC dealer, M.Mard, Sec-17, Chandigarh.	9888442687
5	M/s Malhotra & Co., HPC dealer, M.Marg, Sec-19, Chd.	0172-5079128,2894504
6	M/s Rockrose Auto Centre, Sec-20-C, Chandigarh.	9814209801,0172-2708378
7	M/s Sud Traders, HPC dealer, Sec-22, Chandigarh.	98727-24489,0172-4657769
8	M/s Vishal Service Station, HPC dealer, Sec-31, Chandigarh.	93161-30904
9	M/s Amar Service Station, HPC dealer, Sec-39-D, Chandigarh	98159-93585,0172-2693585
10	M/s National Petroways HPC dealer, Sec-52, Chandigarh.	98886-29539
11	M/s Manimajra Service Centre, Pocket 4 & 5, HPC dealer, Manimajra.	98140-04283,0172-2734483

List of BPC

Sr.No	Name and Address of BPC	Phone No.
1	M/s Banveet Service Station, BPC dealer, Manimajra, Chandigarh.	98140-92711
2	M/s Auto Service Station, BPC dealer, Sector-4, Chandigarh	98147-40064
3	M/s Bhuular Automobile Service, BPC, Sec-41-C, Chandigarh.	0172-2626542
4	M/s Kaushal Service Station, BPC dealer, I.Area, Phase-II, Chandigarh.	0172-2652612
5	M/s Braham Sarup & Sons, BPC dealer, Sec-28-B, Chandigarh.	0172-5001327
6	M/s Emm Pee Motors, BPC dealer, Sec-22-C, Chandigarh.	0172-4610444
7	M/s National Service Centre, BPC dealer, Sec-17-E, Chandigarh.	0172-5026976
8	M/s CITCO Petrol Station Chandigarh.	0172-4644481
9	M/s BP-21, BPC dealer, Sec-21, Chandigarh	0172-2710584
10	M/s Shyama Shyam filling Station, BPC dealer, Sec-35, Chandigarh.	0172-265401

SIREN LOCATIONS

1. Punjab and Haryana High Court, Chandigarh.
2. Government Girls, Sr. Sec. School, Sector-8, Chandigarh.
3. P.G.I., Sector-12, Chandigarh.
4. Central State Library, Sector-17, Chandigarh.
5. Police Station, Sector-19, Chandigarh.
6. Government Higher Secondary School, Sec-20, Chandigarh.
7. Zila Sainik Welfare Board, Sec-21-D, Chandigarh.
8. Govt. Sr. Sec. School, Sec-22, Chandigarh.
9. Government Sr. Secondary School, Sec-23, Chandigarh.
10. Central Polytechnic, Sec-26, Chandigarh.
11. Government Dispensary, Manimajra.
12. D.A.V. College for Women, Sec-36, Chandigarh.
13. Government High School, Sec-33, Chandigarh.
14. Government College for Boys, Sec-40, Chandigarh.
15. Government College for Girls, Sec-42, Chd.
16. Government High School, Sec-44, Chd.
17. Government High School, Sec-46, Chd.
18. U.T. Secretariat Building (Delux Building).
19. Govt. Sr. Sec. School, Sec-38 (West), Chandigarh.
20. Govt. Sr. Sec. School, Ram Darbar, Phase-II, Chandigarh.

LIST OF KEROSENE DEALERS

Sr.No.	Name of the Dealer	Mobile NO.
1.	Ramnik Sales Corporation – 15	9566883009
2.	Amar Nath Pushpinder Kumar – 20	9814511395
3.	Gurdev Trading Company -20	-----
4.	Aman Sales – 26	9646526048
5.	Swadeshi Enterprises – 29	2651220, 9876644577
6.	Parkash Trading Company -40	9417852804
7.	Kulwant Sales -45	9417406914
8.	Ambedkar Sales Corporation – Manimajra	9256996013
9.	Kuldeep Sales – Mouli Jagran	9976428777
10.	A K Sales, Sector-37	9988822687

LIST OF THE FAIR PRICE SHOPS

-RATION DEPOTS IN THE JURISDICTION OF SDM (EAST)

S NO.	NAME OF DEPOT & ADDRESS	MOBILE NO.
1	Dharam Pal, Om Parkash, Sec-18	9023172235
2	Arihant Provisional Store, Sec-25	9888129381
3	Mool Chand Jagdish Rai, Sec-25	9888447718
4	Anju General Store, Sec-26	9815928775
5	Mahesh General Store, Sec-26	9888166962
6	Aman Karyana Store, Sec-41	9855446784
7	Nikka Karyana Store, Attawa	9915626460
8	Mishra Provisional Store, LC-4 Ind. Area	9417323890
9	Bajaj Provisional Store, LC-4, Ind. Area	9855031373
10	Heera Devi, LC-4	9780436732
11	Behal Prov. Store, LC-4	9888059898
12	Kanhiya Lal, LC-4	8146156684
13	Baladin Karyana Store, LC-5	9872921776
14	Vinod Karyana Store, LC-5	9780681679
15	Surinder Karyana Store, LC-5	9914427199
16	Pawan Karyana Store, LC-5	9815433531
17	Amrit Prov. Store, LC-5	9872533170
18	Happy Prov. Store, LC-5	9878902046
19	Sood General Store, Kajheri	8283943122
20	Basant Karyana Store, Kajheri	9878264664
21	Roop Narayan, Palsora	9988182225
22	Garg Karyana Store, Palsora	9872321057
23	Vipan Karyana Store, Mauli	9888935592
24	Thakur Kr. Store, Mauli	8699825509
25	Dilshad Karyana Store, Indra Colony, MM	9316000702
26	Sunil Karyana Store, MM	9915108572
27	Akhilq Karyana Store, M Majra	8872704581
28	Sharam Kr. Store, MM	9888009470
29	Sohan Lal, Dariya	9988853220

30	Daljeet Singh, Behlana	9988440030
31	Guru Kirpa Karyana Store, Kaimbwala	9988161415
32	Sandhu Departmental Store,Dhanas	9878566662
33	Mittal Prov. Store, Dhanas	9814085927
34	Yadav Gen, Store, Dhanas	9988590925
35	Amar Kr. Store, Hallomajra	9915228209
36	Som Nath Karyana Store, Hallomajra	9815060444
37	S.P.Brothers, Kishangarh	9815769059
38	Gurpreet Singh, Raipur Khurd	9814075321
39	Chanchal Karyana Store, Maloya	9888406554,9888314626(C)
40	General Prov. Store, Maloya	9646451104
41	Chauhan Prov. Store, Dadumajra.	9888886341
42	Kalia Karyana Store, Faidan	9815612996
43	Tiwari Karyana Store, Ram Darbar	9417427142, 9217509491
44	Madhu General Store, Ram Darbar	9855285156
45	Aman Karyana Store, Burail	9888254967
46	Super Deptt. Store, Burail	9888490005
47	Area attached with Mobile Van 7601	Basher-9876726508
48	Area attached with Mobile Van 7602	Ram Dass-9814356936
49	Eknor Kary. Store Sec-37 D	9464894699
50	S.S.Gen.Store, Super Mkt. Sec-46	9814924272
51	Kaushik Kary. Store, Sec-41D	9888802400
52	Dhawan Prov Store, S.No161, Badheri	9780225376
53	Aggarwal Kary, S.No-2, Kajheri	9814952155
54	Panday Prov Store, S.No-9, Kajheri	9815148663
55	Suresh Kary. Store, S.No-485, Maloya	9417860552
56	Akash Gupta Bartan Store, DMC	9988366309
57	Preeti Gen, Store, Hallomajra	9888441090
58	Om Gen, Store Hallomajra	9356661666
59	Anil Kary. Store, Mouli Jagran	9417524610
60	Santosh Gen. Store, Khuda Ali Sher	9463217882

RATION DEPOTS IN THE JURISDICTION OF SDM (SOUTH)

