



Government of Haryana
Department of Revenue & Disaster Management

DISTRICT DISASTER MANAGEMENT PLAN

SIRSA

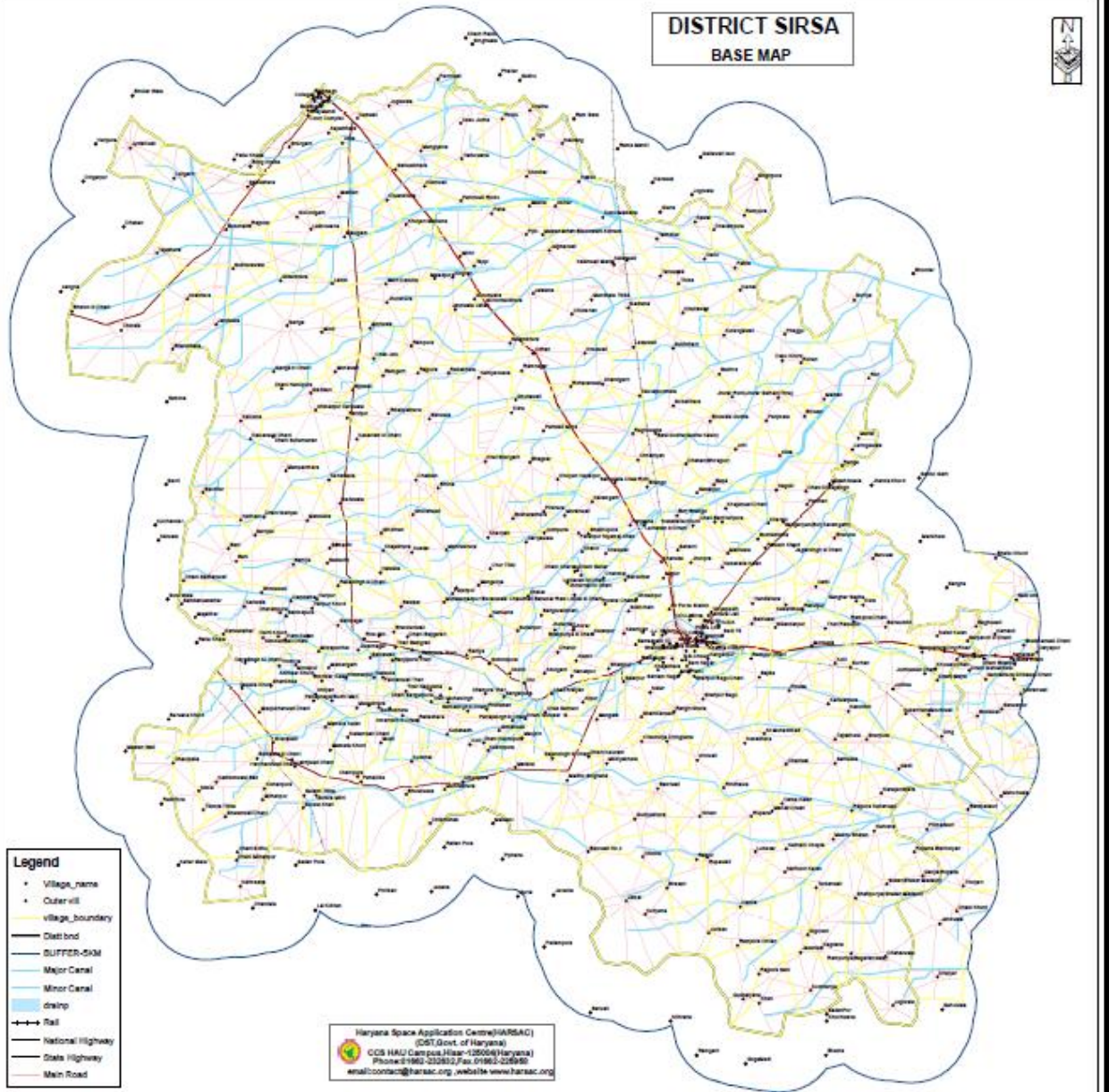
2015-16

Prepared By



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DISTRICT SIRSA BASE MAP



- Legend**
- Village_name
 - Outer_vill
 - village_boundary
 - Dist_bnd
 - BUFFER-5km
 - Major Canal
 - Minor Canal
 - drainp
 - Rail
 - National Highway
 - State Highway
 - Main Road

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Acknowledgement

On the behalf of District Disaster Management Authority, (DDMA) Sirsa, I am pleased to present the District Disaster Management Plan, (DDMP) Sirsa, 2015. The DDMA, Sirsa has envisaged a Disaster Management Plan that is formulated through participatory approach and is precise and user friendly. I owe my sincere gratitude to HIPA, Gurgaon and District Revenue Officer, Sirsa to supervise the process of the plan. I appreciate the efforts of Mr. Bhagwana Ram Sharma (Research Officer) and different departments, stakeholders in preparation of the DDMP Sirsa.

The Plan not only provides quick guidelines to the emergency responders but also shifts the emphasis of the practitioners from the reactive to the proactive approach of Disaster Management.

I applaud the DDMA's commitment of the protection of the vulnerable section of society, which has been reflected through this plan and hope that the plan succeeds in bring a culture of disaster preparedness and prevention in our district.

Sharandeep Kaur Brar, I.A.S
Deputy Commissioner,
Sirsa .

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Abbreviations

AAR	After Action Report
AC	Area Commander
ACA	Additional Central Assistance
ADC	Additional Deputy Commissioner
ADO	Agriculture Development Officers
AFSO	Assistant Food and Supplies Officer
AFSO	Assistant Food and Supplies Officer/ Assistant Fire Station Officer
ARWSP	Accelerated Rural Water Supply Programme
ASHA	Accredited Social Health Activist
ASI	Assistant Sub-Inspectors
ATF	Aviation Turbine Fuel
BAO	Block Agriculture Officer
BCP	Business Continuity Planning
BDO	Block Development Officer
BIS	Bureau of Indian Standards
BPCL	Bharat Petroleum Corporation Limited
BPL	Below Poverty Line
BSNL	Bharat Sanchar Nigam Ltd
CBDM	Community Based Disaster Management
CBDRR	Community-based Disaster Risk Reduction
CBO	Community Based Organization
CBOs	Community Based Organizations
CBRN	Chemical, Biological, Radiological and Nuclear
CCMNC	Cabinet Committee on Management of Natural Calamities
CCS	Cabinet Committee on Security
CD	Civil Defence
CDHG	Civil Defence & Home Guards
CDI	Civil Defence Instructor
CDM	Center for Disaster Management
CDRN	Corporate Disaster Resource Network
CEO	Chief Executive Officer
CHC	Community Health Center
CM	Chief Minister
CMG	Crisis Management Group
CMO	Chief Medical Officer
CO	Circle Officer
Com./CUL	Compensation/ Claims Unit Leader
Com.UL	Communication Unit Leader
CONFED	The Haryana State Federation of Consumers' Cooperative Wholesale Stores Ltd
CPMFs	Central Para Military Forces
CRF	Calamity Relief Fund
CS	Chief Secretary

CS	Civil Surgeon
CSR	Corporate Social Responsibility
CTM	City Magistrate
CUL	Cost Unit Leader
CWC	Central Water Commission
DAE	Department of Atomic Energy
DC	Deputy Commissioner
DCCW	District Council for Child Welfare
DCG	District Crisis Group
DCG	District Crisis Group
DCR	District Control Room
DD	Deputy Director
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DDMRI	District Disaster Management Resource Inventory
DDPO	District Development and Panchayat Officer
Demob-UL	Demobilization Unit Leader
DEO	District Education Officer
DFO	District Forest Officer/ District Fire officer
DFSC	District Food and Supplies Controller
DFSO	District Food and Supplies Officer
DHBVN	Dakshin Haryana Bijli Vitran Nigam
DIC	District Industrial Centre
DIO	District Informatics Officer
DIPRO	District Information and Public Relations Officer
DM	Disaster Management
DMD	Disaster Management Division
DMF	Disaster Mitigation Fund
DP	Display Processor
DRDA	District Rural Development Agency
DRF	Disaster Relief Fund
DRO	District Revenue Officer
DRR	Disaster Risk Reduction
DS	Divisional Supervisor
DSS	Decision Support System
DSW	Department of Social Welfare
DSWO	District Social Welfare Officer
DTO	District Treasury Officer
DUL	Documentation Unit Leader
Dy.	Deputy
EOC	Emergency Operations Centre
EOMC	Executive Officer Municipal Committee
ESF	Emergency Support Function
ETA	Expected Time of Arrival
FB	Finance Branch
FBD	Finance Branch Director

FC	Finance Commission
FCI	Food Corporation of India
FCO	Flood Control Order
FO	Field Observer
FRA	Flood Relief Assistant
FUL	Food Unit Leader
GBF	Great Boundary Fault
GH	General Hospital
GIS	Geographic Information System
GMDIC	General Manager District Industrial Centre
GoI	Government of India
GPS	Global Positioning System
GSU	Ground Support Unit
GSUL	Ground Support Unit Leader
GVH	Government Veterinary Hospital
HAFED	Haryana State Cooperative Supply and Marketing Federation Limited
HAZMAT	Hazardous Material
HDN	High Density Network
HEPA	High Efficiency Particulate Air
HEPP	Hospital Emergency Preparedness Programme
HIPA	Haryana Institute of Public Administration
HIRD	Haryana Institute of Rural Development
HIS	Industrial Health & Safety
HLC	High Level Committee
HOD	Head of Department
HPCL	Hindustan Petroleum Corporation Limited
HQ	Headquarter
HSDMA	Haryana State Disaster Management Authority
HSIIDC	Haryana State Industrial and Infrastructure Development Corporation Ltd
HUDA	Haryana Urban Development Authority
HVPNL	Haryana Vidyut Prasaran Nigam Limited
IAP	Incident Action Plan
IAY	Indira Awas Yojna
IC	Incident Commander
ICDS	Integrated Child Development Scheme
ICP	Incident Command Post
ICS	Incident Command System
IDKN	India Disaster Knowledge Network
IDP	Incident Demobilization Plan
IDRN	India Disaster Resource Network
IDSP	Integrated Disease Surveillance Program
IEC	Information Education and Communication
IMA	Indian Medical Association
IMD	India Meteorological Department
IMG	Inter Ministerial Group
IMO	Information and Media Officer

INGOs	International Non Government Organisations
IOCL	Indian Oil Corporation Limited
IRS	Incident Response System
IRTs	Incident Response Teams
ISDR	International Strategy for Disaster Reduction
ISS	Incident Status Summary
IT	Information Technology
JE	Juniour Engineer
L0	Level 0
L1	Level 1
L2	Level 2
L3	Level 3
LBSNAA	Lal Bahadur Shastri National Academy of Administration
LO	Liaison Officer
LPG	Liquefied Petroleum Gas
LS	Logistics Section
LSC	Logistics Section Chief
MAH	Major Accident Hazard
MBO	Management by Objectives
MBT	Main Boundary Thrust
MC	Municipal Corporation/ Council/ Committee
MCT	Main Central Thrust
MDF	Mahendragarh-Deharadun Fault
MDM	Mid Day Meal
MFRs	Medical First Responders
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Schem
MHA	Ministry of Home Affairs
MO	Medical Officer
MPLADS	Member of Parliament Local Area Development Scheme
MSSP	Mini-Secretariat Safety Programme
NAC	Notified Area Committee
NAT	North Almora Thrust
NBC	National Building Code
NCC	National Cadet Corps
NCCF	National Calamity Contingency Fund
NCCM	National Crisis Management Committee
NCR	National Capital Region
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force/ National Disaster Relief Fund
NEC	National Executive Committee
NFSC	National Fire Service College
NGO	Non Governmental Organization
NGP	Leprosy Eradication Programme
NGP	National Goiter Programme
NH	National Highway
NHAI	National Highways Authority of India

NIC	National Informatics Center
NIDM	National Institute of Disaster Management
NO	Nodal Officer
NRHM	National Rural Health Mission
NSS	National Service Scheme
NT	Naib Tahsildar
NTCP	National Tobacco Control Programme
NTPC	National Thermal Power Corporation
NVBDCP	National Vector-Borne Disease Control Programme
NYKS	Nehru Yuva Kendra Sangathan
OS	Operations Section
OSC	Operations Section Chief
PCR	Police Control Room
PD	Project Director
PDA	Preliminary Damage Assessment
PHC	Public Health Center
PHD	Public Health Department
PMEGP	Prime Minister's Employment Generation Programme
PMGSY	Pradhan Mantri Gram Sadak Yojana
PO-ICDS	Programme Officer- Integrated Child Development Scheme
POL	Petrol, Oil and Lubricants
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PRIs	Panchayati Raj Institutions
PS	Planning Section
PS	Police Station
PSC	Planning Section Chief
PUL	Procurement Unit Leader
PWD	Public Works Department
Pwl	Palwal
QRMTs	Quick Response Medical Teams
R&D	Research and Development
RB	Response Branch
RBD	Response Branch Director
RC	Relief Camp
RDA	Rapid Damage Assessment
RO	Responsible Officer
RPUL	Resource Provisioning Unit Leader
RRT	Rapid Response Team
RTA	Regional Transport Authority
RTI	Regional Training Institute
RTO	Regional Transport Officer
RUL	Resource Unit Leader
SA	Staging Area
SAC	State Advisory Committee
SAM	Staging Area Manager

SAT	South Almora Thrust
SBD	Service Branch Director
SC	Schedule Caste
SDAO	Sub Divisional Agriculture Officer
SDM	Sub Divisional Magistrate
SDMA	State Disaster Management Authority
SDO	Sub-Divisional Officer
SDRF	State Disaster Response Force/ State Disaster Relief Fund
SE	Superintending Engineer
SEC	State Executive Committee
SEPO	Social Education Programme Officer
SHGs	Self Help Groups
SHO	Station House Officer
SI	Sub-Inspectors
SK	Sadar Kanungo
SMO	Senior Medical Officer
SO	Safety Officer
SOPs	Standard Operating Procedures
SP	Superintendent of Police
SRU	Single Resource Unit
SRUL	Single Resource Unit Leader
SSP	School Safety Programme
SUL	Situation Unit Leader
Sup.BD	Support Branch Director
TB	Transportation Branch
TBD	Transportation Branch Director
TCP	Tuberculosis Control Program/ Town & Country Planning (Department)
ToT	Training of Trainer
TS	Technical Specialist
TUL	Time Unit Leader
UC	Unified Command
UHBVN	Uttar Haryana Bijli Vitran Nigam
ULBs	Urban Local Bodies
UMS	Urban Malaria Scheme
UN	United Nations
UNDRO	United Nations Disaster Relief Organization
UNISDR	United Nations International Strategy for Disaster Reduction
USAID	United States Agency for International Development
USFS	United States Forest Service
UT	Union Territory
VCP	Village Contingency Planning
VH	Veterinary Hospital
VLDA	Veterinary Livestock Development Assistant
VS	Veterinary Surgeon
WASH	Water, Sanitation and Hygiene
WCDD	Women & Child Development Department

XEN	Executive Engineer
ZSB	Zilla Sainik Board

1

Introduction

1.1 General Information

Sirsa, the north western most district of Haryana State with a total geographical area of 4270 sq. km is located between 29°13': 29°59' north latitudes and 74°30': 75° 7' east longitudes. It is surrounded by Muktsar, Bathinda & Mansa districts of Punjab in the north, Ganga Nagar & Hanumangarh districts of Rajasthan in West and South, Fatehabad and Hisar districts of Haryana in north east and south east respectively. The district is under control of Hisar division and administratively divided into seven development blocks namely Sirsa, Dabwali, Odhan, Baragudha, Nathusari Choupta, Rania & Ellenabad. The Sirsa city, occupies an area of 19.73 sq. km within the municipal limit and is situated on the N.H. No. 10. The city falls in Sirsa block of the district.

1.2 Topography

Terrain of Sirsa may be classified into three types i.e. Haryana Plain, alluvial bed of Ghaggar or Nali and Sand dune tract. The Haryana Plain is a vast surface of flat to rolling terrain and extends south to the northern boundary of the bed of the Ghaggar. It covers over 65% area of the district. The elevation of the surface varies from 190 to 210 m. The palaeo channels set the occurrence of sand dunes in this terrain apart from those in the dune tract. The plain is traversed by dune complexes and shifting sands. Alluvial bed of Ghaggar is a clayey surface of flat, plain bordered in the north and west by the Haryana Plain and in the south along the sand dune tract. Water logging is a serious problem in

many parts due to impervious clay of great thickness. At places, swamps support a high density of tall grass. Sand dune tract is the southernmost part of the district and is the northward extension of the sand dunes of Hissar and Ganga Nagar district of Rajasthan. Height of the *Tibbas* (sand dunes) vary from 13 to 17 m in some places. All *tibbas* are broad based transverse ridges, some more than 3 km long. Linear to complex ridges generally 2 to 5 m high are also present throughout the sandy stretch of the land.

The Ghaggar, an important seasonal river in the district is a major drainage of the area. It enters the district near village Ranga (Block- Baragudha) and flows through the central part of the district (covering Sirsa, Rania, Ellenabad and part of Baragudha blocks) in south westerly direction but about 1.5 km down stream of Ottu Weir (renamed as Ch. Devi Lal Weir), it takes a sharp turn towards west and flows in the westerly direction. The river leaves the district a little to the south west of village Kariwali (block- Ellenabad) and enters Rajasthan & finally lost in the arid belt (thar desert) of Rajasthan. The river is dammed at Ottu from where two prominent canals namely northern ghaggar and southern ghaggar takes off. The river sometimes gets flooded during monsoon and causes extensive damage to crops and property. The total length of river Ghaggar in the district is about 85 km. Besides, the area is also drained by the artificial drains, which are used during heavy rains by pumpage to the canals. In water-logged area, these artificial drains have

also been proposed to combat with the water logging problems in the area.

1.3 Demographics

As per 2001 census the total population of the district is 11,16,649. The district ranks at 8th place in the population size of the district in the Haryana State. The decennial growth rate of population of the district for the decade 1991-2001 was + 23.59 per cent. The rural and urban population is 8,23,184 and 2,93,465 with an average density of 261-person/sq km, which is lowest in the state. Out of total population 5,93,245 are males and 5,23,404 are females. The male and female ratio of the

district as a whole was 1000:882. In Sirsa district rural population is settled in 321 villages and the rest of population is concentrated in five towns. There is no scheduled tribe population in the district, as no part of the district is under tribal area. The population of schedule caste is 2,97,556 out of which 2,32,480 belong to rural and 65,075 to urban area. The percentage of schedule caste population of the district is 26.65%.

Table 1.1 Population Statistics (As per 2011 Census)

State/District	Total population			Growth Rate (Total Pop) 2001-2011
	Persons	Male	Female	
Haryana	25353081	13505130	11847951	19.9
Sirsa	1295114	683242	611872	16.0

Table 1.2 Comparative Sex Ratio, Child Sex ratio, Literacy of Haryana State and Sirsa District (2001 and 2011)

State/District	Sex Ratio		Percent 0-6 pop		Sex Ratio 0-6 pop		Literacy Rate (Persons)		Literacy Rate (Males)		Literacy Rate (Females)	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
HARYANA	861	877	15.8	13.0	819	830	67.9	76.64	78.5	85.4	55.7	66.8
Sirsa	882	896	15.0	11.9	817	852	60.6	70.4	70.1	78.6	49.9	61.2

Table 1.3 Distribution of Population, Decadal Growth Rate, Sex-Ratio and Population Density

State/District	Population 2011			Percentage decadal growth rate of population		Sex- Ratio (Number of Females per 1000 Males)		Population density per sq. km.	
	Persons	Males	Females	1991-01	2001-11	2001	2011	2001	2011
Haryana	25353081	13505130	11847951	28.43	19.90	861	877	478	573
Sirsa	1295114	683242	611872	23.59	15.98	882	896	261	303

1.4 Rainfall and Climate

1.4.1 Hydrometeorology

The climate of Sirsa district can be classified as tropical desert, arid and hot which is mainly dry with very hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrates into the district. As far as seasons are concerned, the hot weather season starts from mid March to last week of the June followed by the south- west monsoon which lasts up until the month of September. The transition period from September to October forms the post-monsoon season. The winter season starts late in November and remains up to the first week of March.

1.4.2 Climate

The climate of the district is extremely arid. It is very hot in summer and markedly cold in winter. The maximum temperature is recorded in the months of May and June, when it goes up to as high as 6 degrees C. and the minimum touches 1.5 degrees C. in December and January. Dust storms which very adversely affect the cotton sowing in the sandy areas of the district are common in summer.

1.5 Transportation

Bus service is the major means of public transport in this district. The Sirsa depot of Haryana Roadways came into being on

1.4.3 Rainfall

The normal annual rainfall of the district is 318 mm which is unevenly distributed over the area 20 days. The south west monsoon , sets in from last week of June and withdraws in end of September, contributing about 80% of annual rainfall. July and August are the wettest months. Rest 20% rainfall is received during non-monsoon period in the wake of western disturbances and thunder storms. Generally rainfall in the district increases from southwest to northeast.

Normal Annual Rainfall : 318 mm

Normal monsoon Rainfall: 253 mm

1.4.1978, earlier it was the sub-depot of Hisar depot. It has a sub depot at Dabwali. Sirsa depot has 141 buses, which carry about 12.52 Lacs passengers everyday and cover a distance of 14.97 Lacs Km daily. Out of this distance covered on interstate routes is 10,222 Km and 45,200 Km are operated within Haryana. Total staff of the depot (including that of sub depot) is 702. Bus stand has been provided at Sirsa. Apart from this, bus stands at Dabwali, Ellenabad, Rania, Kalanwali, Choutala, and Malikan have also been provided in this district. Government has issued 40 permits to private operators on local routes in the district.

Fig. 1.1 Transport Map, Distt. Sirsa



1.6 Agriculture and Irrigation

Sirsa district is one of the major contributors of agricultural production. Out of the total area of .27 lakh hectares, .404 lakh (94.6%) is cultivable area. 53.4% of the farmers are small

and marginal with land holding up to 2 hectares, irrigated/un-irrigated. 14.6% of the total area holding is with these farmers. About 58% of the total area is covered under wheat crop and 50.5% is under cotton crops. The net irrigated

area is 90% to the net cultivated area. 78.4% of irrigation is through the Bhakra canal.

Table 1.4 Details of agriculture and irrigation in Sirsa

1	Area Under Principal Crops	Paddy	480 sq.km
		Wheat	2430 sq.km.

2	Irrigation by Different Sources	Dugwells	Nil
		Tube Wells/Boreholes	41374/ 930 Sq. km
		Tanks/Ponds	6.77 Sq.km/ 487 Nos.
		Canals	2640 Sq. km
		Other Sources	Nil
		Net Irrigated area	3220 Sq. km
		Gross irrigated area	6210 Sq. km
3	Ground Water Monitoring Wells (CGWB)	Dugwells	30
		Piezometers	01
4	Major Water bearing formations	Pre-monsoon depth to Water Level	1.16 mbgl to 26.17 mbgl
		Post-monsoon depth to water level	1.70 mbgl to 27.60 mbgl
5	Long term water level trend in 10 yrs	Pre-Monsoon	0.58 m/yr to (-) 0.90m/yr
		Post Monsoon	0.59 m/yr to (-) 0.76m/yr
6	Ground Water Control & Regulation (As of 2004/05)	No. of OE Blocks	03
		No. of Critical Blocks	01
		No. of Blocks Notified	Nil

Fig. 1.2 Ground water conditions in Sirsa

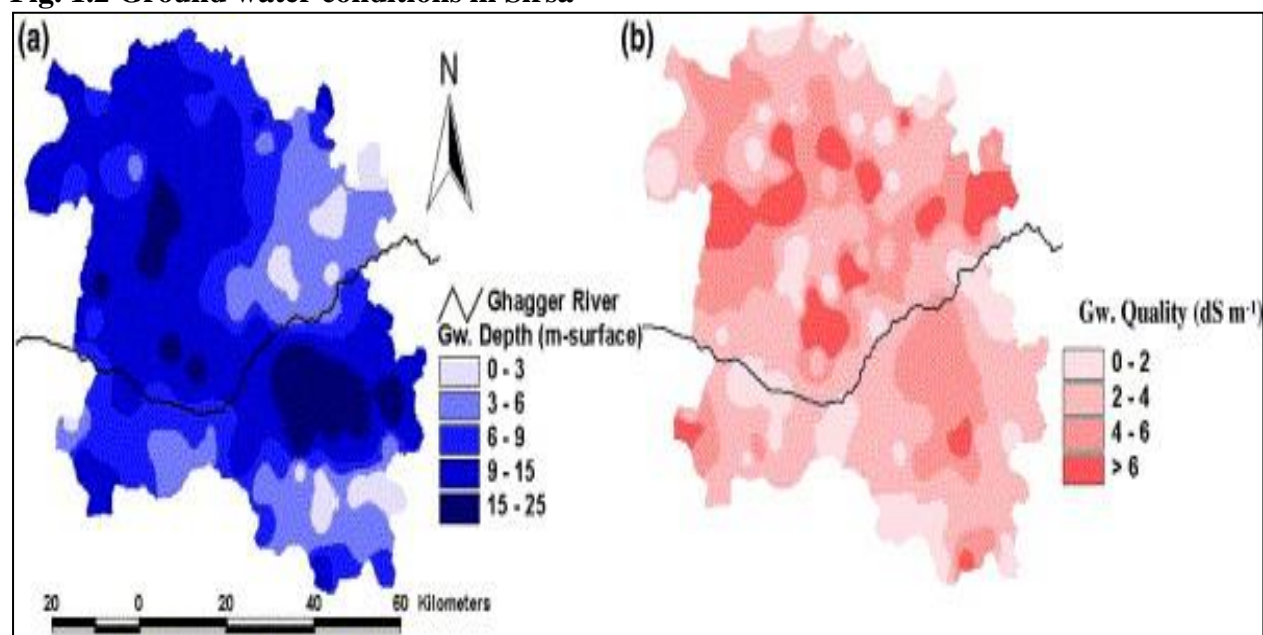


Fig. 1.3 Main Canal Commands, Sirsa

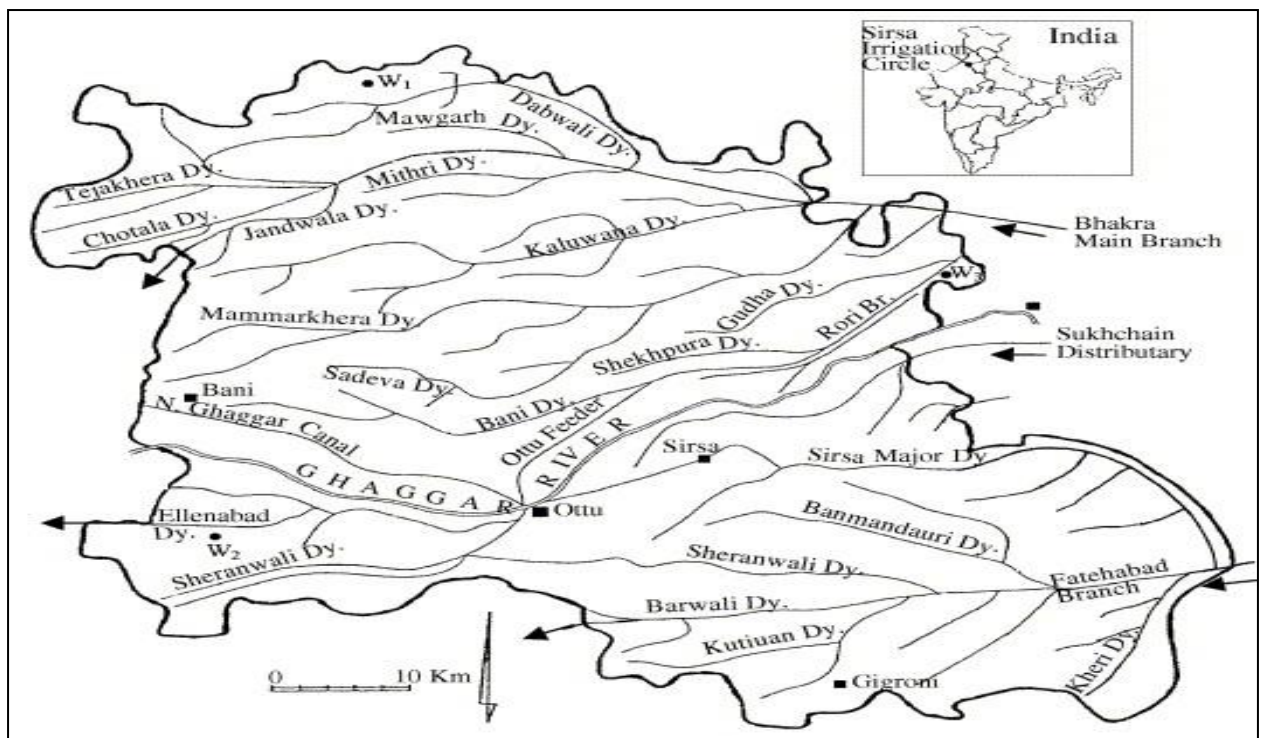
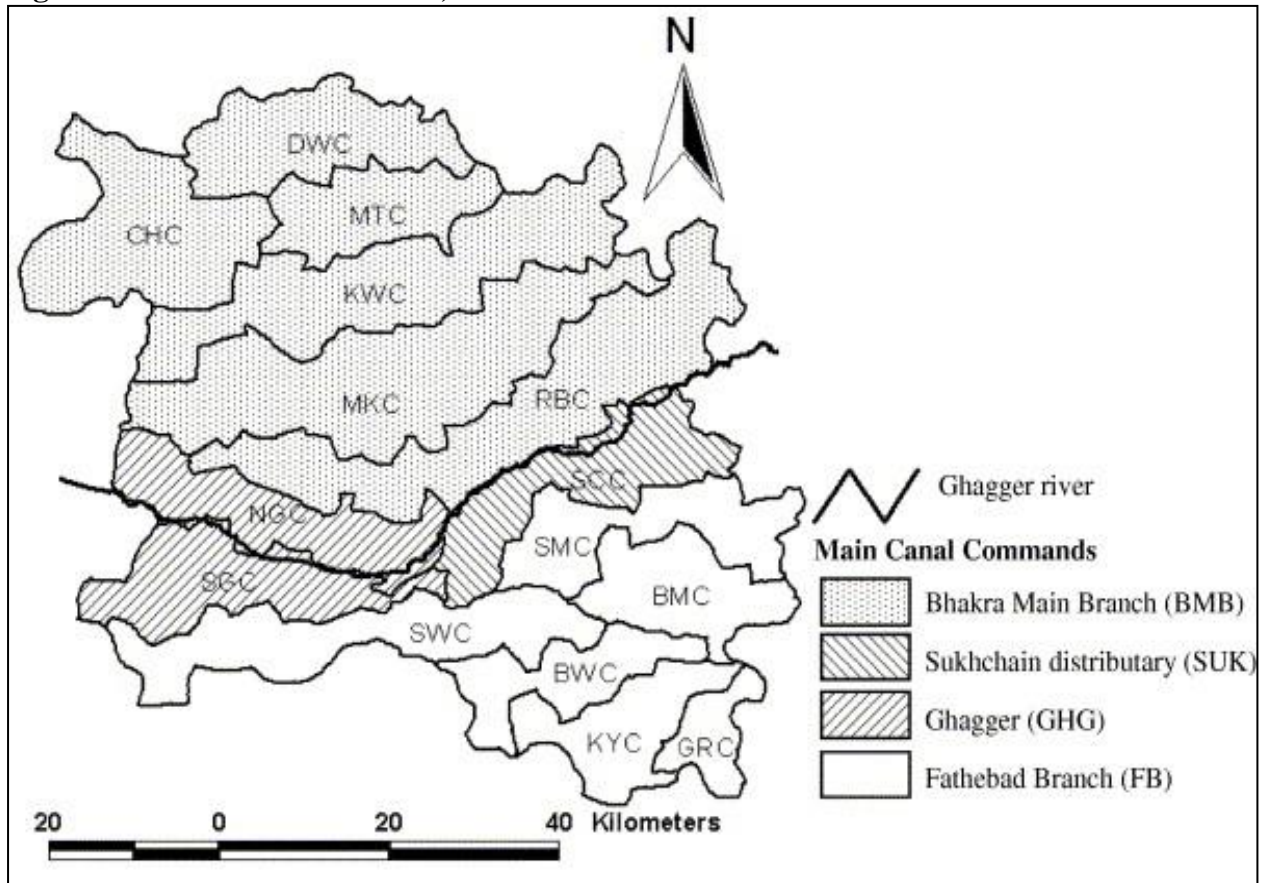