S NO.	NAME OF DEPOT	ADDRESS
1.	Happy Karyana Store	Labor Colony.No.5,Burail
2.	Amrit Provision Store	K-1801, LC-05
3.	Surinder Karyana Store	630, LC-05
4.	Kharaiti Karyana Store	A-374, LC-05
5.	Verma Karyana Store	K-152, LC-05
6.	Vinod Karyana Store	Labor Colony.No.5,Burail
7.	Baladeen Karyana Store	412-A, LC-05
8.	Pawan Karyana Store	Labor Colony.No.5,Burail
9.	Sood General Store	9, Village Kajheri
10.	Basant Lal Gupta Karyana Store	12, Village Kajheri
11.	Kamla Devi Karyana Store	97, Village Kajheri
12.	Chauhan Prov. Store	1, Daddu Majra
13.	Aman Karyana Store	551, Burail
14.	Chanchal Karyana Store	79, Dairy Complex, Maloya
15.	Roop Narain	150/4, Village Palsora
16.	Garg Karyana Store	229, Village Palsora

RATION DEPOTS IN THE JURISDICTION OF SDM (CENTRAL)

S NO.	NAME OF DEPOT	ADDRESS
1.	Attri Karyana Store	1, Khudda Jassu
2.	Happy Karyana Store, Sarangpur	220, Village Sarangpur
3.	Sandhu Departmental Store	Shop No.-3, Dhanas
4.	Guru Kripa Karyana Store	Shop No.- 95, Village Kaimbala
5.	Mool Chand Karyana Store	24, Sector-25
6.	Arihant Karyana Store	Shop No-01, Sector-25

LIST OF AMBULANCES

Sr. No.	Name of Source	No. Of Ambulance	Mobile No.
1.	Red Cross, UT, Chd.	07	2744188,2745681
2.	Sewa Bharti.	01	2654935
3.	PGI	06	2755505,2755514
4.	General Hospital, Sec-16.	07	2700273,2700255
5.	GMC, Sec-32, Hospital.	04	26665253
6.	Gurudwara, Sec-34 (Helpline).	03	9814017102,,9814000110
7.	Santokh Nurshing Home	01	2691841,8558866846
8.	Mukat Hospital (Pvt.), Sec-34.	03	0172-4344444
9.	INSCOL Pvt., Sec-34	02	0172-508883
10.	Brig. M.L. Kataria, Sec-15.	01	2547748
11.	Punjab Red Cross, M.Marg, Sec-16, Chandigarh.	03	2780827
12.	Haryana Red Cross, M.Marg	01	2543889
13.	Police Deptt. UT, Chd.Sec-26, Police Line.	02	0172-2749194

Chandigarh Transport Association (Regd.)
Transport House, Sec 26, Chandigarh-160019, Phone No. 0172-5006400

Sr. No.	Member ship No.	Name of Transport	Address	Contact Person	Telephone No.	Mobile No.
1.	1	M/S Associated Road Carriers Ltd.,	5, Tpt area, Sec. 26, Chd. 160019	Sh. Zile Singh	5006722, 2792740, 2792482	9316134307
2.	2	M/S Adrash Roadlines	312, BDC Colony opp. Plot No. 22 TPT Area, Sec. 26 Chd.	Sh. Darshan Lal	5006038 4617638	9876009101
3.	195	M/S All India Roadways (Regd.)	312, Opp, Plt No. 23 TPT Area, Sec. 26 Chd.	Mr. Shamsher Singh Rana	5006174 5006074	9815530574
4.	203	M/S All India Transport Carriers	28, Transport Area, Sec. 26, Chd.-19	Mr. Balraj Sharam	9357465317 9357565317	9318065317
5.	4	M/S A.D. Roadlines	9, Tpt, Area, Sec 26, Chd.19	Sh. Arun Kumar	2792449, 2793922	9501012112
6.	200	M/S Azad Transport Organization	26, Transport Area, Sec 26, Chd.-19	Mr. Azad Singh	3247577	9316985205
7.	5	M/S The Ambala Ex-Service man Transport Society Ltd.	18, Tpt Area, Sec 26, Chd-19	Sh. Umrao Singh	2707512 2791840	9888178397
8.	140	M/S Aaryan Transport Co.	42, New Timber Market, Sec 26, Chd	Sh. Amit Sharma	4645842 5006070	9815598998
9.	108	M/S Ashish Roadways Pvt. Ltd.	5, Tpt Area, Sec 26, Chd-19	Sh. A.P. Sharma	2792453 3072753 5006232	9316065111
10.	113	M/S Ashok Truck Center	271, Motor Market Chd-19	Sh. Ashok Kumar	9417062080	9216162080
11.	8	M/S Ashok Goods Carriers.	8, Transport Area, Sec 26, Chd-19	Sh. Ashok Kumar	2790996	
12.	131	M/S Akal Purkh TPT.Co.	8, Transport Area, Sec 26, Chd-19	Sh. Hardev Singh	2792815 2791397 5006397	9417012487
13.	7	M/S Anad Roadlines	8, Transport Area, Sec 26, Chd-19	Sh. Satpal Singh	5073324	9317526363
14	9	M/S Bhoruka Logistic Pvt. Ltd.	8, Transport Area, Sec 26, Chd-19	Sh. H.P.Sharma	3260017 3260016 3254604	9356240538

15	10	M/S BIR Transport Company	26, Tpt Area, Sec 26, Chd-19	Sh. Dilbar Singh	4666308, 9814904326	9814024326
16.	12	M/S Bansal Roadways (Regd.)	20, Tpt Area, Sec 26, Chd-19	Sh. Kashmiri Lal	9815095955	9356041755
17.	176	M/S Baluni Cargo Movers	24, Transport Area, Sec 26, Chd-19	Mr. Madhu Sudan	5077723 9216259993	9216817517
18.	177	M/S Balak Road Lines	140, Vill . Dariya, Near Railway Station, Chandigarh.	Mr.Sudershan Kumar	9779839799	9876440491
19.	13	M/S BGFC Movers India Pvt.Ltd.,	Near Durga Nursery, IT Park Road, Chandigarh	Sh.Tara Chand	3251646	9872727848
20.	14	M/S Bombay Golden Transport Company	4, Tpt. Area, Sec-26 Chandigarh-19	Sh. Ganesh Kumar	2790689	9356517594
21.	15	M/S Bombay Gujrat roadlines Pvt.Ltd.,	18, Tpt. Area, Sec-26 Chandigarh-19	Sh. Dilbagh Rana	5088581 5085913 3047610	9814006148
22.	123	M/S Bhalla Roadlines	45, New Timber Market, Sec 26, Chd	Sh. Neeraj Bhalla	4654448 5072628	9316244848
23.	181	M/S Bhole Bhandari Transport Pvt. Ltd.	41, New Timber Market, Sec 26, Chd	Mr. Gaurav Krishan	5006166	9872206366
24.	11	M/S Bombay Delhi Road Carriers	14, Transport Area, Sec 26, Chandigarh	Mr. Dash Raj	5006332 4648332	9041027332
25.	132	M/S Bombay Mukerian TPT.Co.	5,SCF,466 Motar Market, Manimajra (UT), Chandigarh	Mr. Darshan Singh	5073914 3200973	9316064979
26.	160	M/S Bombay Shimla goods TPT Co.	32, New Timber Market, Sec26, Chandigarh	Mr. Akhil Kumar	5088697	9988757111
27	161	M/S Balraj Roadlines	5, Tpt Area, Sec 26, Chandigarh	Mr. Balraj Kadian	5006208	9915770208
28	162	M/S Bombay Punjab Roadlines (Regd.)	312, Opp. Plot No. 22, TPT. Area, Sec 26, Chandigarh	Mr. Kurshid Sheikh	6530201	9316027822
29	17	M/S Chadha Motor Transport Company	17, Tpt Area, Sec 26, Chandigarh -19	Sh. Gurudial Bhasin	2790397 5018924	9814010040
30	18	M/S Citco India Pvt. Ltd.	19, Tpt Area, Sec 26, Chandigarh-19	Sh. Narinder Singh Chadda	2791963 2793224 4611222	9815015185
31	19	M/SCargo Carrier India (Regd.)	6, Tpt Area, Sec 26, Chandigarh-19	Sh. Prince Sharma	2792101 3251443	9316021562, 9316000000
32	20	M/S Chandigarh Interstate Transport Company.	9, Tpt Area, Sec 26, Chandigarh	Sh. Suriender Malik	325660	9357357222