Fig. 1.4 Cropping pattern and irrigation water distribution, Sirsa

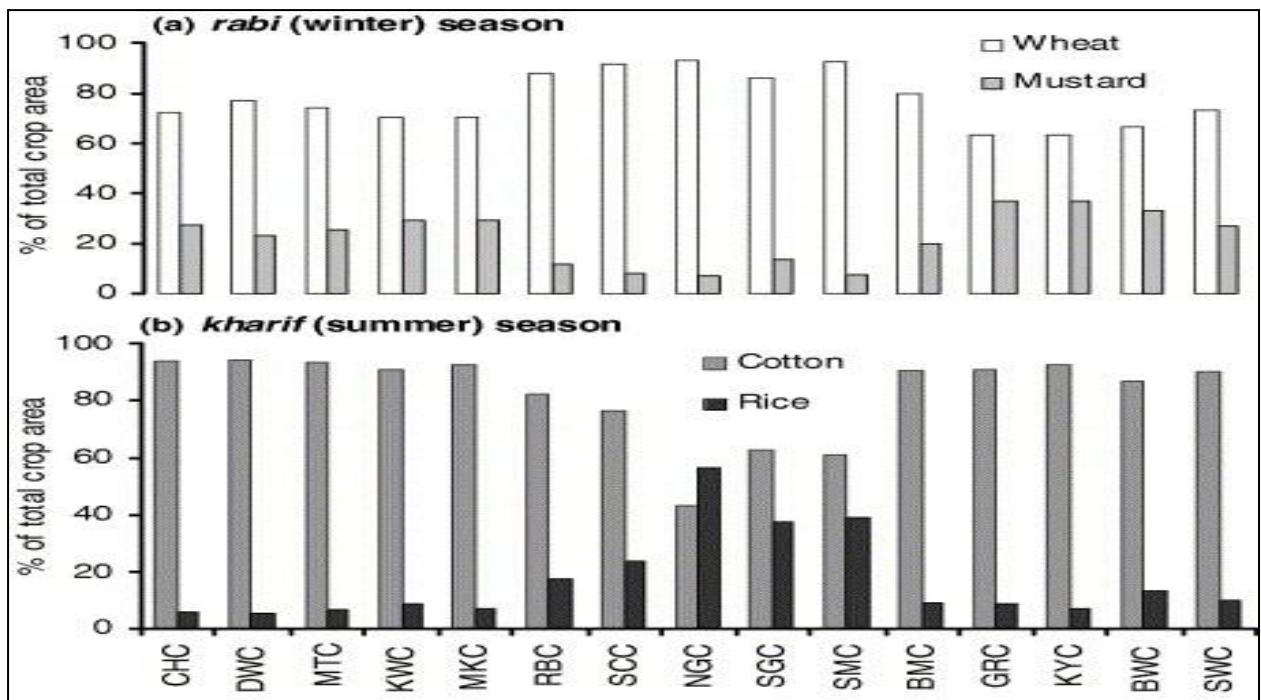
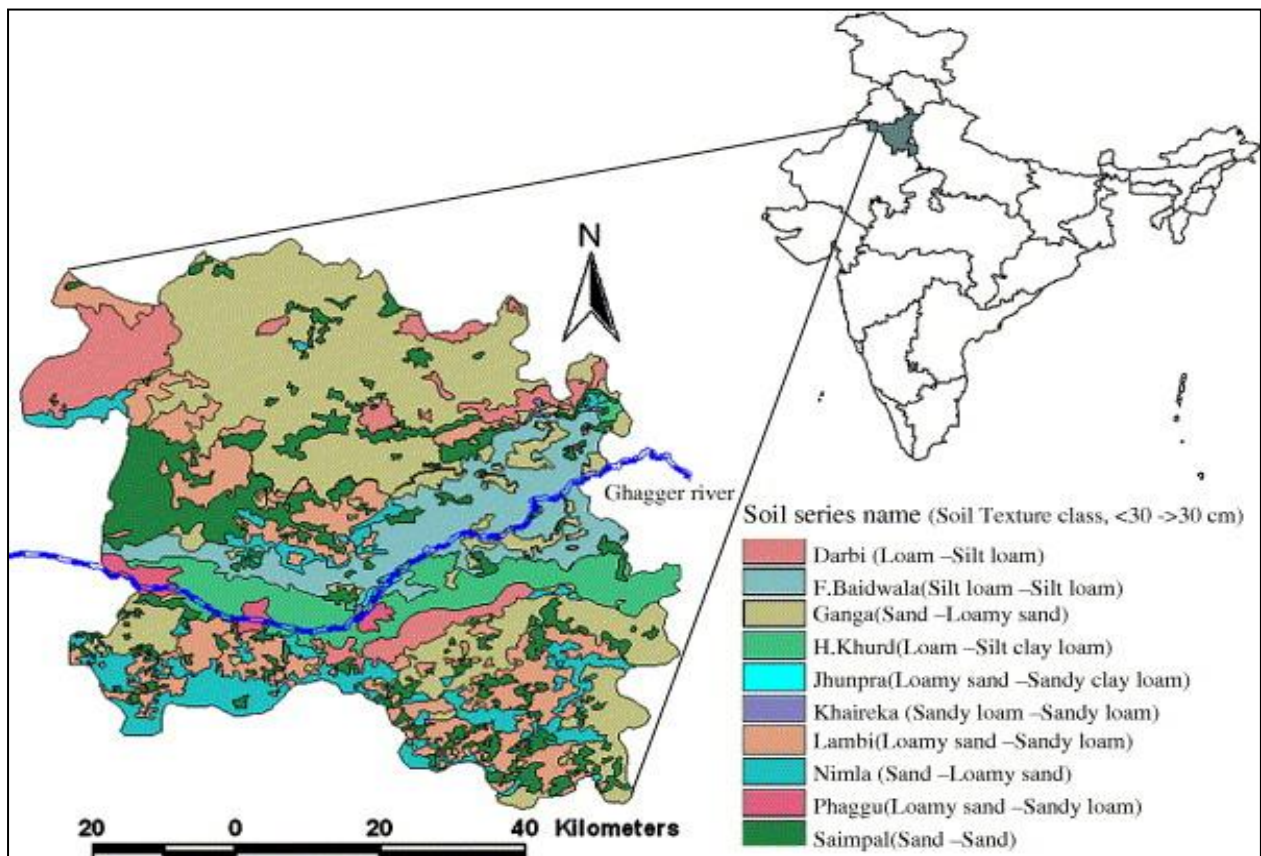


Fig. 1.5 Soil Types. District Sirsa. Haryana



2




Hazard, Vulnerability, Capacity & Risk Analysis

The possibility of disaster hitting Sirsa District has become more and more real with the increasing complexity of economic and industrial growth compounded by extensive population growth due to large-scale migration

to the urban areas especially of Sirsa. The district has been traditionally vulnerable to different natural disasters on account of its unique geo-climatic condition.

Table 2.1 Hazard Seasonality Map for District Sirsa

Sr. No.	Hazards	Likelihood of Occurrence (Indicative, based on data available in Sirsa)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Flood	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue
2	Earthquake	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
3	Fire	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
4	Cold wave	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue
5	Heat wave	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue
6	Hail storm	Dark Blue	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue
7	Road Accident	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
8	Rail Accident	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
9	Air Accident	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue

Legend: High  Moderate  Low 

2.1 Hazards in District Sirsa

2.1.1 Floods

The Ghaggar River in Haryana-Punjab plains, northern India presents a challenge in terms of repeated flash flood hazard. Despite a long history of flood management in the basin for more than 2 decades, the river continues to be a cause of concern owing to extensive flooding. Apart from the proximity to high slope of upper catchment area, the disturbance of natural

drainage channels due to human intervention is also identified as one of the main factors increasing Sirsa’s vulnerability to the flood hazard. Annual peak discharges often exceed the mean annual flood and the low-lying areas of the alluvial plains are extensively inundated year after year.

Flooding occurs in the Middle and lower Ghaggar river basins in Haryana and Punjab

region almost every year with variation in extent, but the problem is seen to be getting worse with each consecutive flood. These floods cause loss of lives, damages to public and private properties and destruction of normal cultivating cycle. According to a report produced by the Disaster Management Division, Ministry of Home Affairs, due to the flooding that occurred in July 2010 in Haryana, over 4 lakh people from over 600 villages (mostly from Ambala, Kurukshetra, Sirsa, Fatehabad and Sirsa) were affected. Nearly 3 lakh hectares of agricultural land were inundated with flood water. At least 51 persons died due to the severe flooding. Major impact of flooding has been observed in the middle and lower parts of the Ghaggar River Basin, at the foot of the steep slopes of the Shivalik Hills in the Himalayas. This situation, combined with the heavy rainfalls common in the areas along the Ghaggar River results in this area being frequently affected by

flash floods of the Ghaggar, Markanda, Tangri and a few other small watercourses. Human activities like agricultural practice, construction of settlements, construction of roads with inadequate culvert and, most importantly, of poorly designed drains and canals have changed the morphology of the natural drainage system of plains and palaeo-channels. These changes have also accelerated the occurrence of floods. In general, encroachments in the form of unsustainable land uses and development practices may often make a sizeable contribution to increase risk and vulnerability to floods. Ideally, the natural drains should have been widened (similar to road widening for increased traffic) to accommodate the higher flows of storm water. But on the contrary, there have been large scale encroachments on the natural drains and the river flood plains.

Table 2.2 Evidence of proneness to Flooding in Sirsa

Maximum Discharge At Ottu Weir From The Year 1962 To 2004			
Date/Year	Upstream Level	Discharge upstream in Cs.	Discharge downstream in Cs.
30.09.1962	649.5	37845	31500
02.09.1963	641.5	7465	1586
02.09.1964	647.6	21951	19044
26.07.1965	647.0	8619	6120
05.08.1966	648.2	10120	16196
06.09.1967	651.5	10417	15434
04.08.1968	647.0	18380	17474
23.09.1969	647.0	10885	9753
19.08.1970	647.0	6083	3474
19.08.1971	645.5	14680	13800
11.07.1972	643.7	12999	11534
19.08.1973	645.0	12352	11560
19.08.1974	647.0	6053	4760
16.08.1975	645.0	13271	12255
21.08.1976	645.8	21771	20011
14.08.1977	645.5	9730	9000
14.08.1978	647.6	25434	24467
28.07.1979	647.0	8091	6902
25.08.1980	645.2	30879	19987
10.08.1981	647.0	3470	8330

District Disaster Management Plan, Sirsa

14.08.1982	647.65	5859	8331
07.09.1983	647.65	25196	14588
12.07.1984	646.3	6870	5764
12.08.1985	647.5	10630	9563
05.08.1986	647.0	7020	5764
01.09.1987	647.80	2479	1060
02.10.1988	649.9	35678	35783
08.08.1989	647.0	11672	10472
19.09.1990	646.0	15002	13802
19.09.1991	649.0	2875	1475
23.08.1992	646.75	8080	6880
13.07.1993	651.10	41863	40763
30.07.1994	648.9	31035	30265
17.09.1995	650.8	40347	39413
18.09.1996	646.5	10121	8815
11.08.1997	647.0	9902	8968
27.09.1998	646.0	15600	14000
10.08.1999	647.0	3332	3332
28.07.2000	646.2	18782	18735
26.07.2001	647.0	10782	9520
17.09.2002	649.0	6740	5500
09.09.2003	648.95	7270	6200
13.08.2004	648.95	22470	20700

Table 2.3 Actual Rain Fall Data Month Wise For Sirsa In MM

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1993	4mm	13mm	7mm	-	19m m	41m m	102.50 mm	-	62m m	-	-	-	249.5 mm
1994	10mm	5mm	-	8mm	9mm	81m m	188mm	23m m	80m m	-	-	-	404m m
1995	48mm	28mm	23mm	5mm	-	93m m	113mm	226m m	25m m	-	-	-	561m m
1996	22mm	15mm	7mm	-	-	70m m	51mm	214m m	59m m	61m m	-	3m m	598m m
1997	7mm	7mm	16mm	55mm	65m m	30m m	86mm	255m m	10m m	39m m	7m m	15m m	592m m
1998	-	26mm	5mm	-	6mm	35m m	93mm	6mm	34m m	67m m	-	-	272m m
1999	10mm	-	-	-	24m m	31m m	73mm	2mm	-	-	-	-	140m m
2000	16mm	7mm	-	-	-	-	122mm	3mm	-	-	6m m	-	154m m
2001	6mm	8mm	2mm	10mm	72m m	82m m	95mm	3mm	-	-	-	-	278m m
2002	-	7mm	3mm	-	40m m	21m m	3mm	4mm	4mm	-	-	6m m	88m m

2003	2mm	21mm	-	-	8mm	16m m	210mm	114m m	19m m	-	-	-	390m m
2004	19mm	4mm	-	-	58m m	60m m	2mm	70m m	-	27m m	-	-	240m m
2005	22mm	46mm	53mm	-	-	-	-	-	-	-	-	-	-

2.1.2 Inundation Caused by River Ghaggar in District Sirsa

The Ghaggar river in Sirsa is active only during the rainy season, which extends from July to September. The discharge above 20000 cusecs constitutes danger point causing flooding of adjacent low-lying areas.

1988:

During 1988, the flood-water of the river was very high and the gauge touched 36,000 cusecs at Ottu Weir (see table above). Due to this, there was heavy flood in 1988. Rewari-Bhatinda railway line was also breached near village Saharani and rail traffic remained disturbed for more than four days. The area between the NH-10 and Ottu Head was also heavily flooded. Flood water caused heavy damage to houses in Rania as well as to crops in a large area. Many cattle perished in the floodwaters and the damage to crops resulted in considerable losses as regards agricultural production.

1993:

Sirsa was also heavily flooded in July 1993 and the situation was very critical as the gauge had touched 43,000 cusecs, beating all previous records. At that time, 80 villages were under floodwater. Floodwater also entered 2/3rd portion of Sirsa city and Air Force Station, breaching Jhopra bund and other bridges. Rewari-Bhatinda Railway line near Jhopra village was also damaged and rail traffic was disturbed for a week. There was nearly 4-feet of floodwater at NH-10 towards Dabwali and 2-feet of water on the road at Farmai Kalan village towards Sirsa-Barnala road. Sirsa town was cut off for about 7 days. About 15,000 persons had to be evacuated and

were required to stay in various camps for about 10 days. On record, four persons lost their lives and 87 cattle perished. About 6465 kaccha and pucca houses in both, rural and urban areas were completely/partially damaged. The armed forces were called upon for rescue operations. They helped strengthen the bunds and evacuate people to safe places by motorboat. 9769 acres of cropped area and 103 tubewells were damaged. The flood also severely affected electricity, drinking water supply, sewage system, roads and other public amenities.

1995:

The flooding of the River Ghaggar in 1995 was of a higher magnitude in comparison with the floods of 1988 and 1993. The duration of discharge in 1995 was higher than in the previous years. It was noted that a discharge of about 30,000 cusecs was received for 9 days continuously whereas it was for 6 days in 1993 and 7 days in 1988. The water entered villages like Musahibwala, Farwain Kalan, Farwain Khurd, Mallewala and Burj Bhangu.

2010:

In 2010, damage was caused due to both, heavy rains as well as excessive discharge in the Ghaggar river. Due to extensive discharge, all villages surrounding the Ghaggar, from Musahibwala to the Haryana-Punjab border were badly affected.

2.1.3 Assessment Of Loss Caused By Floods:

The flash flood due to heavy rains in the catchment area of Ghaggar river and breaches have caused extensive damage to houses/household items, major infrastructure

e.g. roads, irrigation network, power supply network, community buildings, rural paths and other installation in district sirsa. More than 45 villages were affected by flood water. The total population of the affected villages was 63,952, as per 2001 census.

Kharif crops were damaged due to the floods. As of the time of assessment. he standing crops in area measuring 41,158 had been affected due to flood and 4334 tube wells installed foragricultural purpose in the affected area were reported to be damaged. The crops damaged were paddy (30,500 acres), cotton (6,158 acres) and other crops (5,000 acres). Details of affected village are as follows:

2.1.4 Agriculture

S. No.	Village Name	Pop.	Evac	Area damaged (acre)	Tubewells damaged
1	Budhabhana	1130	0	400	20
2	Mallewala	1116	0	400	35
3	Nezadela Khurd	940	0	150	23
4	Bansudhar	1204	0	200	45
5	Chamal	2287	187	550	98
6	Mattar	843	0	600	65
7	Lahengewala	660	0	350	35
8	Ranga	383	0	100	18
9	Nagoki	1464	0	550	55
10	Musahibwala	613	141	400	40
11	Panihari	3804	523	1400	140
12	Kharekan	1846	0	240	24
13	Saharni	754	0	160	16
14	Nezadela Kalan	4500	1200	2000	220
15	Farwain	3600	970	2400	260
16	Meerpur	1292	0	400	40
17	Ahmadpur	1455	250	250	25
18	Burj Karamgarh	867	0	1100	110
19	Kelnia	1768	50	550	55
20	Jhoharnali	1228	0	1300	45
21	Patlidabr	10	0	50	5
22	Baguwali	30	0	160	16
23	Mojukhera-II	5	0	10	1
24	Narelkhera	15	0	70	7
25	Jhopra	951	0	125	13
26	Kiradkot	0	0	10	1
27	Chak Thiraj Kalan	450	175	105	11
	Total	33215	3496	14030	1423
	Tehsil Rania				
28	Nagrana	938	650	438	80
29	Nakora	450	150	1050	100
30	Rania	3449	1450	10200	800
31	Firozabad	1200	640	1000	230
32	Harni khurd	475	175	750	80
33	Kariwala	13000	1240	2565	332
34	Jiwan nagar	0	0	1500	195
35	Bani	10000	9520	4000	368
36	Dharamपुरa	450	150	500	62
37	Dhanoor	0	0	300	2
38	Ottu	0	0	25	0

39	Sainpal	750	240	800	62
	Total	30712	14215	23128	2311
Ellenabad					
40	Kuttabad	60	0	465	40
41	Humaukhera	84	0	450	50
42	Patti Kirpal	56	0	650	50
43	Mojukhera	68	0	250	20
44	Amritsar	0	0	250	15
45	Mirjapur	0	0	1600	90
46	Shekhukhera	60	0	335	335
47	Rattakhera	0	0	0	0
	Total	328	0	4000	600
	G.Total	63952	17711	41158	4334

Table 2.4 Abstract of Loss Caused Due To 2010 Floods

Sr. No.	Description of loss	Purpose	Tentative cost (Rs. in crores)
1	Agriculture	Damage to crops in 47 village in 41158 acres and 4334 tubewells	122.00
2	Horticulture	Damage to fruit and vegetable crops in 106 hectare.	1.283
3	Forest	Vanishing of 396 trees and 107096 saplings	0.321
4	PWD (B & R)	19 roads= affected length 27.31 kms.	11.700
5	HSAMB	28 roads= affected length 46.49 kms.	9.222
6	DHBVN	Replacement of conductors & allied material, PCC poles and distribution transformers.	10.895
7	Panchayti Raj	Repair of village streets, community buildings etc.	3.500
8	Irrigation	Damage to ghaggar embankments, restoration of damages caused by overflowing water of Rangoi and Hisar Ghaggar drain	8.000
9	Education	School rooms, veranda, store, boundary wall, toilets and furniture.	4.661
10	Food	8500 MT wheat stock of warehousing	11.000
11	PHED	Repair of machinery, earth filling of B/wall and disposal work.	0.050
Total			182.632
Compensation to individual households			Rs. 30 cr.
Construction of damaged houses.			(2400 houses @ Rs. 1.25 Lakhs each)

Grand Total:	Rs. 212.632 Crore (rounded to Rs. 212 Cr.)
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2011-2012:

During 2011-2012, there were normal rains in Sirsa as well as in the catchment area of the Ghaggar River, which received very nominal water for only 4-5 days. The highest discharge at

Chandpur Siphon was recorded as 4350 cusecs on July 26, 2011. No flood-like situation was experienced this year.

2.1.5 Villages Critically Affected by Flooding in District Sirsa

A list of critically affected villages which have been vulnerable to flooding due to proximity to the Ghaggar river is as follows:

i.	Nezadela kalan and khurd
ii.	Farwain khurd/Kalan
iii.	Dharampura
iv.	Burj karamgarh
v.	Ranjitpur Thedi
vi.	Panihari
vii.	Mattar
viii.	Lahengewala
ix.	Kirarkot
x.	Budhabhana
xi.	Mallewala
xii.	Saharni
xiii.	Musahibwala
xiv.	Jhopra
xv.	Nezadela Khurd
xvi.	Ranga
xvii.	Nagoki
xviii.	Ottu
xix.	Ferozabad
xx.	Nakora
xxi.	Nagrana
xxii.	Thedi Mohar Singh
xxiii.	Harni Khurd
xxiv.	Jiwan Nagar
xxv.	Sant Nagar
xxvi.	Dhani Santa Singh
xxvii.	Shekhupura
xxviii.	Hamayukhera
xxix.	Abholi
xxx.	Dhani Sangatpura
xxxi.	Dhanoor
xxxii.	Dhani satnam Singh
xxxiii.	Kariwala
xxxiv.	Bani

2.1.6 Inundation Caused by Local Rainfall

It has been seen that low-lying areas in 2 pockets in Sirsa are always inundated due to heavy rainfall. The first pocket comprises the belt from village Patli Dabar, Narel Khera to Sikanderpur-Bajekan area. Flood Water remains stagnant on both sides of the NH-10 right from Sirsa/Hisar to Bajekan village;

2.2 Fire

Fires are far more common in rural areas than in the urban ones. The fires are mostly caused by electric short-circuiting and they spread due to dried leaves. Cattle are also at risk of being injured or killed in fires that might break out in rural areas where the animals are tethered, due to their feed (dry hay) catching fire. Further details of fires in Sirsa district are available with the SK branch in the Mini-Secretariat building, Sirsa.

2.3 Earthquake

Sirsa District lies partly in the seismic zone II (moderate damage risk zone). Thus, while this is relatively safer, there is always a chance of an earthquake in the Sirsa district that has the potential to cause great damage, especially in the rapidly developing urban areas. Earthquakes in Sirsa would lead to a massive loss of lives, and property. Therefore, preventive measures for ensuring safety of buildings, structures, communication facilities, water supply lines, electricity and life are of utmost priority.

2.4 Hailstorms

Hailstorms are a common phenomenon in Sirsa district. They occur during winters and sometimes during freak weather incidences that lower the temperature in the district. Hailstorms, while they are temporary and do not last for too long a time, can cause immense damage to crops in fields, leading to huge losses for farmers.

2.5 Epidemics

Another important hazard in this district is the outbreak of epidemics amongst humans. The major diseases which occur include jaundice, diarrhea, cholera, etc. These diseases are mostly common during the

another pocket that consists of Rori, Surtia, Panjmala, Faggu and Ranga. During the monsoon of 2011, dewatering of about 29 villages was carried out by deploying diesel and electric pumps. Among the 29 villages affected, were Moujдин, Moriwala, Firojabad, Bani, Natusari and Khairkan.

rainy season, mostly from July to September/October. Animal epidemics, per se, are not on record as having occurred in District Sirsa.

2.6 Road Accidents

Road accidents are frequent in the district. In the year 2011, 284 cases were registered in Sirsa, in which 258 were injured, and 149 were killed. In the year 2012, 252 cases of road accident were registered. 279 are on record as having been injured, and 142 were killed in the accidents. It is therefore necessary to take stringent action in order to prevent road accident injuries and fatalities, which are especially common on the road between Sirsa and Fatehabad. Public and private vehicles should take care to not overload themselves with passengers, as this increases the level of vulnerability of people to road accidents and raises the level of risk.

2.7 Extreme Weather

2.7.1 Cold wave:

Cold waves have a moderate/high probability of occurrence in the Sirsa district. During December and January, the average minimum temperature is recorded around 3-4°C which, at times, reaches as low as 0°C. The cold wave is generally associated with Frost which is one of the reasons for huge crop losses in the District.

2.7.2 Heat Wave:

Heat wave is experienced in the Sirsa district as the summers are extremely hot with temperatures around 40-45 degrees Celsius accompanied with hot, dry winds.

2.8 Vulnerability Analysis:

The United Nations Office for Disaster Risk Reduction (UNISDR) website defines vulnerability as, ‘The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.’ It is understood as a factor that is instrumental in determining the risk posed by a given hazard. In short, vulnerability is that thing which makes a person or a community susceptible to the damaging effects of hazards. It varies to a significant measure over time, and within communities. Vulnerability is of different kinds, stemming from many and varied physical, social, economic, and environmental factors.

2.8.1 Physical Vulnerability

Physical vulnerability includes infrastructure, the construction of buildings, roads and bridges, housing patterns, material and techniques used

2.8.2 Social Vulnerability:

Certain populations consist of what might be referred to as vulnerable groups. The socially vulnerable groups are as such, for the most part, owing to factors such as gender, age, caste, health, disability, sexual orientation, etc. Women have always been a vulnerable group throughout the country, and while this is now undergoing a change, the vulnerability of women should be taken into consideration by the authorities, especially in the aftermath of a disaster. While heinous acts such as rape are not technically defined as disasters, the district administration should consider its impact just as much as that of a flood, fire or any such event that can be officially declared a disaster. The sex-ratio in Sirsa is low, something that needs to be looked into. Age is another factor that should be considered. Yet another factor that determines vulnerability is age. The elderly constitute a significant section of the vulnerable population in a given district. They are far more vulnerable to disasters and in their aftermath,

for construction and the engineering as well. As per the 2011 Census’ household data survey, there are, in all, 2,17,180 census houses in Sirsa out of which 1,58,826 houses are in rural areas and 58,354 are in urban areas. In urban areas, around 36,709 houses are in good condition, 19,222 are in livable condition and 2423 are in a dilapidated condition. In rural areas, 83,149 houses are in good condition, 65,789 are in livable condition and 9,888 are in a dilapidated condition. The statistics thus demonstrate that houses in rural areas are more vulnerable to hazards than houses in urban areas. Furthermore, those, staying in grass/ thatch/ bamboo/ wood/ mud houses are far more vulnerable to fire, storms, lightening, hailstorms, cold and heat waves. Concrete/stone/brick houses are more vulnerable during earthquakes, while houses made of mud are far more vulnerable during floods. This means that the hazard event’s impact will vary based upon the material used for construction.

then younger persons. Similarly, children are especially vulnerable too. Persons With Disability (PWD) face many problems, especially during disasters and while trying to move to safer areas, owing to their physically challenged state.

2.8.3 Economic Vulnerability:

Economic vulnerability is a crucial aspect of the vulnerability spectrum in the context of disasters and disaster management at the district-level. This vulnerability is exposed in the form of inequity and/or inequality during disaster response and relief-distribution and also the inability of the community to rehabilitate itself.

Total No. of Rural HHs	Total Rural Population	Total No. of BPL HHs	% of BPL HHs	BPL HHs		
				SC	BC	Landless
184637	908329	47640	25.80	31008	12947	46929

2.9 Capacity Analysis:

The district possesses numerous resources and capacities which can be used useful in emergencies as well as in normal times. The

table below shows a broad listing of the key resources/capacities available in the district with different departments/agencies:

Table 2.5 Capacity Analysis

Sl. No.	Capacity/Resource	Details
1.	Canals/Drains	18
2.	Rivers	Ghagggar River
3.	Power Stations	33 KV Sub-stations – 29
4.	Telecommunication Office	Telephone Exchange (BSNL)
5.	Road connectivity	1 National Highway (NH-8), connected to state-borders of Punjab and Rajasthan
6.	Railway Network	Northern-Western Railway from Delhi to Bhatinda Jn. All such trains pass through/stop at Sirsa railway station
7.	Internet	Mini Secretariat has internet connection, as do judicial and police buildings in the same complex
8.	Television Channel	Sirsa News
9.	Police Stations	13
10.	Religious Groups	3 (Main) + multiple (smaller)
11.	Boats	16 (11 motor, 5 inflatable)
12.	Health Facilities	2 General Hospitals 7 CHCs 21 PHCs
13.	Ambulance (Govt.)	22

2.10 Risk Analysis

Sr. No.	Hazard Risk Level	Hazard	What/Who is at Risk?
1	High Risk	Earthquake	<ul style="list-style-type: none"> • Human Life, • Cattle life, • Transport • Houses, • Infrastructure • Development Activities • Etc
			<ul style="list-style-type: none"> • Agriculture crops • Transport • Construction Activity • Drinking water

District Disaster Management Plan, Sirsa

		Flood	<ul style="list-style-type: none"> • Cattle & its food • Vulnerable groups • Electricity • Rice Mills • Livelihood • Trees (Plantation) • Vulnerable groups • Etc
		Fire	<ul style="list-style-type: none"> • Human life • Cattle • Houses & property • Crops • Malls
2	Moderate Risk	Cold wave	<ul style="list-style-type: none"> • Human Life • Cattle life • Small Animals • Crops • Trees • Livelihood • Vulnerable groups
		Heat Wave	<ul style="list-style-type: none"> • Human life • Cattle life • Trees (Plantation) • Electricity Supply • Houses • School & colleges
3	Low Risk	Hail Storm	<ul style="list-style-type: none"> • Crops • Cattle • Small Animals • Thatched Houses
		Road /Rail Accident	<ul style="list-style-type: none"> • Human Life • Transport network

3

Institutional Mechanism

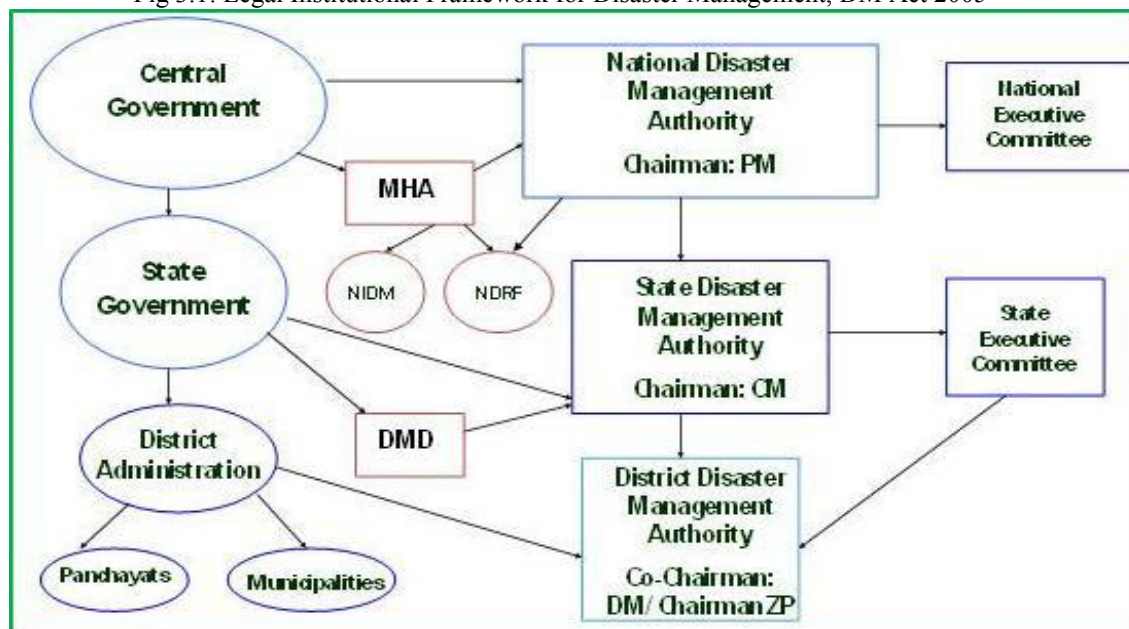
3.1 Institutional Mechanisms at National Level

3.1.1 Disaster Management Act, 2005

The DM Act 2005 and the National Policy on Disaster Management lays down institutional mechanisms at the National, State, District and Local levels. These mechanisms are expected to facilitate a paradigm shift in DM from relief-centric approach to a proactive regime

that lays greater emphasis on preparedness, prevention and mitigation. These institutions are formed for installation of legal, financial and coordination mechanisms at the National, State, District and Local levels.

Fig 3.1: Legal Institutional Framework for Disaster Management, DM Act 2005



Source: India Disaster Knowledge Network website

3.1.2 Central Government

In accordance with the provisions of the DM Act 2005, the Central Government will take all such measures, as it deems necessary or expedient, for Disaster Management and will coordinate actions of all agencies. The Central Ministries and Departments take into consideration the recommendations of the State Governments while deciding upon the various pre-disaster requirements and for deciding upon the measures for the prevention and mitigation of disasters. It ensures that the Central Ministries and departments integrate measures for the prevention and mitigation of

disasters into their developmental plans and projects, make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness and to effectively respond to any disaster situation or disaster. It has the power to issue directions to NEC, State Governments/SDMAs, SECs or any of their officers or employees, to facilitate or assist in DM, and these bodies and officials will be bound to comply with such directions. The Central Government also extends cooperation and assistance to the State Governments as required by them or otherwise

deemed appropriate by it. It takes measures for the deployment of the Armed Forces for Disaster Management if required. The role of the Armed Forces is governed by the instructions laid out in Instructions on Aid to Civil Authorities 1970. The Central Government also facilitates coordination with the UN Agencies, other International

organisations and Governments of foreign countries in the field of DM. Ministry of External Affairs, in co-ordination with MHA, will facilitate external co-ordination and cooperation. The Secretaries of the Nodal Ministries and Departments of GoI function for specific disasters based on their core competencies or as assigned to them.

Table 3.1: Nodal Ministries for Disaster Management

S. No.	Disaster	Nodal Ministries
1	Earthquake	Ministry of Home Affairs
2	Flood	Ministry of Home Affairs
3	Drought, Hailstorm and Pest Attack	Agriculture and Cooperation
4	Landslide	Ministry of Home Affairs
5	Avalanche	Ministry of Home Affairs
6	Cyclone/Tornado/Hurricane	Ministry of Home Affairs
7	Tsunami	Ministry of Home Affairs
8	Forest Fire	Environment and Forest
9	Nuclear Accident inside or outside the country which poses health or other hazards to people in India	Ministry of Home Affairs/ Dept of Atomic Energy
10	Chemical Disasters including Industrial accidents	Environment and Forest
11	Biological Disasters	Health & Family Welfare
12	Disasters in mine	Ministry of Coal/Ministry of Mines/ Concerned Ministry
13	Rail Accidents	Ministry of Railways
14	Road Accident	Ministry of Road Transport, Highways and Shipping
15	Civil Aviation Accidents	Civil Aviation
16	Oil Spill	Coast Guard in coordination with concerned ministry and department

3.1.3 Cabinet Committee on Management of Natural Calamities (CCMNC) and the Cabinet Committee on Security (CCS)

CCMNC oversees the management of natural calamities including assessment of the situation and identification of measures and programmes considered necessary to reduce its impact, monitor and suggest long term measures for prevention of such calamities, formulate and recommend programmes for public awareness for building up society's resilience to them. The Cabinet Committee on Security (CCS) deals with issues related to the defence of the country, law & order and internal security, policy matters concerning foreign affairs that have internal or external security implications, and economic and political issues impinging on National security.

to be carried out by the Secretary, Ministry of Agriculture and Cooperation. The recommendations of the IMG are considered

3.1.4 High Level Committee (HLC)

The HLC comprises the Finance Minister, Home Minister, Agriculture Minister and Deputy Chairman of the Planning Commission as members. The constitution and composition of HLC may vary from time to time. The Vice Chairperson, NDMA will be a special invitee to the HLC. In the case of calamities of severe nature, Inter-Ministerial Central Teams are deputed to the affected States for assessment of damage caused by the calamity and the amount of relief assistance required. The Inter Ministerial Group (IMG), headed by the Union Home Secretary, scrutinises the assessment made by the Central teams and recommends the quantum of assistance to be provided to the States from the National Calamity Contingency Fund (NCCF). However, assessment of damages by IMG in respect of drought, hail-storms, and pest attacks continue

and approved by the High Level Committee chaired by the Union Agriculture Minister.

in the discharge of its functions and also ensure compliance of the directions issued by

3.1.5 National Crisis Management Committee (NCMC)

NCMC, comprising high level officials of the GoI headed by the Cabinet Secretary, deals with major crises which have serious ramifications. It is supported by the Crisis Management Groups (CMG) of the Central Nodal Ministries and assisted by NEC as may be necessary. The Secretary, NDMA is a permanent invitee to this Committee.

3.1.6 National Disaster Management Authority (NDMA)

The NDMA, as the apex body for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters. It approves the National Disaster Management Plans and DM plans of the Central Ministries/Departments. It takes other measures which are considered necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. Central Ministries/Departments and State Governments extend necessary cooperation and assistance to NDMA for carrying out its mandate. It oversees the provision and application of funds for mitigation and preparedness measures. NDMA has the power to authorise the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. The general superintendence, direction and control of the National Disaster Response Force (NDRF) is vested in and will be exercised by the NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and guidelines laid down by the NDMA.

3.1.7 National Executive Committee (NEC)

The NEC is the executive committee of the NDMA, and is mandated to assist the NDMA

the Central Government. It comprises the Union Home Secretary as Chairperson, and the Secretaries to the GoI in the Ministries/Departments of Agriculture,

Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science & Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways, and the Secretary, NDMA are special invitees to the meetings of the NEC.

3.1.8 National Institute of Disaster Management (NIDM)

The NIDM, in partnership with other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a National level information base. It networks with other knowledge-based institutions and function within the broad policies and guidelines laid down by the NDMA. It organises training of trainers, DM officials and other stakeholders.