33	143	M/S Capital Transport Corporation	SCF ,29,1 st Floor, Sec 28, Chandigarh	Sh. Abhiraj Goel	9501887766	9216189606
34	21	M/S Chandigarh South Roadways (Regd.)	26, Tpt Area, Sec 26, Chandigarh-19	Sh. Sada ram	5006535	9316028854
35	24	M/S Chandigarh Rourkela Transport Company	5, Tpt Area, Sec 26, Chandigarh	Sh. Ram Lal	5006299	9815427615
36	25	M/C Chandigarh Ranchi Transport Company	5, Tpt Area, Sec 26, Chandigarh	Sh. Sagarmal	5006299	9814476707
37	28	M/S Chandigarh Assam Roadways (Regd.)	312 BDC Colony, Opp, Tpt Area, Sec 26, Chandigarh-19	Sh. Shavinder Sharma	5006159 2792019 2792159	9814032165
38	27	M/S Chandigarh Delhi Transport Co.	26, Transport Area, Sec 26, Chandigarh - 160019	Sh. Aziab Singh	9814303150	9814788547
39	128	M/S Chandigarh Indore Roadlines	37, new Timber Market , Chandigarh	Sh. Sanjeev Diwan	4676444 5006344	9876800444
40	172	M/S Chandigarh Tamilnadu Transport (Regd.)	32, new Timber Market , Chandigarh	Mr. Baldeep Singh	5006885 5006585	9216078385
41	188	M/S Chandigarh Nagpur Roadlines	5, Transport Area, Sec 26, Chandigarh	Mr. Tarlochan Singh	5006262	9417778562
42	135	M/S Choudhary Road Carrier Pvt. Ltd.	20, Transport Area, Sec 26, Chandigarh	Shk. Nasib Chand Choudhary	3917062	9316039166
43	150	M/S Chamba Simla Transport Co.	31, New Timber Market, Tpt Area, Sec 26, Chandigarh	Mr. Avinash Sharma	5089328	9876088811
44	156	M/S Chamba Manali Transport Company	35, New Timber Market, Tpt Area, Sec 26, Chandigarh	Mr. Dheeraj Gupta	5006144	9814204185
45	30	M/S Dashmesh Transport Company	27, Tpt Area, Sec 26, Chandigarh-19	Sh. Jeet Singh	5006077, 4611077	9872972797
46	32	M/S Doaba Transport Company	26, Tpt Area, Sec 26, Chandigarh-19	Sh. Charanjit Singh	2791343 5071695 5006843	9814333843, 9855005171
47	192	M/S Deep Roadways (Regd.)	24, Transport Area, Sec 26, Chandigarh	Mr. Rajinder Singh	5006155	9257300092
48	33	M/S Delhi Shimla Goods Transport Company	6, Tpt Area, Sec 26, Chandigarh-19	Sh. D.R. Sharma	2791461 4637114 4658114	98141431 14 9216300000
49	35	M/S Delhi Himchal goods Carrier	24, Transport Area, Sec 26, Chandigarh-19	Sh. Bhal Singh	2791380 5072745 2790638	9417076545
50	164	M/S Delhi Poona Roadways	5, Tpt Area, Sec 26, Chandigarh	Mr. Sandeep Kumar	5006078	9316506078
51	36	M/S Dhir Road Carrier	5, Tpt Area, Sec 26, Chandigarh-19	Sh. B.K.Dhir	5075300 5075700	9815375100
52	144	M/S DHTC Logistics Ltd.	312, Opp Plot no.22 Transport Area, Sec	Sh. Surender Kumar	3207010	9356396870

			26, Chandigarh			
53	145	M/S DARCL Logistics Ltd.	SCO116, Sec 47C, Chandigarh	Sh. Radha Shyam	01762-316057,58	9316812021
54	34	M/S Delhi U.P, M.P. Transport Co.	24, Tpt Area, Sec 26, Chandigarh 160019	Sh. D.C. Thakur	2790608 2792558	9463413770
55	204	M/S Delhi Hamirpur Transport Co. (R)	14, Transport nagar, Sec 26, Chandigarh	Sh. Keshar Shingh	2793805	9915609151
56	129	M/S Doaba Roadways (CHD)	45, New Timber Market, Sec 26, Chandigarh	Sh. Manpreet Singh	3246573 5006573	9888899957
57	37	M/S Economics Transport Organisation Ltd.,	22, Tpt Area, Sec 26, Chandigarh-19	Sh. M.S. Jakhar	5006910 2790910	93564422843
58	183	M/S Economic Safe Roadways Pvt. Ltd.	5, Transport Area, Sec 26, Chandigarh-19	Mr. Jagdish Sharma	3204838	9316517838
59	38	M/S Eastern Safe Roadways Pvt Ltd.	5, Tpt Area, Sec 26, Chandigarh-19	Sh. Rajesh Sharma	2793294 3048567 5006294	9316067202
60	39	M/S East India Transport Agency Ltd.	4, Tpt Area, Sec 26, Chandigarh	Sh. Sushil Kumar	5006051 2790331	9316134144
61	40	M/S Garcha Goods Transport Company	10 , Kabari Market Ind. Area, Phase-1, Chd 02	Sh. Joginder Singh	2655417 2657524 4641125	9356071503
62	41	M/S Goel Roadways	41, New Timber Market, Sec 26, Chandigarh	Sh. B.L. Sharma	2793433 2793434	9316136367
63	42	M/S Goel Roadways Pvt. Ltd.,	41, New Timber Market, Sec 26, Chandigarh	Sh. R.K Sharma	5088422 4637804	9316093581
64	43	M/S Green Carrier Pvt. Ltd.,	136-140/93 Phase -1 Chandigarh-19	Sh. Vijay Arya	3240962 4612331 2658331	9316869154
65	45	M/S GIR Movers Pvt. Ltd.	Vill. Daria, Makhan Majra Road Near Acc godown U.T	Sh. Kapil Sharma	2655878 2655591	9316102047
66	46	M/S Gill Sandhu Cargo Mover	2, Tpt. Area, Sec-26 Chandigarh.	Sh. Sanjay Kumar	4601647	9316750786
67	126	M/S Golden Highways Goods Carrier (Regd.)	38, New Timber Market, Sec 26, Chandigarh-19	Sh. Davinder Singh	5006569 3292778	9316025207
68	174	M/S Guru Nanak Goods Carrier (Regd)	37, New Timber Market, Sec 26, Chandigarh-19	Mr. Kawaljit Singh	9780875418	9356413019
69	187	M/S Guru Nanak Road Line	321, Opp Plot no.22 Tpt Area, Sec 26, Chandigarh	Mr. Kamal Bagga	5006505	9357706505
70	48	M/S Haryana Punjab Roadlines	4, Tpt. Area, Sec-26 Chandigarh	Sh. Guljar Singh	2790971 2792076	9814666129
71	52	M/S Himachal Motor Transport Company	22, Tpt. Area, Sec-26 Chandigarh	Sh. Mahesh Sharma	2790377 5006577 654537	9216232877