3.1.9 National Disaster Response Force (NDRF)

The NDRF is a specialised response force to tackle a threatening disaster situation or disasters/ emergencies both natural and man-made. NDRF units maintain close liaison with the designated State Governments and aim to be available to them in the event of any serious threatening disaster situation. Currently there are 10 battalions of NDRF out of which each battalion is equipped to deal with natural disasters rests and four battalions are also equipped and trained to respond to situations arising out of CBRN emergencies. Training centres are being set up by respective paramilitary forces to train personnel from NDRF battalions of respective forces to meet the training requirements of State/UT Disaster Response Forces. The NDRF units also impart basic training to all the stakeholders identified by the State Governments in their respective locations. The locations of battalions are as follows:

Table 3.2: Battalions of National Disaster Management Response Force (NDRF)

Battalion	Location	Area of Responsibility for Natural Disaster	Area of Responsibility for CBRN Emergencies
1 st Bn NDRF	Guwahati	N.E. States	Kolkata Battalion
2 nd Bn NDRF	Kolkata	West Bengal, Sikkim, Jharkhand	
3 rd Bn NDRF	Mundali	Orissa, Chhatisgarh	Arakkonam Battalion
4 th Bn NDRF	Arakkonam	Tamil Nadu, Kerala, Puduchery, A & N Islands, Lakshadweep	
5 th Bn NDRF	Pune	Maharashtra, Karnataka, Goa	Pune Battalion
6 th Bn NDRF	Gandhi Nagar	Rajasthan, Gujarat, Madhya Pradesh, Dadra & Nagar Haveli, Daman & Diu	
7 th Bn NDRF	Bhatinda	Chandigarh, Punjab, J&K, Himachal Pradesh	Ghaziabad Battalion (Greater Noida)
8 th Bn NDRF	Ghaziabad	UP (Remaining Parts as not included under Patna Battalion), Uttarakhand, Haryana, Delhi	
9 th Bn NDRF	Patna	Bihar, Parts of UP (Allahabad, Ambedkar Nagar, Ajamgarh, Baraich, Balia, Balampur, Basti, Chandoli, Devariya, Faizabad, Gazhipur, Gonda, Gorkhpur, Jaunpur, Kaushambi, Srinagar, Mahranaganj, Mao, Mirzapur, Pratapgarh, Sant Kabir Nagar, Sant Ravidas Nagar, Siddharth Nagar, Sonbhadra, Sultanpur, Varanasi)	Kolkata Battalion
10 th Bn NDRF	Vijayawada	Andhra Pradesh, Karnataka	Arakkonam Battalion

3.2 Institutional Mechanisms at State Level

3.2.1 Haryana State Disaster Management Authority (HSDMA)

The HSDMA is the apex body for disaster management at State level is headed by the Chief Minister. It lays down policies, plans and guidelines for Disaster Management and coordinates their enforcement and implementation for ensuring timely and effective response to disasters. It takes other measures which are considered necessary, for the prevention of disasters,

or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. It oversees the provision and application of funds for mitigation and preparedness measures. HSDMA has the power to authorise the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. The members of the HSDMA are as under:

Table 3.3: Members of Haryana State Disaster Management Authority (HSDMA)

S. No.	Members	Designation in HSDMA
1	Chief Minister, Haryana	Chairperson, Ex-officio
2	Finance Minister, Haryana	Member
3	Health Minister, Haryana	Member
4	Rural Development & Panchayats Minister, Haryana	Member
5	Minister of state for Revenue	Member
6	Chief Secretary Haryana	Member and Chief Executive Officer, Ex-officio
7	Financial Commissioner, Revenue and Disaster Management, Haryana	Member
8	Home Secretary, Haryana	Member
9	Representative of National Disaster Management Authority	Member

3.2.2 State Executive Committee (SEC)

State Executive Committee (SEC), Haryana assists the HSDMA in the performance of its functions. The SEC will be headed by the Chief Secretary (CS) to the State Government and has four Ex-officio members (Financial Commissioner & Principal Secretary to Government, Haryana from four departments viz. Revenue & Disaster Management Department, Home Department, Finance department, Health Department, Haryana). SEC coordinates and monitors the implementation of the National Policy, the National Plan and the State Plan. The SEC coordinates and monitors management of disasters in the state. It monitors the implementation of disaster management plans prepared by the departments of the Government of the State and District Authorities.

3.2.3 State Advisory Committee (SAC)

The State Advisory Committee (SAC) in Haryana is under the Chairmanship of the Financial Commissioner & Principal Secretary to the Government of Haryana (Revenue and Disaster Management). It constitutes members from various departments and bodies within the Government of Haryana. It functions as an advisory committee that makes recommendations on different aspects of disaster management in the state.

3.2.5 Centre for Disaster Management–Haryana Institute of Public Administration (HIPA), Gurgaon

The Centre for Disaster Management, Haryana Institute of Public Administration, in partnership with NIDM and other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a State level information base. It networks with other knowledge-based institutions and functions within the broad policies and guidelines laid down by the HSDMA. It organizes trainings for Disaster Management officials and other stakeholders.

3.3 Institutional Mechanisms at District Level

3.3.1 District Disaster Management Authority (DDMA), Sirsa

District Disaster Management Authority, Sirsa, plans, coordinates and implements all measures for the purposes of Disaster Management in accordance with the Guidelines laid down by NDMA and HSDMA. It gives direction to departments at district level and local authorities to take measures for prevention or mitigation of disasters and also monitors that they implement disaster management plans at their respective level. The members of DDMA are as under:

Table 3.4: Members of District Disaster Management Authority (DDMA)

S. No.	Members	Designation in DDMA
1	Deputy Commissioner, Sirsa	Chairperson ex officio
2	Chairman of Zila Parishad, Sirsa	Co-Chairperson
3	Additional Deputy Commissioner, Sirsa	Chief Executive Officer ex officio
4	Deputy Commissioner of Police (Head quarters), Sirsa	Member ex officio
5	Chief Medical Officer	Member ex officio
6	Superintending Engineer, PWD(B&R)	Member
7	District Revenue and Disaster Management Officer	Member

3.3.2 District Crisis Group

The district crisis group is the apex body in the district to deal with major chemical and industrial accidents and to provide expert guidance for appropriately handling them. It

prepares the District Offsite Emergency Plan and reviews the Onsite Emergency plans prepared by various respective Major Accident Hazard (MAH) installations. The members of District Crisis Group are as under:

Table 3.4: Members of District Crisis Group

S. No.	Members	Designation in District Crisis Group
1	Deputy Commissioner, Sirsa	Chairperson
2	Assistant Director, Industrial Safety and Health, Sirsa	Member Secretary
3	General Manager, District Industrial Centre, Sirsa	Member
4	District Fire Officer, Sirsa	Member
5	District Public Relation Officer, Sirsa	Member
6	Deputy Controller, Civil Defence, Sirsa	Member
7	One representative of Trade Unions (to be nominated by Deputy Commissioner, Sirsa)	Member
8	Police	Member
9	Civil Surgeon, Sirsa	Member
10	Executive Engineer, MC, Sirsa	Member
11	Executive Engineer, PWD, Sirsa	Member
12	Deputy Director, Agriculture, Sirsa	Member
13	District Agriculture Officer, Sirsa	Member
14	Deputy Director, Industrial Safety and Health, Sirsa	Member
15	General Manager, Haryana Roadways, Sirsa	Member
16	One representative of Industries (to be nominated by Deputy Commissioner, Sirsa)	Member

3.3.3 Control Rooms**3.3.3.1 Police Control Room**

Table 3.5: Police Control Room and Helpline

Control Room/ Helpline	Contact Number
Police Control Room	01666-100
SMS to Police Control Room	01666100
Senior Citizens Helpline	
Women and Children Helpline	1097
Women Helpline	1091
Traffic Helpline	1073 (BSNL), 1033 (Mobile)
Report Suspicious person or activity	1090

3.3.3.2 Flood Control Room

The flood control room, Sirsa is located in the office of the District Revenue Officer at Mini Secretariat, Sirsa and he functions as the officer-in-charge of the same. The control room is functional at all hours during the rainy season for the purpose of receiving flood warnings and other information. It also receives all messages /instructions from the state control room and passes them on to the officer in -charge, who, if required, directs them further to sub-divisional control room and tehsil control room. The control rooms at the sub divisional, tehsil /sub-tehsil headquarters receive all information regarding flood situation in their respective areas from

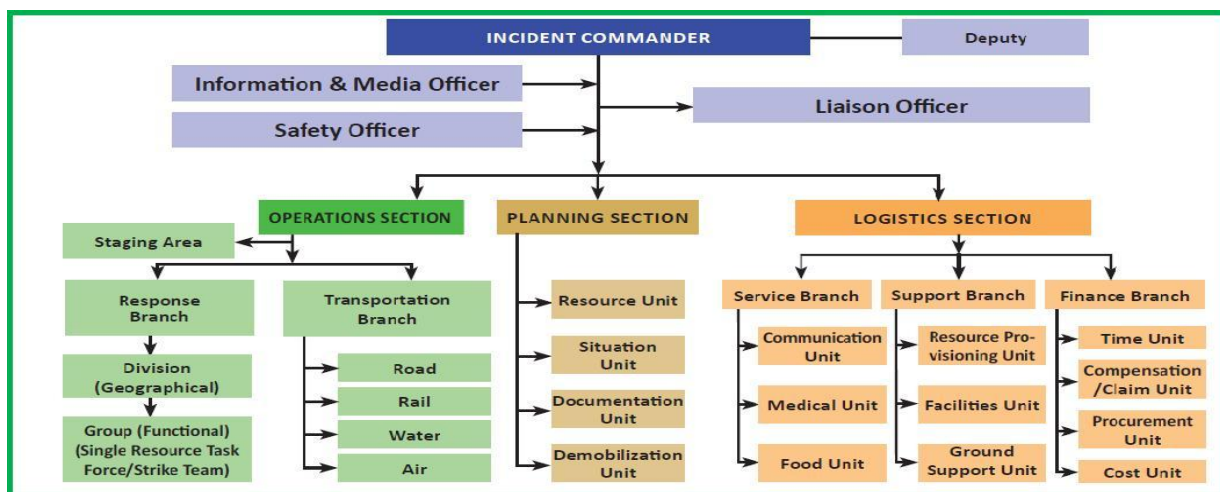
the sector officers and also convey any information pertaining to flood relief operations from the central control room or any other source to the sector officers. They also issue directions regarding evacuation and supply of relief items to human beings and cattle and all other precautionary measures according to flood situation prevailing in their respective areas. All the information so collected is transmitted by the officer-in-charge, flood relief branch to the Financial Commissioner (Revenue), Haryana, Chandigarh daily through wireless in the Performa prescribed by the state government time to time.

Table 3.6: Details of Flood Control Room

Site of Control Room	Officer-in-charge	Telephone Number
DRO Office	DRO, Sirsa	01666-248882
Tehsil Office Rania	Tehsildar, Rania	01698- 250279
Tehsil Office Dabwali	Tehsildar, Dabwali	01668- 230035
Tehsil Office Ellenabad	Tehsildar, Ellenabad	01698- 220289

3.3.4 Incident Response System at District Level

Fig 3.2: The Incident Response System (IRS) at district level



The Incident Response System (IRS) at district level identifies and designates officers to perform various duties and get them trained in their respective roles; thus reducing chaos and confusion during the response phase. It is a flexible system and all the Sections, Branches and Units need not be activated at the same time. Various Sections, Branches and Units

need to be activated only as and when they are required. It also includes proper documentation of various activities for better planning, accountability and analysis which also helps new/ outside responders to immediately get a comprehensive picture of the situation and go in for immediate action.

Table 3.7: Incident Response Structure at District Level, Sirsa

Designation	Roles and Responsibilities
Deputy Commissioner (DC), Sirsa as Responsible Officer (RO)	<ol style="list-style-type: none"> 1. Ensure formation of Incident Response Teams (IRT) at District, Sub-Division, Tehsil/Block. 2. Ensure that a reasonable amount of imprest fund is sanctioned clearly delineating the procedure for emergency procurement. 3. Ensure effective communication and Web based / online Decision Support System (DSS) is in place in the EOC and connected with District, Sub-Division, Tehsil/Block level. 4. Appoint / deploy, terminate and demobilize Incident Commander (IC) and IRT(s) as and when required. 5. Decide overall incident objectives, priorities and ensure that Incident Action Plan (IAP) is prepared by the IC and implemented. 6. Identify, mobilize and allocate critical resources according to established priorities from with any department of the Government, Local Authority, private sector in the district. 7. Coordinate with the State Government for mobilization of Armed Forces, Air support etc. as and when required. 8. Ensure overall coordination of response, relief and other activities. 9. Ensure that NGOs carry out their activities in an equitable and non-Discriminatory manner. 10. Mobilize experts and consultants in the relevant fields for advice, if necessary. 11. Conduct post response review on performance of IRTs and take appropriate

	<p>steps to improve performance.</p> <p>12. Take such other necessary action as the situation demands.</p>
A. COMMAND STAFF	
<p>Additional Deputy Commissioner (ADC), Sirsa as Incident Commander (IC)</p>	<ol style="list-style-type: none"> 1. Obtain information on: <ol style="list-style-type: none"> a. Incident situation status like number of people and the area affected etc. b. Availability and procurement of resources c. Requirement of facilities like ICP, Staging Area, Incident Base, Camp, Relief Camp, etc. d. Availability and requirements of Communication system e. Future weather behavior from IMD f. Any other information required for response from all available sources and analyze the situation 2. Determine incident objectives and strategies based on the available information and resources and establish immediate priorities and strategies. 3. Establish appropriate IRS with Sections, Branches, Divisions and/or Units based on the span of control and scale of the incident. 4. Establish Incident Command Post (ICP) at a suitable place. There will be one ICP even if the incident is multijurisdictional. 5. Prepare Incident Action Plan (IAP) which should be reviewed every 24 hours and circulated to all concerned. 6. Hold planning meeting at regular interval. 7. Ensure that adequate safety measures for responders and affected communities are in place. 8. Ensure proper coordination between all sections of the IRT, agencies working in the response activities and make sure that all conflicts are resolved. 9. Consider requirement of resources, equipment which are not available in the functional jurisdiction, discuss with Planning Section Chief (PSC) and Logistics Section Chief (LSC) and inform RO regarding their procurement. 10. Authorise release of information to the media. 11. Recommend demobilisation of the IRT, when appropriate. 12. Review public complaints and recommend suitable grievance redressal measures to the RO. 13. Perform any other duties that may be required for the management of the incident.
<p>District Information and Public Relation Officer (DIPRO), Sirsa as Information and Media Officer (IMO)</p>	<ol style="list-style-type: none"> 1. Prepare and release information about the incident to the media agencies and others with the approval of IC. 2. Record decisions taken and directions issued in case of sudden disasters when the IRT has not been fully activated and hand it over to the Planning Section (PS) on its activation for incorporation in the IAP. 3. Monitor and review various media reports regarding the incident that may be useful for incident planning. 4. Organise IAP meetings as directed by the IC or when required. 5. Coordinate with IMD to collect weather information and disseminate it to all concerned. 6. Maintain record of various activities performed and perform such other duties as assigned by IC.
<p>City Magistrate, Sirsa as Liaison Officer (LO)</p>	<ol style="list-style-type: none"> 1. Maintain a list of concerned line departments, agencies (CBOs, NGOs, etc.) and their representatives at various locations. 2. Liaison with all concerned agencies including NDRF and Armed Forces and line departments of Government. 3. Monitor operations to identify current or potential inter-agency problems. 4. Participate in planning meetings and provide information on response by participating agencies.

District Disaster Management Plan, Sirsa

	<ol style="list-style-type: none"> 5. Keep the IC informed about arrivals of all the Government and Non Government agencies and their resources. 6. Organise briefing sessions of all Governmental and Non Governmental agencies with the IC. 7. Maintain record of various activities performed and perform such other duties as assigned by IC.
Dy. SP (HQ), Sirsa as Safety Officer (SO)	<ol style="list-style-type: none"> 1. Recommend measures for assuring safety of responders and to assess or anticipate. 2. Identify hazardous and unsafe situations and review it regularly. 3. Participate in planning meetings for preparation of IAP and review the IAP for safety implications. 4. Obtain details of accidents that have occurred within the incident area if required or as directed by IC and inform the appropriate authorities. 5. Review and approve the Site Safety Plan, as and when required. 6. Maintain record of various activities performed and perform such other duties as assigned by IC.

B. GENERAL STAFF

Operation Section	
Sub-Divisional Magistrate (SDM) of affected area as Operation Section Chief (OSC)	<ol style="list-style-type: none"> 1. Coordinate with the activated Section Chiefs. 2. Manage all field operations for the accomplishment of the incident objectives. 3. Ensure the overall safety of personnel involved in the OS and the affected communities. 4. Deploy, activate, expand and supervise organisational elements (Branch, Division, Group, etc) in his Section in consultation with IC and in accordance with the IAP. 5. Brief the personnel in OS at the beginning of each operational period and ensure resolution of all conflicts, information sharing, coordination and cooperation between the various Branches of his Section. 6. Consult the IC from time-to-time and keep him fully briefed. 7. Determine the need for additional resources and place demands accordingly and ensure their arrival. 8. Ensure record of various activities performed and perform such other duties as assigned by RO / IC.
Tehsildar of the affected area as Staging Area Manager	<ol style="list-style-type: none"> 1. Establish the Staging Area with proper layout. 2. Organise storage and dispatch of resources received as per IAP. 3. Report all receipts and dispatches to OSC and maintain their records. 4. Manage all activities of the SA and utilise all perishable supplies expeditiously. 5. Request maintenance and repair of equipment at SA, as needed. 6. Ensure that communications are established with the ICP, different SAs, Incident Base, Camp, Relief Camp. 7. Maintain and provide resource status to PS and LS. 8. Demobilise SA in accordance with the Demobilisation Plan. 9. Maintain record of various activities performed and perform any other duties as assigned by OSC.
Response Branch Director (RBD) <i>There is RBD from each of the frontline department; the details are dealt in Annexure</i>	<ol style="list-style-type: none"> 1. Ensure implementation of IAP as per the assigned role. 2. Attend planning meetings as required by the OSC and review assignment lists for Divisions or Groups under Response Branch. 3. Report to OSC regarding modifications required if any in the IAP, need for additional resources, availability of surplus resources and when hazardous situations or significant events occur, etc. 4. Provide Single Resource, Strike Team and Task Force support to various operational areas.
Division Supervisor	<ol style="list-style-type: none"> 1. Ensure implementation of division or group assignment list. 2. Assign resources within the division or group under them.

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	<ol style="list-style-type: none"> 3. Report on the progress of Operations, and the status of resources within the division or group. 4. Coordinate activities with adjacent divisions or groups, if required. 5. Submit situation and resource status to the RBD and the OSC. 6. Report all hazardous situations, special occurrences or significant events (e.g., accidents, sickness, deteriorating weather conditions, etc.) to the RBD and the OSC. 7. Participate in the development of IAP for next operational period, if required.
Single Resource Leader	<ol style="list-style-type: none"> 1. Take charge of necessary equipment and supplies. 2. Assess local weather and environmental conditions, law and order situation etc. in the assigned area and report to division supervisor or group in charge. 3. Perform the assigned duty and keep contact with his supervisor.
Regional/District Transport Officer, Sirsa as Transport Branch Director (TBD)	<ol style="list-style-type: none"> 1. Activate and manage different operations groups like road, rail and air. 2. Coordinate with railways, road transport and airport authorities for support. 3. Provide ground support to the air operations and ensure appropriate security arrangements. 4. Provide Road transport support to the Rail Operations Group as required. 5. Ensure safety of all personnel of this Branch involved in the Incident Response activities. 6. Ensure that all units moving in the area are familiarised with route with the help of road maps or local guides. 7. Prepare transportation plan as per the IAP. 8. Determine the need for additional resources, their proper and full use and place demand accordingly in advance. 9. Ensure the maintenance of the status of hired resources, their full utilisation and timely release. 10. Ensure that the record of various activities performed and perform any other duties assigned by the IC or OSC.
Secretary RTA, Sirsa as Group-in-charge (Road Operations)	<ol style="list-style-type: none"> 1. Ensure transportation of resources by road to the affected sites. 2. Attend planning meetings on the direction of OSC and determine coordination procedures with various destinations as per IAP and update Road Operations plan as required. 3. Ensure proper parking locations. 4. In case of accidents, inform the TBD, the local police and provide assistance in investigation, if required. 5. Ensure that mechanics are available for repair of vehicles and also ensure adequate availability of Petrol, Oil and Lubricants (POL). 6. Maintain the records of all important activities relating to the number of vehicles deployed, source of vehicles (i.e. Government or private), locations where vehicles are deployed along with resource details they are carrying. 7. Support and coordinate the road operations part of the rail and air operations.
Station Master, Sirsa as Group-in-charge (Rail Operations)	<ol style="list-style-type: none"> 1. Prepare and provide rail operations summary including time of departure and arrival, destinations, resource details, etc as and when required by the senior officers. 2. Coordinate with road operations group for movement of resources. 3. Organise crew for loading and unloading. 4. Ensure safe storage and warehousing of the materials. 5. Update Rail Operations Plan. 6. Establish and maintain communications with various storage and warehousing areas, destination points and railway officers.
Planning Section	
Additional Deputy Commissioner (ADC), Sirsa as	<ol style="list-style-type: none"> 1. Coordinate with the activated Section Chiefs for planning and preparation of IAP in consultation with IC. 2. Ensure that decisions taken and directions issued in case of sudden disasters

<p>Planning Section Chief (PSC)</p>	<p>when the PS had not been activated are obtained from the IMO and incorporated in the IAP.</p> <ol style="list-style-type: none"> 3. Prepare IAP by assessing the current situation, predicting probable course of the incident and preparing alternative strategies. 4. Ensure collection, evaluation, and dissemination of information about the incidents including weather, environment toxicity, availability of resources etc. from concerned technical specialist, demobilization unit, documentation unit, situation unit, resource unit and other sources. 5. The PS must have a databank of available resources with their locations from where it can be mobilized. 6. Plan to activate and deactivate IRS positions as appropriate, in consultation with the IC and OSC. 7. Utilise IT solutions for pro-active planning, GIS for decision support and modeling capabilities for assessing and estimating casualties and for comprehensive response management plan. 8. Prepare and implement of Incident Demobilisation Plan. 9. Ensure that record of various activities performed and perform any other duties assigned by IC.
<p>District Town Planner (DTP), Sirsa as Resource Unit Leader (RUL)</p>	<ol style="list-style-type: none"> 1. Maintain and display the status of all assigned resources at the incident site by maintaining a resource status-keeping system. 2. Access information about availability of all required resources at other locations and prepare a plan for their mobilization. 3. Ensure and establish check-in function at various incident locations. 4. Update the PSC and IC about the status of resources received and dispatched from time to time. 5. Coordinate with the various activated Branches, Divisions and Groups for checking status and utilisation of allotted resources. 6. Ensure quick and proper utilisation of perishable resources.
<p>Assistant Town Planner (ATP), Sirsa as Check-in/ Status Recorder</p>	<ol style="list-style-type: none"> 1. Report to the RUL and ensure that all resources assigned to an incident are accounted for at each check-in point. 2. The status of resources would be displayed through T card board or through a computerised programme on the computers. 3. Establish communications with the EOC and Ground Support Unit (GSU) of LS. 4. Ensure displays of check-in locations on signboard so that arriving resources can easily locate the check-in location(s). 5. Transmit Incident Check-in and deployment information to Resource Unit on a regular and prearranged schedule or as needed.
<p>District Planning Officer, Sirsa as Situation Unit Leader (SUL)</p>	<ol style="list-style-type: none"> 1. Collect, process and organise all incident information as soon as possible for analysis. 2. Prepare periodic future projections of the development of the incident (along with maps if required) and keep the PSC and IC informed. 3. Prepare situation and resource status reports and disseminate as required. 4. Provide authorised maps, photographic services to responders, if required. 5. Attend IAP Meeting with required information, data, documents and Survey of India maps etc. 6. Maintain record of various activities performed and send to concerned section.
<p>Naib Tehsildar of the affected area as Display Processor</p>	<ol style="list-style-type: none"> 1. Display incident status obtained from Field Observers (FOs), Single Resource, Strike Teams, Task Forces, aerial photographs and other data received from Technical Sources and report to the SUL. 2. Ensure timely completion of display chart. 3. Assist in analysing and evaluating field reports. 4. Maintain record of various activities performed and send to the SUL.
<p>Patwari of the</p>	<ol style="list-style-type: none"> 1. Report to SUL immediately on observing any situation, including local weather

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affected area as Field Observer	<p>conditions, posing danger or being a safety hazard to responders and affected communities.</p> <ol style="list-style-type: none"> 2. Gather intelligence that may facilitate better planning and effective response. 3. Maintain record of various activities performed and send to the SUL.
Senior Town Planner, Sirsa as Documentation Unit Leader (DUL)	<ol style="list-style-type: none"> 1. Ensure that all the required forms and stationery are procured and issued to all the activated sections, branches, divisions, groups and units. 2. Compile all information and reports related to the incident. 3. Review and scrutinise the records and various IRS forms for accuracy and completeness. 4. Inform appropriate units of errors or omissions in their documentation, if any, and ensure that errors and omissions are rectified. 5. Store files properly for post-incident analysis.
Tehsildar of the affected area as Demobilization Unit Leader (Demob. UL)	<ol style="list-style-type: none"> 1. Prepare Incident Demobilisation Plan (IDP). 2. Identify surplus resources and prepare a tentative IDP in consultation with the PSC and give priority to demobilisation of surplus resources. 3. Develop incident check-out functions for sections, branches, divisions and units in consultation with all sections and send to the PS. 4. Plan for logistics and transportation support for Incident Demobilisation in consultation with LS. 5. Disseminate IDP at an appropriate time to various stakeholders involved ensuring that all sections, units, teams and resources understand their specific Incident demobilisation responsibilities and avail demobilisation facilities. 6. Brief the PSC on the progress of demobilization.
Logistics Section	
District Revenue Officer (DRO), Sirsa as Logistics Section Chief (LSC)	<ol style="list-style-type: none"> 1. Coordinate with the activated Section Chiefs. 2. Provide logistic support to all incident response effort including the establishment of Staging Area, Incident Base, Camp, Relief Camp, Helipad, IDP etc. 3. Participate in the development and implementation of the IAP. 4. Keep RO and IC informed on related financial issues and request for sanction of Imprest Fund, if required. 5. Ensure the safety of the personnel of his Section. 6. Brief Branch Directors and Unit Leaders. 7. Anticipate over all logistic requirements for relief Operations and prepare accordingly. 8. Constantly review the Communication Plan, Medical Plan and Traffic Plan to meet the changing requirements of the situation. 9. Assess the requirement of additional resources and take steps for their procurement in consultation with the RO and IC. 10. Ensure that the hiring of the requisitioned resources is properly documented and paid by the Finance Branch. 11. Ensure that cost analysis of the total response activities is prepared. 12. Ensure that record of various activities performed and perform any other duties as assigned by RO or IC.
District Revenue Officer, Sirsa as Service Branch Director (SBD)	<ol style="list-style-type: none"> 1. Work under the supervision of LSC, and manage all required service support for the incident management. 2. Discuss with activated Unit leaders for the materials and resources required and procure the same through LS. 3. Ensure proper dispatch of personnel, teams, resources etc as per the IAP. 4. Prepare an assignment list, if required.
Communication Unit Leader (Com. UL)	<ol style="list-style-type: none"> 1. Provide communications facility as and when required. 2. Ensure that all communications equipment available is in working condition and that the network is functional.

	<ol style="list-style-type: none"> 3. Maintain the records of all communications equipment deployed in the field and recover them after the incident is over. 4. Ensure setting up of a message centre to receive and transmit radio, telephone and other messages from various activated sections, branches, units and higher authorities and maintain their records. 5. Prepare an alternative communication plan for execution in case of possible failure of the normal communications network. The alternative communications network may have wireless, satellite phones, cell phones, HAM radios etc. 6. Prepare a plan for integration of the communications set up of the central teams (NDRF, Armed Forces) with the local communications set up for the management of large scale disasters when they come to assist in the response effort.
Deputy Chief Medical Officer (CMO), Sirsa as Medical Unit Leader (MUL)	<ol style="list-style-type: none"> 1. Prepare the Medical Plan and procurement of required resources. 2. Provide medical aid and ambulance for transportation of victims and maintain the records of the same. 3. Obtain a road map of the area from the PS for the ambulance services, transportation of medical personnel and victims. 4. Respond to requests of the OS for medical aid, transportation and medical supplies etc. under intimation to the SBD and LSC. 5. Maintain the list of medical personnel who could be mobilised in times of need. 6. Prepare and circulate list of referral service centres to all the medical team leaders.
Superintendent, Food and Supplies Department, Sirsa as Food Unit Leader (FUL)	<ol style="list-style-type: none"> 1. Supply resources to various activated sections, branches, units and groups of IRT as per direction of the SBD. 2. Supply food to personnel of IRT(s) at ICP, camps, incident base, SA, victims at the temporary shelters, relief camps etc. 3. FUL may request the LSC to split the unit (if the task becomes very large) into two groups—one to supply food for personnel and another for victims. 4. Determine food and drinking water requirements and their transportation and brief the SBD and LSC. 5. Maintain an inventory of receipt and dispatch of resources.
District Revenue Officer (DRO), Sirsa as Support Branch Director (Sup. BD)	<ol style="list-style-type: none"> 1. Procure and dispatch required tactical materials and resources for operations with the concurrence of the Section Chief. 2. Participate in the planning meeting of the LS. 3. Ensure that organisation assignment list concerning the branch is circulated to all units under Sup. BD.
Naib tehsildar of affected area as Resource Provisioning Unit Leader (RPUL)	<ol style="list-style-type: none"> 1. Organise movement of personnel, equipment and supplies. 2. Receive and store safely all supplies required for the incident response. 3. Maintain the inventory of supplies and equipment. 4. Organise repair and servicing of non-expendable supplies and equipment. 5. Monitor the 'kind', 'type' and quantity of supplies available and dispatched and maintain the records of receipt and dispatch of supplies including equipment and personnel. 6. Receive and respond to requests for personnel, supplies and equipment from the activated sections, branches, divisions, units and groups under intimation to Sup. B.D.
Naib tehsildar of affected area as Facilities Unit Leader (Fac. UL)	<ol style="list-style-type: none"> 1. Prepare the layout and activation of incident facilities like Incident Base, Camp(s), Relief Camp(s), ICP, etc., and provide basic amenities to the responders. 2. Locate the different facilities as per the IAP. 3. Participate in the planning meeting of the Section, prepare list for each facilities and its requirements in coordination with the LSC.
Naib tehsildar of affected area as	<ol style="list-style-type: none"> 1. Provide transportation services for field operations to TBD. 2. In case Air Operations are activated, organise and provide required ground

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<p>Ground Support Unit Leader (GSUL)</p>	<p>support through TBD.</p> <ol style="list-style-type: none"> 3. Provide maintenance and repair services for all the vehicles and related equipment used for incident management as per proper procedures and keep the concerned line departments informed through the Sup. BD and LSC. 4. Develop and implement the Incident Traffic Plan. 5. Inform Resource Unit about the availability and serviceability of all vehicles and equipment. 6. Arrange for and activate fueling requirements for all transport including Aircrafts in consultation with the Sup. BD. 7. Maintain inventory of assigned, available and off road or out of service resources.
<p>Chief Accounts Officer (CAO), Sirsa as Finance Branch Director (FBD)</p>	<ol style="list-style-type: none"> 1. Attend planning meetings. 2. Prepare a list of resources to be mobilised, procured or hired in accordance with the IAP. Obtain orders of the competent authority as per financial rules and take steps for their procurement without delay. 3. Ensure that time records of hired equipment, personnel and their services are accurately maintained as per Government norms for payment. 4. Examine and scrutinise cost involved in the entire response activity including the demobilisation, analysis the cost effectiveness and keep the LSC informed. 5. Ensure that all obligation documents initiated at the incident are properly prepared, completed, verified and signed by the appropriate Section Chief and BD. 6. Brief the LSC or IC on all incident related financial issues needing attention or follow-up.
<p>Deputy Superintendent, Revenue, Sirsa as Time Unit Leader (TUL)</p>	<ol style="list-style-type: none"> 1. Maintain time recording of hired equipment and personnel and ensure that it is maintained on a daily basis and according to government norms. 2. Examine logs of all hired equipment and personnel with regard to their optimal utilization. 3. Ensure that all records are correct and complete prior to demobilisation of hired resources.
<p>Naib Tehsildar (accounts), Sirsa as Compensation/ Claim Unit Leader (Com./ CUL)</p>	<ol style="list-style-type: none"> 1. Collect all cost data and provide cost estimates. 2. Prepare and maintain a list of requisitioned premises, services, resources and vehicles, etc. with correct date and time of such requisition. 3. Follow appropriate procedures for preparation of claims and compensation.
<p>Secretary, Red Cross/ Nazar, Sirsa as Procurement Unit Leader (PUL)</p>	<ol style="list-style-type: none"> 1. Attend to all financial matters pertaining to vendors and contracts. 2. Review procurement needs in consultation with the FBD and prepare a list of vendors from whom procurement can be done following proper procedures. 3. Ensure all procurements ordered are delivered on time. 4. Coordinate with the FBD for use of imprest funds, as required. 5. Complete final processing of all bills arising out of the response management and send documents for payment with the approval of the FBD, LSC and IC.
<p>Deputy Superintendent, Revenue, Sirsa as Cost Unit Leader (CUL)</p>	<ol style="list-style-type: none"> 1. Develop incident cost summaries in consultation with the FBD on the basis of Cost Analysis Report. 2. Make cost-saving recommendations to the FBD. 3. Complete all records relating to financial matters prior to demobilization.

Table 3.8 Response Branch, IRS

Sr No	Name Of Department	Members of Planning Committee under ADC	Response Branch Director	Divisional Supervisors	Single Resource Units
1.	Police	SP	DSPs	Inspectors at each Police Station	Sub-Inspector/Assistant Sub-Inspector at each Police Post
2.	Health	CMO	Deputy CMO (Health)	Senior Medical Officers (SMO) at each CHC	Each Medical Officer (MO) at each PHC
3.	Fire		District Fire Officer	AFSO/ Sub Fire Officer	Leading Firemen
4.	Food and Supply	DFSC	District Food and Supply Officer	Assistant food and Supply Officer	Inspector/ Sub Inspectors
5.	Public Health	SE	XENs	SDOs	JEs
6.	Irrigation	SE	XENs	SDOs	JEs
7.	PWD (B&R)	SE	XENs	SDOs	JEs
8.	HVPNL/ DHVBNL	SE	XENs	SDOs	JEs
9.	Agriculture	Dy. Director	SDAO	BAOs	ADOs
10.	Forest	District Forest Officer	Range officer	Foresters	Forest Guards
11.	Animal Husbandry	Dy. Director	SDOd	Veterinary Surgeon	VLDS
12.	Development and Panchayat	DDPO	BDPOs	SEPOs	Village Secretaries

4 Prevention & Mitigation Measures

Prevention can be defined as an action taken to avoid an incident or stopping an incident from occurring. It basically includes deterrence operations and surveillance.