72	53	M/S Hindustan Trucking Company	Booth No. 1. Tpt. Area, Sec-26 Chandigarh	Sh. Subhash Chawal	5006251 2791262	9876610467
73	168	M/S Himalaya Road Transport Co. (Regd.)	24, Tpt. Area, Sec-26 Chandigarh	Mr. Satinder Singh	5016505	9914236123
74	54	M/S Haryana South Roadways	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Dinesh Sharma	2790700 5006120	9356255700
75	115	M/S Haryana Golden Transport Company	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Suresh Kumar	5006746	9888885593
76	117	M/S Himachal Kashmir Goods Transport Company	Opp. Jain Pharma, Near Coal Depo Papsi Godown, Dariya (U.T)	Sh. Ramesh Kumar	2642317 2642318	9272835895
77	179	M/S Himachal UP Goods Carriers	5, Tpt. Area, Sec-26 Chandigarh-19	Mr. Bhupinder Kumar	5018350	9417506235
78	121	M/S Har Simran Transport Company	32, Timber Market, Sec-26 Chandigarh-19	Sh. Balvinder Singh	4628565	9915900065
79	138	M/S Hamirpur Manali Roadways	26, Main Market Railway Station Road, Dariya Chd	Sh. Kuldeep Singh	2637967	9216200267
80	55	M/S Indian Roadways Corporation Ltd.	28, Transport Area, Chandigarh-19	Sh. Inder Singh	9357218010	9357241073
81	56	M/S Indo Arya Central Transport Ltd.	CWC05, Industrial Area, Phase-II, Ramdarbar, Chd	Sh. Arjun Singh	2656641	9988887644
82	57	M/S Indian Freightways	15, Tpt. Area, Sec-26 Chandigarh	Sh. Ramesh Kumar	2793679 3256556	9872654204
83	134	M/S Inland Road Transport Pvt.Ltd.	45, New Timber Market, Sec-26 Chandigarh-19	Sh. Dalbir Singh	3249559	9316093524
84	16	M/S Indian Ex-Service man Transport Company	27, Tpt. Area, Sec-26 Chandigarh-19	Sh. Avtar Singh	5006626 2790626	9417290626 9417800000
85	158	M/S Ind- Nep Transport Service	Makhan Majra Road, Vill Daria, Chandigarh.	Mr. Hum Nath Pandey	9318639901	9316812289
86	122	M/S Jai Ambay Road Carrier	14, Tpt. Area, Sec-26 Chandigarh-19	Sh. Pawan Kumar	5006700 5006701 3028022	9316670224
87	167	M/S Jai Hind Roadways	45, New Timber Market, Sec-26 Chandigarh-19	Mr. Parvesh Kumar Sharma	5006170	9815567586
88	151	M/S Jehlum Roadways	14, New Timber Market, Sec-26 Chandigarh-19	Mr. Sham Lal Sharma	2790773	9417431344
89	165	M/S Jeet Roadways	Makhan Majra Road, Vill Daria, Chandigarh	Mr. Sagarmal Babal	5070091	9920599979
90	17	M/S Kamlesh Bhatia Contractor	Railway Road, Daria, U.T.	Mr. Kamlesh Bhatia	2641597	9815108585

91	196	M/S Kartik Road Lines	308/9, Opp. Plot No. 23, TPT Area, Sec 26, Chd.	Mr. Surender Mawa	6543563	9316005563
92	197	M/S Kinnaur Shimla Freight Carrier (Regd.)	312/1, Bapu Dham Colony, Sec-26 Chandigarh	Mr. Yesh Pal Vij	2575283	9216344871
93	59	M/S Kulu Shimla Goods Transport Company	28, Tpt. Area, Sec-26 Chandigarh-19	Sh. Sukhbir Singh	2791973,5012806	9501000243
94	66	M/S Khudil Roadways (Regd.)	36, New Timber Market, Sec-26 Chandigarh-19	Sh. Sarjent Singh	3261780,4645320,5085320	9357712780
95	124	M/S Khanda Roadways	37, Timber Market, Sec-26 Chandigarh-19	Sh. Raj Singh	5006115, 4628915	9316770015
96	185	M/S Krishna Trailor Company	644, Motor Market Manimajra, Chandigarh	Mr. Kuldeep Singh	6534190	9815413468
97	154	M/S Link Roadways Pvt Ltd.	SCF, 289, F/F Opp. Police Line ,Sec-26 Chandigarh.	Mr. Angrej Singh Virk	5006511	9878530011
98	62	M/S M alik Cargo Carriers	9, Transport , Area, Sec-26 Chandigarh-19	Sh. Inder Malik	2792333 2792555	9814041411
99	147	M/S Manohar Singh & Co.	Both No. 7, Timber Market, Sec-26 Chandigarh-19	Sh. Manohar Singh	5088870	9888083534
100	116	M/S Maharaja Crain Service	Shop No. 10, Tpt, Area, Sec-26 Chandigarh-19	Sh. Baljit Singh	2791169, 2791043	9814014764
101	171	M/S MGTC India Logistic	41, New Timber Market, Sec-26 Chandigarh-19	Mr. Jitender Sharma	5075232 5088422	8054940083
102	64	M/S Nitin Roadline of India Pvt Ltd.	44, Timber Market, Sec-26 Chandigarh-19	Sh. K.K Abrol	5006085 2791826	9814014403
103	22	M/S New Kamal Goods Corgo Carrier (Regd.)	27, Tpt. Area, Sec-26 Chandigarh-19	Sh. Mukesh Kumar	2792538 5003233	8146293473
104	65	M/S Northern Carrier Pvt. Ltd.,	13, Tpt. Area, Sec-26 Chandigarh-19	Sh. Surajbhan Sharma	2793679 3256556	9872654204
105	149	M/S Northern Carrier Pvt. Ltd.,	Plot No.366, Ind. Area, Ph-1, Chandigarh	Sh. Ram Kishan Yadav	5033955	9357221209
106	67	M/S New Shakti Goods Transport Company (Regd.)	4, Tpt. Area, Sec-26 Chandigarh-19	Sh. Surender Sharma	2790192 2791004	9316317019
107	68	M/S Nitco Roadways Ltd.,	25, Tpt. Area, Sec-26 Chandigarh-19	Sh. N.K. Kaushik	2790603 2790955	9417200326
108	70	M/S National Road Carrier	20, Tpt. Area, Sec-26 Chandigarh-19	Sh. Avtar Singh	2790495 2790837	9814123075
109	71	M/S New Suraj Transport Company.	16, Tpt. Area, Sec-26 Chandigarh-19	Sh. Tilak Raj	4614965	9780120382

110	72	M/S Nandan Cargo Carrier	6, Tpt. Area, Sec-26 Chandigarh-19	Sh. A.K. Duggal	2790956 2792101	9316021535
111	74	M/S New Kohali Transport Company	Vill. Hello Majra, U.T. Chandigarh-2	Sh. Ganesh Kumar Shastri	2650440	9872275936
112	75	M/S New Bombay Delhi Road Carrier	24, Tpt. Area, Sec-26 Chandigarh-19	Sh. Bhart Bhusan Labroo	5006589 3044589 5089315	9316136028
113	76	M/S New Prince Roadline & Regd.	Both No. 7, Tpt. Area, Sec-26 Chandigarh-19	Sh. Surjeet Singh	2792292 2792448	9417047725
114	120	M/S New Chaandigarh Gauhati Roadlines	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Jagtar Singh	5003465 5006165	9876341756
115	125	M/S Natioanl Roadlines Corporation	8, Tpt. Area, Sec-26 Chandigarh-19	Sh. S.P.Singh	2790633 5008370	9815511044
116	130	M/S Nirman Goods Carrier	20, Tpt. Area, Sec-26 Chandigarh-19	Sh. Damanbir Singh	5086308,50573 08	9815174005
117	182	M/S Nice Fleet Carriers (Regd.)	5, Tpt. Area, Sec-26 Chandigarh	Mr. Umesh Sharma	3028030	9814176761
118	133	M/S Nav Bharat Goods Carrier	9, Tpt. Area, Sec-26 Chandigarh-19	Sh. Kuldeep Singh	5016591	9501187684
119	186	M/S Orient Logistic	41, New Timber Market, Sec-26 Chandigarh-19	Mr. Nishant Sharma	2550943	9888875576
120	190	M/S Ocean Roadlines	405, New Motor Market, Manimajra, Chandigarh	Mr. Narender Sharma	4008914	9803021595
121	111	M/S Om Roadways	8, Tpt. Area, Sec-26 Chandigarh-19	Sh. Om Parkash	5006069 5017626	9316207172
122	166	M/S Omkara Transport Company	5, Tpt. Area, Sec-26 Chandigarh-19	Mr. Om Prakash Jangid	5006099	9350154841
123	77	M/S P.K. Transport Company	38, Timber Market Sec-26 Chandigarh-19	Sh. Pritam Singh	5006882 4644282	7355703482
124	78	M/S Puri Road Carriers	14, Tpt. Area, Sec-26 Chandigarh-19	Sh. T.L. Puri	2790742 5006200 3048242	9316113034
125	79	M/S Patel Roadways Ltd.	44, Tpt. Area, Sec-26 Chandigarh-19	Sh. Arvind Rai	5006050 4622852	9316040552
126	81	M/S Prince Roadlines	14, Tpt. Area, Sec-26 Chandigarh-19	Sh. Darshan Singh	2792992 5006292	9216102892
127	82	M/S Punjab South Roadways	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Shiv Kumar	5006004 3040598	9216919200
128	118	M/S Parkash Goods Carrier	10, Tpt. Area, Sec-26 Chandigarh-19	Sh. Ashwani Sharma	5088786 2792091	9417002688
129	142	M/S Punjab Raipur Frieght Carrier	35, New Timber Market, Sec-26 Chandigarh-19	Sh. Paramjeet Singh	5006271 3048671 5006171	9872435371
130	80	M/S Punjab up. Roadways	27, Tpt. Area, Sec-26 Chandigarh-19	Sh. Keshav Kumar	5078427 5085433	9815484558
131	136	M/S Rakesh Gupt & Co.	24, Tpt. Area, Sec-26 Chandigarh-19	Mr. Rakesh Gupta	5078471	9417278471

132	173	M/S Rana Transport Company (Regd.)	5, Transport. Area, Sec-26 Chandigarh-19	Mr. Ankush Rana	2793563	9501020525
133	84	M/S Roadlines of India	44, Tpt. Area, Sec-26 Chandigarh-19	Sh. Nittin Abrol	5006085 3028000 2791629	9888014403
134	112	M/S Rattan Roadlines	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Gulshan Rattan	2790574 4604912 3057268	9876153344
135	85	M/S Shimla Mandi Goods Transport Company	29, Tpt. Area, Sec-26 Chandigarh-19	Sh. Jitender Gupta	2792963 2793424	9815902635
136	191	M/S Shimla Bilaspur Goods TPT Co.	22, Transport Area, Sec-26 Chandigarh	Mr. Suresh Bansal	2791708 6571857	9216505757
137	202	M/S Simla Mandi Goods Carrier	29, Transport Area, Sec-26 Chandigarh	Mr. Sanjay Gupta	2793424	9815602635
138	86	M/S Sood Goods Transport Company (Regd.)	14, Tpt. Area, Sec-26 Chandigarh-2	Sh. Rajiv Sood	5088635 3053103	9317931720
139	137	M/S Shri Krishana Cargo Carrier's	42, New Timber Market, Sec-26 Chandigarh-19	Sh. Sumesh Kumar	5006153 3205166	9316069262
140	169	M/S Shivalik Logistics	24, Transport Area, Sec-26 Chandigarh-19	Mr. Krishan Kant Sharma	5019058	9814137492
141	175	M/S Shree Krishna Transport Co.	45, 1 st Floor, New Timber Market, Sec-26 Chandigarh	Mr. Jagat Singh	3243666	9216428170
142	189	M/S Shree Krishna Tempo TPT. Service	34, New Timber Market, Chandigarh	Mr. Pawan Kumar Sharma	5006544	9316561302
143	178	M/S Shree Bala Ji Royal Carriers	5, Transport Area, Sec-26 Chandigarh	Mr. Ashish Singh Nagal	8591431155	9356037236
144	193	M/S Sher E Punjab Roadways	32, New Timber Market, Sec-26 Chandigarh	Mr. Mandeep Singh	5006095	9646441394
145	194	M/S Shree Krishna Roadways	312, Opp. Plot No.22, TPT Area, Sec-26 Chandigarh	Mr. Manoj Bhat	6543562	9216319541
146	139	M/S Sanjeet Roadlines	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Sanjeet Malik	5006516 3072816	9316975216
147	87	M/S Sandeep Road Carriers	26, Tpt. Area, Sec-26 Chandigarh-19	Sh. Ram Parkash Sharma	2793474 5006474	9316132070
148	199	M/S Sai Cargo Carrier (Regd.)	312, Opp. Plot No.22, TPT Area, Sec-26 Chandigarh	Mr. Bahadur Singh	4649514 5006714	9417301834
149	88	M/S Sewak Transport Company	Booth No. 12, Tpt. Area, Sec-26 Chandigarh-19	Sh. Jagtar Singh	2791974 4614574 2791674	9815095095
150	89	M/S Solan Simla Transport Company	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Rajinder Singh	2793729 2793563	9501020525
151	155	M/S South India Roadways	SCF 87, Grain Market, Opp, Police Station Chandigarh	Mr. Rajesh Kumar	5006333	9357922333

152	90	M/S Surjit Goods Carriers Regd.	18, Tpt. Area, Sec-26 Chandigarh-19	Sh. Surjeet Singh	2792832 5077832	9872012932
153	91	M/S Saras Transport Company	20, Tpt. Area, Sec-26 Chandigarh-19	Sh. Raj Singh	3044299	9814106299
154	93	M/S Syan Roadlines	8, Tpt. Area, Sec-26 Chandigarh-19	Sh. Karnail Singh	2790355 2790155	9915480455
155	94	M/S South Easteran Roadways Ltd.	12, Tpt. Area, Sec-26 Chandigarh-19	Sh. P.S. Pandey	5006412 2790412	9356395964
156	95	M/S South Bombay Freight Carrier	8, Tpt. Area, Sec-26 Chandigarh-19	Sh. Sanjay Kalia	5006784 2792784	9876300784
157	97	M/S Sat Roadlines	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Satpal Tyagi	5006418 3048018	9316102544
158	98	M/S Safe Logistics	6, Tpt. Area, Sec-26 Chandigarh-19	Sh. Rakesh Bhalla	4622558 463300004 4612548	9814098048
159	146	M/S Sugam Parivahan Ltd.	42, New Timber Market , Sec-26 Chandigarh	Sh.Madan Lal Sharma	3053162 5006142	9316394206
160	114	M/S Star Transport Company	42, New Timber Market , Sec-26 Chandigarh	Sh. Arvind Bansal	5007831 5006831	9815333316
161	148	M/S Savani Transport Company	26, Tpt. Area, Sec-26 Chandigarh-19	Sh. Pardeep Kumar	2793219 5006219	9357006419
162	157	M/S Shimla South Road Carriers	SCF 292, Grain Market, Opp, Police Station Chandigarh	Mr. Rajat Chauhan	5006114	9815556300
163	63	M/S Singla Truck Center Pvt. Ltd.	314 BDC, Opp . Plot No. 24, Tpt. Area, Sec-26 Chandigarh	Sh. Paramjeet Singh Singla	5088584 2791555	9814082281
164	127	M/S Shree Ganesh Roadways	39, New Timber Market, Sec-26 Chandigarh	Sh. Naveen Gupta	2580354 2753354	9417282456
165	163	M/S Super Haryana Golden Roadways	36, New Timber Market, Sec-26 Chandigarh	Mr. Hari Pal	5006655	9316911321
166	152	M/S Three Star Transport Cargo Logistics	1790, Deep Complex, Phase-III, Hallo Majra, U.T	Mr. Sarwan Singh	5068883	9814787066
167	180	M/S The Namakkal Transport Service	37, New Timber Market, Sec-26 Chandigarh	Mr. Balwant Singh	5006599	8146996599
168	153	M/S Tiranga Roadlines	32, New Timber Market, Sec-26 Chandigarh	Mr. Gurdial Singh	5006480	9915006480
169	159	M/S Tirupati India Logistics	15, Tpt. Area, Sec-26 Chandigarh-19	Mr. Jai Kaushik	6541453	9463972245
170	99	M/S T.C.I. Ltd.	21, Tpt. Area, Sec-26 Chandigarh-19	Sh. M.K. Mishra	3243907 3243402 3240105	9316970138
171	100	M/S The Amritsar Transport	11, Tpt. Area, Sec-26 Chandigarh-19	Sh. Rajmal	5085722 5006785	9316100430
172	101	M/S The Bharat Motor Transport	10, Tpt. Area, Sec-26 Chandigarh-19	Sh. Pawan Kumar	2791444 5088786	9417191006