Mitigation refers to measures that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies.

In order to know the mitigation measures already existing in the district, there are various development projects and schemes which will be seen in the following section.

As mentioned in the NDMA Guidelines, following are the measures to be taken for prevention and mitigation purposes:-

4.1 Prevention & Mitigation Measures

Both structural and non-structural measures shall be taken as part of mitigation plan. Structural mitigation refers to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure. Non-structural mitigation refers to policies, awareness, knowledge development, public commitment, information sharing which can reduce risk.

Table 4.1: Hazard-specific Structural & Non-Structural Measures

Hazard	Structural Measures	Non-Structural Measures
Flood	<ul style="list-style-type: none"> i. Strengthening/ construction of embankments, flood walls and flood levees ii. Proper regulation of lakes, dams and other water storage reservoirs iii. Improvement of channels iv. Proper desilting/dredging of rivers in order to keep the rise of the river beds minimum v. Drainage improvement in order to avoid congestion vi. Diversion of flood water in order to lower water levels in the rivers vii. Catchment area treatment/afforestation, building up of check dams/detention basins in order to reduce the flood peaks and control the suddenness of the runoff viii. Anti-erosion works such as revetment or pitching along with 	<ul style="list-style-type: none"> i. Flood plain zoning to regulate land use in the flood plains ii. Flood proofing iii. Flood forecasting and warning iv. Integrated Water Resource Management such as water resources assessment, socio-economic assessment, water resources planning, implementation of action plans, day-to-day water resources management (adjustments of the plans) and water resources protection and conservation v. Medical preparedness in terms of after-effects of floods requiring medical attention vi. Creating awareness to the type of illnesses and other health problems that can result in the aftermath of floods, to all the medical teams and

	<p>launching apron and spurs of earth protected by armour of stones or spurs of loose stones or stones in wire-mesh crates</p> <p>ix. Alignment, Location, Design and Provision of Waterway i.e. Vents, Culverts, Bridges and Causeways in National Highways, State Highways, District and Other Roads and Railways Embankments</p> <p>x. Inspection, rehabilitation and maintenance programme to ensure that the design capabilities are maintained</p>	<p>the community at large</p> <p>vii. Creation of trained medical first responders for first aid and resuscitation measures</p> <p>viii. Preparing of medical stores and medical kits</p> <p>ix. Developing of patient evacuation plans</p>
Earthquake	<p>i. Seismic strengthening of existing structures</p> <p>ii. Prioritization of structures especially critical/ lifeline structures</p> <p>iii. Structural safety audit of critical lifeline structures</p> <p>iv. Retrofitting of weak buildings</p> <p>v. Earthquake-resistant construction in rural and semi-urban areas</p>	<p>i. Development of Rapid Visual Screening procedures and Detailed Vulnerability Assessment</p> <p>ii. Regular conduction of Fire Safety Audits and Electrical Safety Audits</p> <p>iii. Public Awareness Campaigns</p> <p>iv. Techno-legal regime for ensuring compliance of earthquake-resistant design and construction practices in all new constructions</p> <p>v. Licensing and certification of professionals</p> <p>vi. Compliance review by professionals of PRIs and ULBs</p> <p>vii. Medical preparedness</p> <p>viii. Earthquake engineering education</p>
Drought	<p>i. Water management including water harvesting and conservation</p> <p>ii. Cloud seeding in drought-prone areas</p> <p>iii. Micro-irrigation including drip and sprinkler irrigation</p> <p>iv. Afforestation with bio-diesel species through the National Afforestation Programme</p>	<p>i. Drought-prone area delineation at block level based on rainfall, cropping pattern, available supplement irrigation, satellite derived indicators, soil map, groundwater availability map, cattle population and fodder demand and socio-economic data</p> <p>ii. Gradation of drought-prone areas based on the frequency of occurrence of droughts, sensitivity to rainfall variation and vulnerability of community</p> <p>iii. Monitoring of drought based on rainfall and other parameters, crop health, available ground water and migration and impact on</p>

		community iv. Insuring of crops
Fire	i. Establishment of Fire-stations as per Fire Safety Bye-laws	<ul style="list-style-type: none"> i. Implementation of Fire Act ii. Updating basic infrastructure and adopting modern technologies iii. Improving outreach of fire services iv. Provincialisation and formation of state level fire services v. Making the fire services a multi-hazard response unit vi. Training of community members in fire-fighting techniques vii. Putting in place audit system viii. Compulsory fire hazard evaluation of all types of buildings old and new ix. Planning and calendar of evacuation drills/ mock drills in vital installations/ industrial plants/ government buildings / schools and critical infrastructure like hospitals, etc. x. Enforcement of fire approvals as per the provisions contained in National Building Code (NBC), 2005 (Part IV- Life & Fire Safety) for new constructions.
Chemical & Industrial Accidents	i. Creation of appropriate infrastructure as mentioned in Off-site and On-site plans including Public Address system	<ul style="list-style-type: none"> i. Enforcement of code of practices, procedures and standards ii. Audits of On-site & Off-site Emergency plans at regular intervals iii. Statutory inspection, safety audit and testing of emergency plans iv. Safety Auditing v. Hotline telephone connection with nearby emergency services vi. Awareness generation among community regarding HAZMAT vii. Training of specialized Medical First Aid Responders
Biological Disasters	<ul style="list-style-type: none"> i. Installing High Efficiency Particulate Air (HEPA) filters in the ventilation systems of important buildings in order to prevent the entry of microbes ii. Enforcement of biosafety measures 	<ul style="list-style-type: none"> i. Strengthening of Integrated Disease Surveillance Systems in district for issuing public health measures ii. Regular survey and proper maintenance of water supply and sewage pipeline

	<p>in labs</p>	<ul style="list-style-type: none"> iii. Creation of awareness about personal hygiene iv. Vector control programmes v. Burial/disposal of dead bodies vi. Training of Rapid Response teams (RRTs) under IDSP vii. Provision of Personal Protective Equipment (PPE) to all health care workers prior coming in contact with the patients viii. Social distancing measures ix. Disease Containment by Isolation and Quarantine Methodologies x. Training/refresher training to Quick Response Medical Teams (QRMTs)/ MFRs to handle disasters due to natural epidemics/BT xi. Establishment of mobile hospitals/mobile teams at strategic locations xii. Preparation and promulgation of National Code of Practice for Biosecurity and Biosafety xiii. Provision of animal quarantine, providing health regulatory measures for import/export of livestock and livestock products, animal feeds, etc., and prevention of inter-state transmission of animal diseases and control of diseases of national importance through National Veterinary Services xiv. Proper disposal of carcass during and post-disasters xv. Initiation of PPP in livestock emergency management
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(Source: NDMA Guidelines)

4.2 Existing Schemes/Projects

There are a number of on-going schemes and projects in the district which will help out the widowed/destitute/handicapped people in a post-disaster scenario in order to generate livelihood options for them. There are also a few schemes which are for the health protective measures. These schemes can be used even in normal times in order to generate

employment as well as development of the population.

These projects indicate the ongoing works which will help in the prevention and mitigation process.

Following is the list of the projects and the schemes which help in the prevention and the mitigation measures:-

Table 4.2: Schemes/Projects for Prevention and Mitigation Measures:

Schemes/Projects for Prevention & Mitigation Measures		
Sl. No.	Name of Scheme	Responsible Department
1	Tuberculosis Control Program	Health
2	Urban Malaria Scheme	Health
3	National Tobacco Control Programme	Health
4	National Vector-Borne Disease Control Programme	Health
5	Leprosy Eradication Programme	Health
6	National Goiter Programme	Health
7	Rehabilitation of Water Course in Sirsa W/S Divn. Sirsa	Irrigation
8	Rehabilitation of Water Course in Rori W/S Divn. Sirsa	Irrigation
9	Rehabilitation of Water Course in Nehrana W/S Divn. Sirsa	Irrigation
10	Rehabilitation of Water Course in Ghaggar W/S Divn. Sirsa	Irrigation
11	Rehabilitation of Southern Ghaggar Canal from RD 2900 to 21600	Irrigation
12	Increasing capacity of Rangoi Kharif Channel from RD 0 to 280700 outfalling at Rd 68350/L Hisar Ghaggar Multipurpose Drain including HGMPD from RD 0-68350	Irrigation
13	Const.of Naiwala Kharif Channel offtaking from 22000/L Ghaggar Bani Sehdeva Link Channel	Irrigation
14	Construction of Ratta Khera Kharif Channel offtaking from RD 39000/R River Ghaggar	Irrigation
15	Construction of Mattuwala Kharif Minor offtaking from Rd 53800/R Sehdeva Parallel Channel	Irrigation
16	Const. of Ruppana Kharif Drain RD 0-5600 outfalling at Rd 72300/L HGMPD	Irrigation
17	Const. of Dhingatian Kharif Mr RD 0-34540 Tail offtaking from RD 17000/L Mangla Direct Mr, Rangri Kharif Mr RD 0-11200 offtake RD 24500/L Dhin Kh Mr & Dhingatia Kharif Sub Minor from RD 0-2220 offtake RD 34200/L Dhig Kh Mr (CM Announcement No 4062 dtd 25-12-2012)	Irrigation
18	Constructing Kaluana Kharif Channel from RD 0- 64500 Tail	Irrigation

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	offtaking from RD 73217/Tail of Ghaggar bani Sehdeva Link Channel (CM Announcement No 4060 dtd 25-12-2012)	
19	Const.of Bhamboor Kharif Mr. from RD 0-29473 Tail offtaking from Rd 1150/L Mangala Direct Mr (CM Announcement No 4061 dtd 25-12-2012)	Irrigation
20	Const.of Mangala Direct Sub Mr. RD 0 - 17500 Tail offtaking from RD 5000/L Dhingania Kharif Mr	Irrigation
21	Rehabilitation of Southern Ghaggar Canal from RD 2900 to 21600	Irrigation
22	Other Project is Rehabilitation of Watercourses invoving continuous process of remodelling depending upon availabilty of funds	Irrigation
23	Upgradation of Kalanwali Baragudha Sahuwala road upto NH-10(km. 0.00 to 21.43)	PWD (B&R) (Div.1)
24	Upgradation of Dabwali to Sangria road km. 2.15 to 13.00 in Sirsa Distt.	PWD (B&R) (Div.1)
25	Upgradation of Dabwali to Sangria road km. 13.00 to 31.52 in Sirsa Distt.	PWD (B&R) (Div.1)
26	Upgradation of Masitan to Dabwali Chautala road km. 0 to 11.40	PWD (B&R) (Div.1)
27	Addition/construction/alteration of Govt. Girls Sr. Secondary school at Dabwali in Sirsa Distt.	PWD (B&R) (Div.1)
28	Constructing of New I.T.I at Odhan (Minorities) in Sirsa Distt.	PWD (B&R) (Div.1)
29	Special]Office Building - Repair and renovation of Office Building of E.E and S.D.E Div no2 sirsa	PHED (Div.2)
30	RAMPURA BAGRIAN CONST. OF ADDI. SS TANK	PHED (Div.2)
31	SINGHPURA- Const of Addl. Tank	PHED (Div.2)
32	Chakerian:- Aug. Water Supply Scheme	PHED (Div.2)
33	Kheri Updating W/S Scheme	PHED (Div.2)
34	Jogiwala - layig of 12 i/d RCC pipe channel from heri dist. to exist channel	PHED (Div.2)
35	Mehna Khera: Providing Independent Water Works	PHED (Div.2)
36	Sheranwali Dhani- Laying of RCC Pipe Channel and Const. of Boosting Station	PHED (Div.2)
37	Various Dhanies: Laying of Pipe Line	PHED (Div.2)
38	Beharwala Khurd: Laying of RCC Pipe Chanel	PHED (Div.2)
39	Poharkan: Construction of Boosting Station	PHED (Div.2)
40	Various Water works: Replacement of Filter Media	PHED (Div.2)
41	Jorkian: Indep Water Works	PHED (Div.2)
42	Shakar Mandori: Laying of Pipe Line	PHED (Div.2)
43	Jassania: Laying of RCC Pipe Channel and Distribution System	PHED (Div.2)
44	Dhani Bachan Singh Lakhji Const. of Boosting Station	PHED (Div.2)

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45	Ganja Rupana- Repair of structures	PHED (Div.2)
46	DING VILLAGE : Aug W/S Scheme	PHED (Div.2)
47	SADEWALA : Aug W/S Sch to village Sadewala	PHED (Div.2)
48	Kumthal- Independent water works	PHED (Div.2)
49	Sant Nagar Model Village- Prov. W/S scheme	PHED (Div.2)
50	Nazia Khera- Updating water supply in Dera Sacha Sauda	PHED (Div.2)
51	Narel Khera - installation of 1 no. add. t/well	PHED (Div.2)
52	Jogiwala - updating water supply scheme	PHED (Div.2)
53	SHAHPURIA- Updating Water Supply	PHED (Div.2)
54	NAIWALA : Indep Water Works	PHED (Div.2)
55	SINGHPURA : Proviving and Laying RCC Pipe Inlet Channel village Singhpura	PHED (Div.2)
56	Shakar Mandori- Additional storage tank	PHED (Div.2)
57	Rupana Bishnoian- Const. of additional S/S tank	PHED (Div.2)
58	Gadrana-Construction of boosting station in Harijan Basti	PHED (Div.2)
59	Sukhchain- Construction of boosting station	PHED (Div.2)
60	BHANGU AUG. WATER SUPPLY SCHEME	PHED (Div.2)
61	MITHANPURA REPLACEMENT OF PUMPING MACHINERY	PHED (Div.2)
62	Darba Kalan :- Laying/ Replacement of pipeline in village Darba kalan	PHED (Div.2)
63	Nathor :- Repair of existing structures at water works Nathor Distt. Sirsa	PHED (Div.2)
64	Providing drinking water connection in Anganwaries under PHED No. 2 Sirsa	PHED (Div.2)
65	Prov. drinking W/S connection to various Govt. School in Various villages under PHE Divn. no.2 Sirsa	PHED (Div.2)
66	Mithanpura :- Improvement of disribution system in village Mithanpura	PHED (Div.2)
67	Patli Dabur-Prov. and Instt. of T/well in Dhani Dabur of village Patli Dabur	PHED (Div.2)
68	Umedpura-Replacement of PM and repair of existing structures at W/works Umedpura	PHED (Div.2)
69	Replacement of Defective / Burrent Energy Meters at various W/S Schemes	PHED (Div.2)
70	Bupp :- Updating of water supply scheme Bupp Distt. Sirsa	PHED (Div.2)
71	Ranga :- Replacement of pumping machinery at water works Ranga Distt. Sirsa	PHED (Div.2)
72	Lakkarwali:- Providing Boosting station	PHED (Div.2)
73	[Special]Lehngewala: Canal Based Water Works	PHED (Div.2)
74	[Special]Biruwala Gudha:- Diversion of RCC Pipe Channel	PHED (Div.2)
75	[Special]Kalanwali - Dewatering of Flood Water for the year 2012-13	PHED (Div.2)

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76	[Special]Ellenabad - Dewatering of Flood Water for the year 2012-13	PHED (Div.2)
77	Kalanwali - Desilting of sewerlines of various sizes	PHED (Div.2)
78	Ellenabad - Desilting of sewerlines of various sizes	PHED (Div.2)
79	Kalanwali - Procurement of 2 Nos. Bucket Type Sewer Cleaning Machine	PHED (Div.2)
80	Kalanwali - Improvement of Sewerage Scheme and construction of 9.50 MLD Sewage Treatment Plant	PHED (Div.2)
81	Kalanwali - Improvement of Water Supply Scheme	PHED (Div.2)
82	Sirsa Aug. W/S Scheme - 9 Nos Boosting Station & New 3rd water works at panjuanan	PHED (Div.3)
83	Sirsa Aug. Sewerage Scheme - Sewerage Treatment Plant & Sewer line	PHED (Div.3)
84	Ellenabad Aug. Sewerage Scheme - Sewerage Treatment Plant 7.5MLD	PHED (Div.3)
85	Ellenabad aug. W/S Scheme - New Water works & 2Nos Boosting Station	PHED (Div.3)

Schemes for Livelihood Generation in post-disaster scenario

Sl. No.	Name of Scheme	Responsible Department
1	Scheme for Animal Health Care in the State	Animal Husbandry & Dairying
2	Scheme for Integrated Murrah Development	Animal Husbandry & Dairying
3	Scheme for Employment Opportunities to Scheduled Castes Families by establishing livestock units and insurance of their livestock (SCSP)	Animal Husbandry & Dairying
4	Special Employment to Educated/ Uneducated Young Men/Women of Rural Area Through Dairy Development	Animal Husbandry & Dairying
5	Self Employment Generation in Dairy Sector by establishing of Hi-Tech/Mini Dairy Units for the year 2012-13, Plan	Animal Husbandry & Dairying
6	Piggery Development Scheme in the State under Rashtriya Krishi Vikas Yojana	Animal Husbandry & Dairying
7	Improving productivity of Goats under conventional small holder/pastoral system	Animal Husbandry & Dairying
8	Scheme for Salvaging And Rearing of Male Buffalo Calves	Animal Husbandry & Dairying
9	Training Tailoring to Scheduled Castes/ Backward Castes destitute/widowed women/girls	Welfare Department
10	Up-gradation of the Typing and Data Entry Skill of the SC/BC Unemployed Youth through Computer Training	Welfare Department
11	Financial Assistance for training to Scheduled Caste candidates in un-organized sector through private institutions	Welfare Department
12	Creation of Employment Generation Opportunities by setting up Employment Oriented Institutes/Training Programmes	Welfare Department

13	Scheme For the Pre Examination Training of Scheduled Castes Candidates For Taking Union Public Service Commission and State Public Service Commission Examination	Welfare Department
14	Indira Gandhi Priyadarshini Viwah Shagun Yojna (Rs. 31,000 for SC and Rs. 11,000 for BC/General)	Welfare Department
15	Housing scheme for Scheduled Castes and Denotified Tribes (Rs 10,000 to Rs. 50,000)	Welfare Department
16	Monetary Relief to the Victim of Atrocities	Welfare Department
17	Haryana Backward Classes and Economically Weaker Section Kalyan Nigam (HBCKN)	Welfare Department
18	Old Age Samman allowance (Rs. 550 and after 10 years Rs. 700)	Social Welfare
19	Widow & Destitute Women Pension	Social Welfare
20	Handicapped Persons Pension (Rs. 500 p.m. and Rs. 750 p.m. for 100% Disabled)	Social Welfare
21	Scholarship to Handicapped Students	Social Welfare
22	Financial Assistance to Destitute Children (Rs. 200 p.m.)	Social Welfare
23	Allowance to Dwarfs and Eunuch (Rs. 500 p.m.)	Social Welfare
24	Unemployment Allowance to Literate Handicapped Persons	Social Welfare
25	Financial Assistance to Kashmiri Migrant Family (Rs. 1000 per family p.m.)	Social Welfare
26	Financial Assistance to the Non School Going Disabled Children	Social Welfare
27	Unemployment Allowance to Literate Handicapped Persons	Social Welfare
28	Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)	Rural Development
29	Pradhan Mantri Gram Sadak Yojana(PMGSY)	PWD (B & R) - II
30	National Rural Health Mission (NRHM)	Health
31	Accredited Social Health Activist (ASHA)	Health
32	Devi Rupak Rastria Utthan Evam Parivar Kalyan Yojna	Health
33	Huner-Se-Rozgar Yojana	Tourism
34	Bharat Nirman	PWD (B&R) –II
35	Prime Minister's Employment Generation Programme (PMEGP)	District Industries Centre

4.3 Training of Human Resources

Another important factor in the mitigation process is the adequate training of human resources and thereby building the capacity of a district. A series of training programmes shall be organized for specialized groups like district level officers, sub division and community level office bearers, teachers and principals, doctors and engineers, architects and masons and builders and

contractors etc. Even the community could be trained on construction of buildings and other earth quake resistant structures through awareness, sensitisation, orientation and developing skills.