		Company				
173	102	M/S Toger Trasnport Company.	312, BD Colony Opp. 25, Tpt. Area, Sec-26 Chandigarh-19	Sh. Kuldeep Singh	2791513 5006377	9417008841
174	141	M/S Upkar goods Transport Co. Pvt. Ltd.	24, Transport Area, Sec-26 Chandigarh-19	Sh. Ramdas Gupta	5078471 4630471	9417278471
175	104	M/S Union Roadways Ltd.,	5, Tpt. Area, Sec-26 Chandigarh-19	Sh. Rajveer Singh	2792813 3257829	9316985205
176	105	M/S Unique Carrier Pvt. Ltd.,	13, Tpt. Area, Sec-26 Chandigarh-19	Sh. Vinod Kaushik	2790834 5005834	9316120535
177	184	M/S U.P Chandigarh Goods Carrier	24, Tpt. Area, Sec-26 Chandigarh-19	Mr. Shaminder Singh Brar	5006803	9814100803
178	198	M/S Uttar Bharat Transport Co.	24, Tpt. Area, Sec-26 Chandigarh-19	Mr. Raman Kumar	2791022	9417317417
179	103	M/S New Upkar roadlines	27, Tpt. Area, Sec-26 Chandigarh-19	Sh. Amarnath Sharma	2791896 3198896	9872997971
180	107	M/S Vishal Hamirpur Transport Company	27, Tpt. Area, Sec-26 Chandigarh-19	Sh. Jeet Ram	2790827 5088789	9815941127
181	201	M/S Wings Transport Service	37, Tpt. Area, Sec-26 Chandigarh-19	Mr. Varinder Sharma	5006266	9915725177
182	119	M/S XPS Cargo Carrier	21, Tpt. Area, Sec-26 Chandigarh-19	Sh. A.B. Bhatt	2790250	9316065881

LIST OF JCB

Sr. No.	Name of the firm	Address	No. of JCB Excavator-cum-loader
1.	C.P. II (Roads)	Construction Circle-II, Engineering Department, Chd.	1
2.	Municipal corporation	Sec-17, Chandigarh.	4
3.	M/s Shiv Kumar, Engineers & Const (Pvt.)	#1662, Sec-21, Panchkula.	3
4.	M/s Rajinder & co. (Pvt.)	#3069, Sec-19, Chd.	4
5.	M/s Asphapt carpet Const. Co (P) Ltd.	#120, Sec-9, Panchkula.	2
6.	M/s Ajit Singh	#252, Sec-33-A, Chd.	2
7.	Sh. V.K. Sood	##20, Sec-6, Panchkula.	4
8.	M/s Ropar construction	#2738, Ph-7, Mohali.	10
9.	Sh. Pardeep Aggarwal.	SCF 259, M.Majra.	2
10.	Police Department	Police Lines, Sec-26.	3

LIST OF POCLAIN

Sr. No.	Name of the firm	Address	No. of Poclain
1.	C.P. II (Roads)	Construction circle-II, Engineering Deptt. Chd.	1
2.	M/s Shiv Kumar Engineers & const. (Pvt.)	#1662, Sec-21, Panchkula	2
3.	M/s Rajinder & co. (Pvt.)	#3069, Sec-19, Chd.	2
4.	M/s Ajit Singh (Pvt.)	#252, Sec-33-A, Chd.	2
5.	M/s Ropar construction	#2738, Ph-7, Mohali	3
6.	Sh. Pardeep Aggarwal	SCF 259, M.Majra.	1
7.	Sh. Vanish Arora	#845, Sec-10, Pkl.	1
8.	Amar Nath Aggarwal	#80, Sec-6, Chd.	3

LIST OF TIPPERS

Sr. No.	Name of the firm	Address	No. of Tipper
1.	C.P. II (Roads)	Construction circle-II, Engineering Deptt. Chd.	9
2.	Municipal Corporation	Sec-17, Chd.	8
3.	M/s Lord Shiva Const.	Anaj mandi, Gohana, distt. Sonipat.	1
4.	M/s Shiv Kumar Engineers & const. (Pvt.)	#1662, Sec-21, Panchkula	8
5.	M/s Rajinder & co. (Pvt.)	#3069, Sec-19, Chd.	20
6.	M/s Asphapt Carpet Const. Co. (P) Ltd.	#120, Sec-9, Panhkula.	15
7.	M/s Ajit Singh (Pvt.)	#252, Sec-33-A, Chd.	11
8.	M/s Ropar construction	#2738, Ph-7, Mohali	2
9.	M/s Avtar Singh Rekhi & Co. (P) Ltd.	SCO 54-55, Sec-34-A, Chandigarh.	7

LIST OF BULLDOZERS

Sr. No.	Name of the firm	Address	No. of Bulldozer
1.	C.P. II (Roads)	Construction circle-II, Engineering Deptt. Chd.	1
2.	Municipal Corporation	Sec-17, Chd.	1
3.	M/s Shiv Kumar Engineers & const. (Pvt.)	#1662, Sec-21, Panchkula	1
4.	M/s Ropar construction	#2738, Ph-7, Mohali	4

LIST OF TRACTOR WITH TROLLY/TANKER

Sr. No.	Name of the firm	Address	No. of Trolley/Tanker
1.	C.P. II (Roads)	Construction circle-II, Engineering Deptt. Chd.	5
2.	Municipal Corporation	Sec-17, Chd.	5
3.	Horticulture Department	Construction Circle-II, Engineering, Chd	8
4.	M/s Shiv Kumar Engineers & const. (Pvt.)	#1662, Sec-21, Panchkula	5
5.	M/s Rajinder & co. (Pvt.)	#3069, Sec-19, Chd.	6
6.	M/s Asphapt Carpet Const. Co. (P) Ltd.	#120, Sec-9, Panhkula.	4
7.	M/s Ajit Singh (Pvt.)	#252, Sec-33-A, Chd.	1
8.	M/s Gupta	#994, Indl. Area, Ph-II, Chandigarh.	3
9.	M/s Ropar construction	#2738, Ph-7, Mohali	1
10.	M/s Avtar Singh Rekhi & Co. (P) Ltd.	SCO 54-55, Sec-34-A, Chandigarh.	2

LIST OF WATER TANKER MOUNTED ON TRUCK

Sr. No.	Name of the firm	Address	No. of Water tanker mounted on truck
1.	Public Health Circle	Engineering Department, Chd	5
2.	Electricity Department, Chd	Municipal Corporation, Chd	3
3.	Public Health Circle	Municipal Corporation, Chd	5
4.	Fire Department, Chd	Sec-17, Chandigarh,	3

LIST OF COMPRESSOR

Sr. No.	Name of the firm	Address	No. of Compressor
1.	M/s Shiv Kumar Engineers & Const. (Pvt.)	#1662, Sec-21, Panchkula.	2

LIST OF WINCH MACHINE

Sr. No.	Name of the firm	Address	No. of Winch Machine
1.	M/s Shiv Kumar Engineers & Const. (Pvt.)	#1662, Sec-21, Panchkula.	2

LIST OF GENERATOR SETS

Sr. No.	Name of the firm	Address	No. of Generator Sets
1.	M/s Rajinder & Co. (Pvt.)	#3069, Sec-19, Chandigarh	3
2.	M/s Asphapt carpet Const. Co. (P) Ltd.	#120, Sec-9, Panchkula.	4

LIST OF CRANE - TEN TONS

Sr. No.	Name of the firm	Address	No. of Crane ten tons
1.	M/s Maharaja Crane Service	Shop No. 1, Transport Area, Chd.	5
2.	Lucky Crane Service	B.No. 2, Tpt. Area, Chandigarh.	4
3.	Bansal Crane Service	Shop No. 10, Tpt. Area, Chandigarh.	3

ANNEXURE – II

LIST OF VITAL INSTALLATIONS

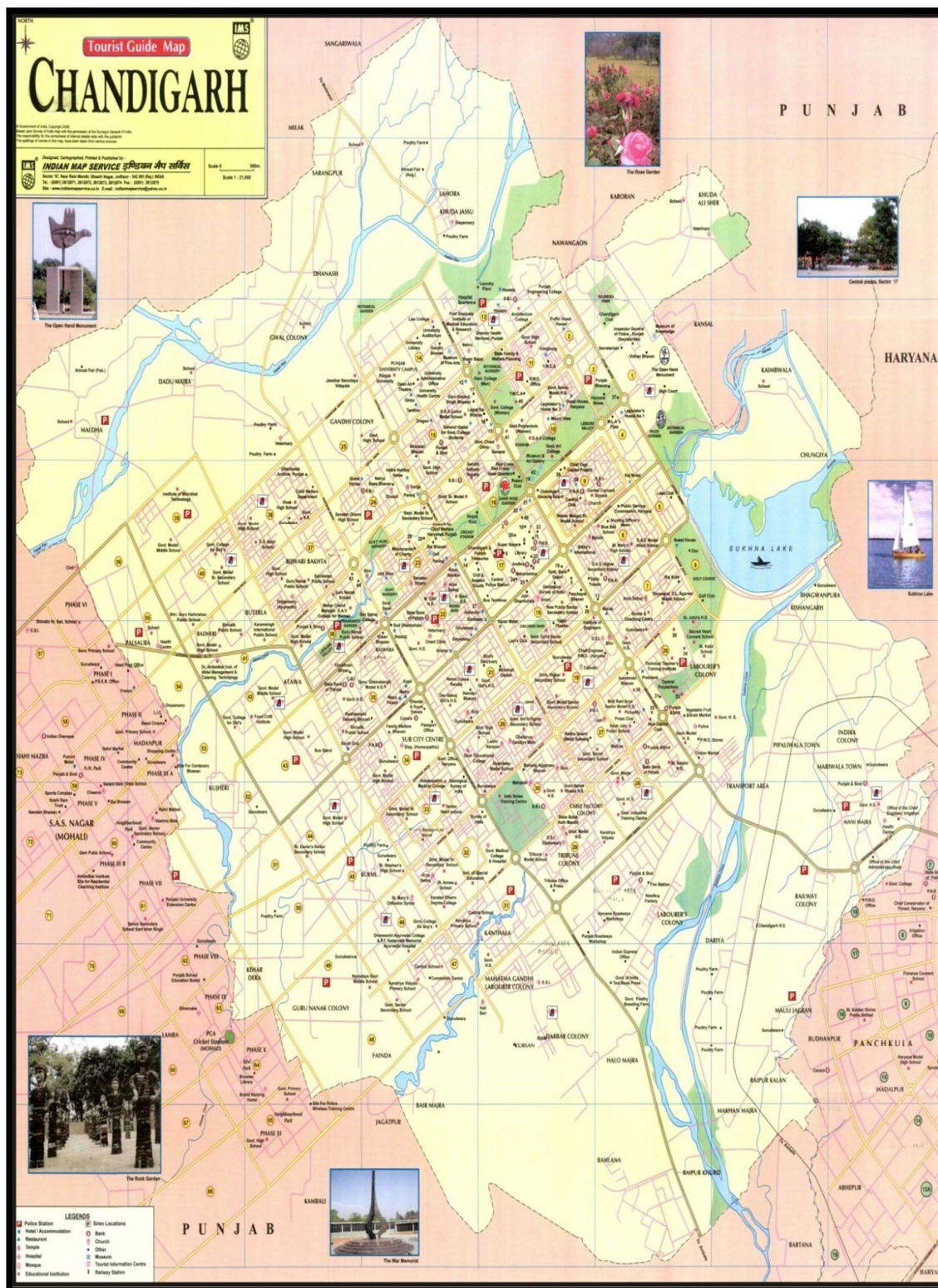
1. Punjab and Haryana High Court, Sector 2, Chandigarh.
2. Punjab and Haryana Vidhan Sabha, Sector 2, Chandigarh.
3. Punjab and Haryana Secretariat, Sector 2, Chandigarh.
4. Raj Bhawan, Haryana, Sector 6, Chandigarh
5. Raj Bhawan, Punjab, Sector 6, Chandigarh
6. Kendriya Sadan Building, Sector 9, Chandigarh
7. Police Headquarters, Sector 9, Chandigarh
8. U.T. Secretariat, Sector 9, Chandigarh
9. CDA Building, Sector 9, Chandigarh
10. Mini Secretariat, Punjab, Sector 9, Chandigarh
11. 13 KV Sub Station, Sector 12, Chandigarh
12. PGI, Sector 12, Chandigarh
13. Punjab University, Sector 14, Chandigarh
14. GMSH, Sector 16, Chandigarh
15. Mini Secretariat, Haryana, Sector 17, Chandigarh
16. General Post Office, Sector 17, Chandigarh
17. Civil Defence Control Room, Sector 17, Chandigarh
18. Main Telephone Exchange, Sector 17, Chandigarh
19. District Court, Sector 17, Chandigarh
20. Local Bus Stand, Sector 17, Chandigarh
21. CBRL, Sector 20, Chandigarh
22. CSIO, Sector 30, Chandigarh
23. GMCH, Sector 32, Chandigarh
24. Cable Ordinance Factory, Industrial Area, Phase I, Chandigarh
25. Main Bus Stand, Sector 43, Chandigarh

ANNEXURE III

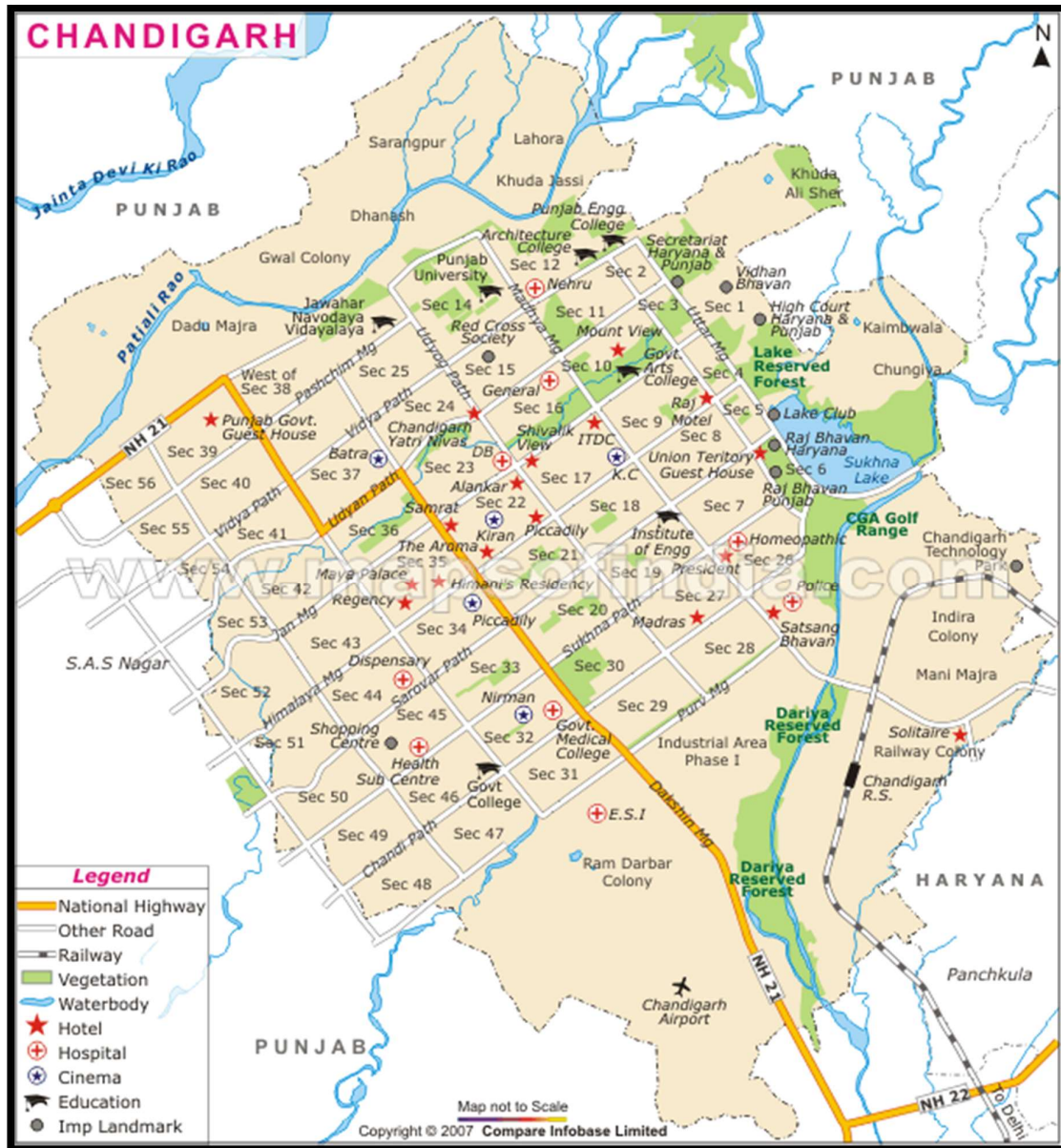
LOCATION OF QRT'S

1. Civil Police Line, Sector 26, Chandigarh
2. SSP Office, Sector 9, Chandigarh

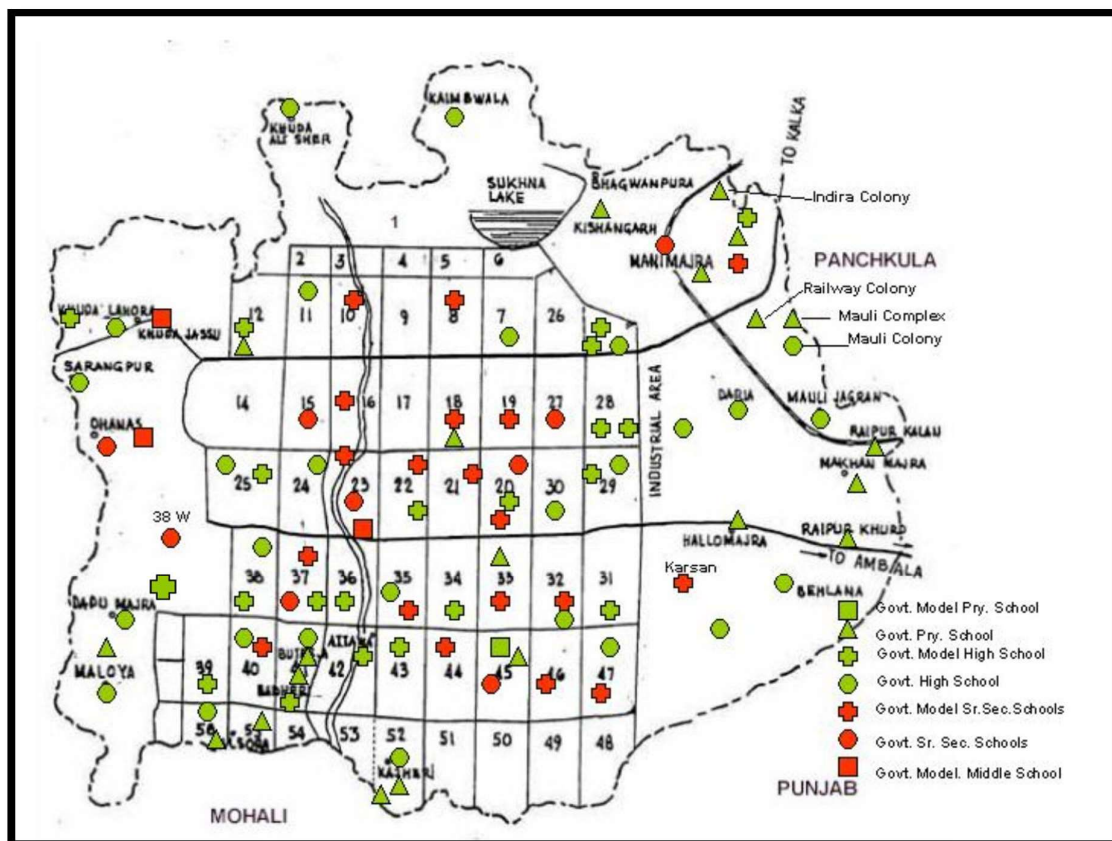
CHANDIGARH TOURIST MAP



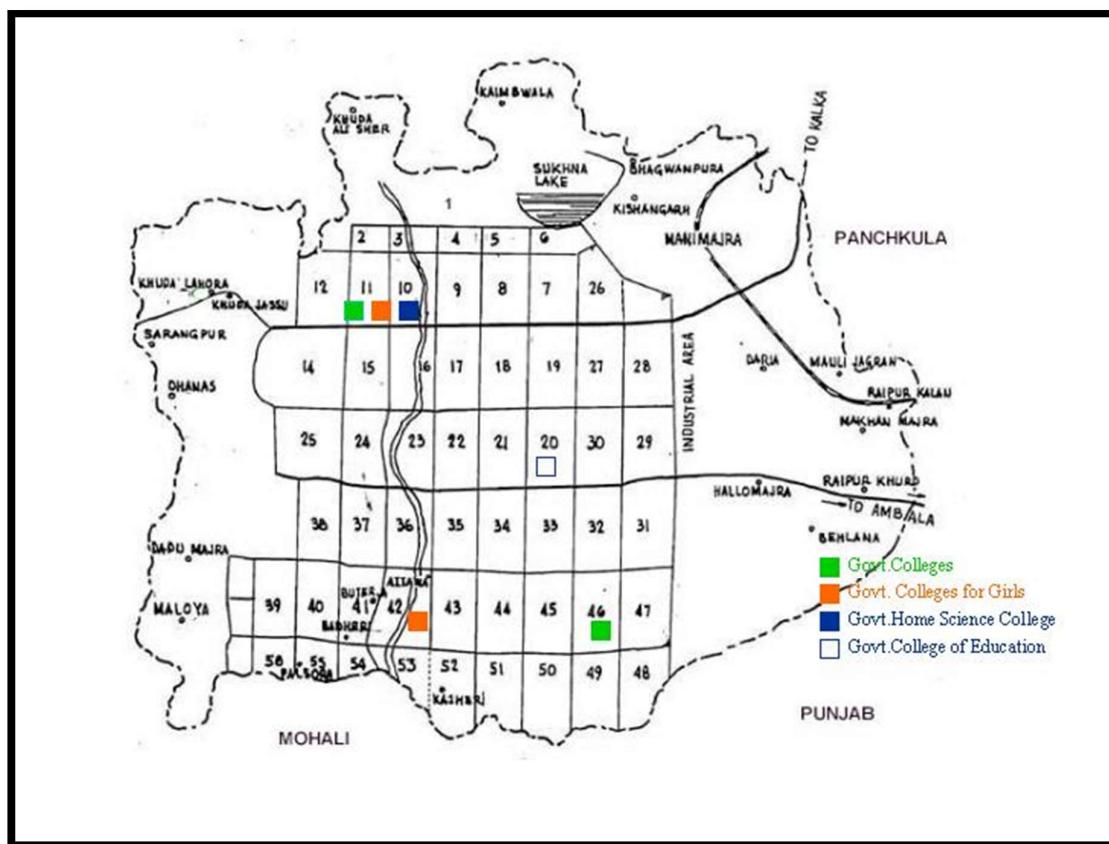
MAP SHOWING IMPORTANT LAND MARKS OF THE CITY



MAP SHOWING GOVERNMENT SCHOOLS



MAP SHOWING GOVERNMENT COLLEGES



MAP SHOWING THE POLICE STATION JURISDICTION