A basic firefighting training is compulsory to all employees, consultants, contract personnel and catering staff in order to have a fundamental

knowledge of first aid firefighting and to respond to the fires in the incipient stage.

At the district-level, assistance will be provided by consolidating the know-how and practical training provided by SDRF, Civil Defence and NGO, District Red Cross and Self Help Groups (SHGs) and disseminating it within the communities.

The organizations like Civil Defence, NYK, NCC, NSS etc. have thousands of volunteers from every corner of the district. The district must train their volunteers and the wardens of these bodies in the district, thus people from various corners will be trained and sensitized in disaster management and this can make a magnifying result.

The strengthening of Civil Defence in the district is yet another important prospect. The Civil Defence and Home Guards are indeed quite a helpful resource in times of emergency. They can be given awards, identity cards, honorarium, and certificates for their work so that more number of people volunteer themselves and participate in such works.

4.4 Retrofitting

Retrofitting means reinforcement of structures to become more resistant and resilient to the forces of natural hazards. This involves consideration of changes in the mass, stiffness, damping, load path and ductility of materials, as well as radical changes such as the introduction of energy absorbing dampers and base isolation systems. For example, consideration of wind loading to strengthen and minimize the wind force, or the strengthening of structures in earthquake prone areas.

For an existing building, retrofitting or seismic strengthening is the only solution to make it disaster resistant. The lifeline buildings should primarily be retrofitted within the district followed by other significant buildings. Retrofitting should be carried out along with a panel of experts for assessing the structure and to suggest the type of retrofitting required.

4.5 Land use planning

Land use planning is a newly emerging disaster reduction method. It is a powerful mitigation tool as it seeks to mitigate the risks and vulnerability from several geological and other hazards. So the logic of land use planning is compatible with disaster risk reduction because it is a systematic, future-oriented, decision-oriented and proactive approach. The planning and control of land use includes a vast spectrum of general policies about it which leave determining effects and influences on programs and plans of urban development and cover economic, environmental, social and political aspects. Responsible management of the environment and its resources, and flexible and responsive development can prevent or mitigate negative impacts.

The degree of effectiveness of land use planning and its efficiency in case of an earthquake from the time of the earthquake till the return of the city to its normalcy is significant and determines two indicators of vulnerability i.e. casualties and destruction.

The urban areas and the cities (i.e. the more densely populated areas) need to be spatially planned in order to reduce the risks of the hazards.

The most important criteria for determining appropriate locations for different urban activities and urban land use include:-

- i. Compatibility
- ii. Comfort
- iii. Efficiency
- iv. Favorability
- v. Health and
- vi. Safety

Considering these factors in land use planning and zoning improves efficiency of the city, welfare and comfort for the citizens and minimizing the fatalities and economic damages as a result of the hazard.

Land use planning can minimize risk in a number of ways such as:

- i. Prohibiting development in high-risk areas through zoning and overlay controls;
- ii. Limiting the types of development in high to moderate risk areas for recreation or other forms of public use reducing the potential impacts of natural hazard events; and
- iii. Applying appropriate development controls in moderate and lower risk areas such as minimum elevations, setbacks and lot sizes, as well as maximum densities and site coverage.

Enforcing Existing Codes and Laws

The list of codes and laws are and must be enforced in the district in order to prevent and mitigate the effects of the hazards. 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. The National Building Codes must be strictly followed in lifeline structures and should be immediately implemented wherever necessary. In construction work, the civil engineers have to follow Bureau of Indian Standards (BIS) to construct resistant structures. The byelaws for control of vector-borne diseases should be implemented and strictly followed by all the municipalities in the state of Haryana- The concerned department has to ensure the enforcement of existing codes.

5

Preparedness

5.1 General Preparedness Checklist

1. Deputy Commissioner, Sirsa shall ensure that preparedness checklist is duly followed by each front line department and status of the same is discussed in monthly meetings.
2. Head of department of each frontline department shall ensure that the departments are prepared to meet the challenges of any emergency/ disaster by duly following the preparedness checklists.
3. Nodal officers of each of the frontline departments shall ensure quarterly updation of District Disaster Management Resource Inventory and submission of the same to District Revenue Officer, Sirsa by:
 - a. Adding to it any changes in the human resources of their department along with their updated contact numbers, if any.
 - b. Adding to the equipment list, relevant resources for response activities from both the government and private sector.
4. DRO shall ensure that the same has been updated and uploaded on website of District Administration on quarterly basis with the help of District Information Officer (DIO).
5. Nodal officers of each of the frontline departments shall also report to Head of Department and/or Deputy Commissioner, Sirsa about requisition of any relevant resource/equipment, not available with the Government and/or private sector, for disaster management activity.
6. District Disaster Management Authority (DDMA), Sirsa shall ensure the establishment of Emergency Operation Centre, Sirsa with the following:
 - a. Proper space for Planning and Logistics Section Chief and staff.
 - b. Proper space for control room with adequate communication equipments including landline telephones, mobile phones, satellite phones, walkie-talkie, ham radio, computer/ laptop with printer facility, email facility, fax machine, television, etc.
 - c. Availability of vehicle at Emergency Operation Centre.
 - d. Ensure power backup facilities along with availability of generator set.
 - e. Ensure proper space for meeting, conference, media briefing along with LCD, computer and video conferencing facilities.
 - f. Availability of District Disaster Management Resource Inventory, Sirsa and also of the neighbouring districts (Fatehabad and Hisar), Disaster Management Resource Inventory of the state and also of critical national resources.
 - g. Availability of Hazard Seasonality Map of Sirsa district.
 - h. Availability of District Disaster Management Plan, Sirsa.

5.2 Department wise Preparedness Checklist

5.2.1 District Administration

1. Ensure enforcement of the codes, bylaws and act such as National Building Code, Bureau of Indian Standards, etc in the upcoming development projects, construction work, and commercial complexes.

5.2.2 Agriculture Department

1. Prepare Agriculture Contingency Plan.

Constitute a Crop Weather Watch Group at district level (as per 'A Model Manual

1. for Drought Management', GoI) with representatives from Meteorological Department and concerned officers dealing with agricultural inputs, credit extension, etc to keep a close watch on the monsoon situation, extreme temperature, hail and wind storm.
2. Identify vulnerable areas prone to pest infestation, drought, flood and other hazards.
3. Ensure awareness generation in farmers regarding various plant diseases, alternate cropping practices in disaster-prone areas, crop insurance, provision of credit facilities, proper storage of seeds, etc.
4. Provide training to farmers in alternate cropping techniques, mixed cropping and other agricultural practices which minimise crop losses during future disasters.
5. Ensure surveillance for pest infestation and crop diseases.
6. Ensure availability of stock for immediate replacement of broken/non-functioning gadgets/equipments.
7. Ensure availability of adequate stock of seeds and other agro inputs particularly for areas vulnerable to hazards.
8. Prepare trained and equipped team for assessment of damage to soil and crop, and impact on other agricultural activities.
9. Prepare for establishment of public information booths, with appropriate and modern means of communication, to assist farmers in providing information regarding insurance, compensation, repair of agro equipments and restoring of agricultural activities at the earliest.
6. Make arrangements for and ensure proper disinfection of space, vehicles and manpower involved in transportation of sick/infected and dead animals due to contagious diseases.
7. Prepare a database of veterinary hospitals/clinics and agencies working for animal care.
8. Ensure availability of stocks of mineral and feed supplements, life saving drugs, electrolytes, vaccines, etc.
9. Ensure sensitization of farmers about protection of their feed and fodder prior to the onset of monsoon.
10. Ensure filling feed banks before the scarcity period.
11. Prepare for the feed of the poultry birds.
12. Locate feed and fodder sources in view of submergence situation during the monsoon, in coordination with the Agriculture Department.
13. Identify source/s for procurement of fodder.
14. Identify safe locations for fodder depot and cattle camps within the district.
15. Ensure assured source of water or canals for drinking and growing fodder along with the above locations in coordination with Irrigation Department/PHED/Panchayat.
16. Prepare for necessary arrangements of *tatties*, gunny bags and tarpaulin sheets to cover the sheds during heat and cold waves.
17. Ensure availability of sprinklers/ foggers in shed/camp during heat waves period.
18. Prepare for special care for productive, lactating and pregnant animals; also supplement them with additional concentrates and fodder.
19. Ensure proper administration of de-worming and vaccinations for cattle, sheep and goats, pigs and other relevant measures for disease management during any disaster situation.

5.2.3 Animal Husbandry

1. Ensure fully functional mobile veterinary unit at disposal.
2. Ensure isolation of sick and healthy animals.
3. Ensure separate/alternate arrangement for keeping, feeding and watering of diseased animals due to contagious diseases to prevent spread of disease to healthy animals.
4. Farmers are to be sensitized regarding above problems.
5. Ensure separate transport vehicles for sick/infected and dead animals due to contagious diseases.
20. Prepare for arrangements for transportation of critically injured livestock.
21. Ensure availability of road map and maps showing veterinary hospitals and dispensaries at disposal.
22. Identify space for burial of animals and ensure proper disposal of dead animals.

5.2.4 Bharat Sanchar Nigam Limited

1. Procure recovery plans from private communication service providers for their recovery time objectives.
2. Prepare for alternate communication system.

5.2.5 Civil Aviation

1. Identify safe locations that can be used as helipads.

5.2.6 Civil Defence

1. Prepare workforce of volunteers particularly trained in the following:
 - a) First aid
 - b) Minor fire fighting services
 - c) Traffic management
 - d) Crowd management
 - e) Dead body management
 - f) Evacuation
 - g) Shelter and camp management
 - h) Mass Care
 - i) Welfare services during relief
2. Prepare a database of volunteers available and update the same in DDMRI.
3. Prepare a database of NSS/ NCC students and faculties from various educational institutions and update the same in DDMRI.
4. Prepare a database of equipments available and update the same in DDMRI.

5.2.7 Development and Panchayat

1. Prepare mechanism for proper solid waste management, disposal of waste and removal of debris in shelter and relief camps, feeding centres and affected rural areas.
2. Prepare for sanitation operations in view of post flood situations.
3. Ensure availability of tractor trolleys and other required equipments for the same.
4. Temporary toilets/ latrines for village.
5. Plan to provide building/guest house/*dharamshalas* at different locations to establish control room, first aid and medical post or shelters during emergency.

5.2.8 District Red Cross Society

1. Ensure availability of fund for relief materials/ work.
2. Train and prepare ward and village wise first aid teams.

3. Prepare database of blood donors in the district and update the same in DDMRI Sirsa.
4. Prepare database of trainers & volunteers and update the same in DDMRI Sirsa.
5. Prepare a database of voluntary organizations and service they offer, ensure their authenticity, and update the same in DDMRI Sirsa.
6. Ensure availability of adequate stock of food items, blankets, clothing including woolens, utensils, first aid kits, stretchers, medicines, etc in view of any emergency situation.
7. Ensure availability of adequate stock of aids (hearing, visual, crutches, artificial limbs, etc) for physically challenged persons.
8. Ensure availability of old blankets/ gunny bags for animal during cold wave period.
9. Prepare a database of shrouds and tarpaulin sheets

5.2.9 Education Department

1. Organise awareness generation programs in schools and colleges for students, teachers, administrative staff and other helpers. These programs should focus on dos and don'ts for various hazards and safe evacuation in case of any emergency.
2. Conduct hygiene promotion activities as per direction issued by the Health Department on a regular basis.
3. Ensure preparation of first aid and disaster management kit in each school and college.
4. Ensure preparation of school and colleges disaster management plan.
5. Identify safe schools and colleges to serve as relief shelter in case of any emergency within that area, only for short period of time.

5.2.10 Electricity Department

1. Ensure transmission map at disposal.
2. Prepare a database of critical and lifesaving infrastructure in the district and prepare for providing uninterrupted power supply to them.
3. Prepare for providing continuous power supply to the affected area.
4. Ensure availability of solar panels, solar lights/ lanterns for emergency periods with the help of HAREDA.

5. Prepare to provide electrical connections and system at short notice in affected areas for purpose of pumping flood water and illumination of the area.
6. Prepare for prompt replacement/ re-commissioning of affected power supply system.
7. Ensure availability of adequate stock of important equipments like transformers, poles, conductors, cables, insulators, etc for prompt action whenever required.
8. Ensure trained construction and maintenance staff at disposal.

5.2.11 Fire Services

1. Ensure proper functioning of all fire fighting equipments, appliances and respiratory equipments.
2. Make a database of existing fire fighting services and facilities provided with private agencies.
3. Be aware of MAH units and other potential hazardous installations and level of possible emergency required.
4. Prepare to deal with leakage of flammable toxic substances.
5. Ensure, at disposal, the list of adverse affects of chemicals and antidotes/ methods to deal with emergency involving each chemical. This is prepared by Department of Industrial Safety and Health.
6. Review the adequacy of existing fire prevention arrangements in each MAH and other hazardous units before and after the installations. Share the report with Department of Industrial Safety and Health.
7. Identify roads and routes of access and escape to and from MAH and other potential hazardous units.
8. Ensure all important building should have sketch map and their escape route with glowing signs.
9. Ensure evacuation drill as evacuation plan periodically in all important building, mall, hospital etc.

5.2.12 Food & Supplies Department

1. Prepare a database of godowns and cold storage facilities in the district. This information can be procured from labour department/market committee.

2. Prepare a database of catering services providers.
3. Prepare for safety of stored food grains in godowns against inundation and water logging, fire and other possible hazards.
4. Prepare for out-movement of food grains to a pre-decided safer location, if required.
5. Ensure availability of adequate food grains storage in godowns in view of the scarcity or emergency period.
6. Prepare a database of kerosene depots, petrol pumps, gas agencies, etc and update the same in DDMRI.
7. Ensure availability of adequate stock of gas cylinders, kerosene, etc.
8. Prepare database of private retailers and wholesalers of edible food items.
9. Prepare a database of providers of refrigerated vehicles for transportation of perishable food items.
10. Prepare for large scale movement of food grains, their transportation, expeditious unloading, proper storage and prompt distribution through fair price shops, if required.
11. Prepare a database of private providers of tents, tarpaulin sheets, poles, *kanats*, cooking utensils, polythene bags, and other essential items that could be used for community kitchen and cremation and burial.

5.2.13 Forest Department

1. Ensure proper functioning of all equipments and vehicles.
2. Prepare a database of area machine holders, carpenters.
3. Prepare team for catching wild animals to prevent infiltration in habituated areas, relief camps, etc.
4. Prepare to supply wood for cremation.

5.2.14 Haryana Roadways

1. Ensure proper functioning of filling station, vehicles and equipments including fire extinguishers, first aid kits, etc.
2. Prepare for prompt deployment of vehicles at short notice for various purposes like mass evacuation, transportation of response teams, relief items, victims, etc.
3. Prepare mechanical team for prompt repair of equipment and vehicles.
4. Train drivers and conductors in first aid and basic life saving techniques.

5. Identify the vehicle for rescue operations.
6. Be well familiar with routes of potential hazardous installations and follow incident traffic plan.

5.2.15 Health Department

1. Prepare trained team of paramedics.
2. Develop dos and don'ts and IEC materials regarding health and hygiene.
3. Organise awareness camps with help of CHC/ PHCs and Development and Panchayat Department for hygiene promotion and public health issues.
4. Ensure availability of trained mobile medical teams at disposal.
5. Prepare psychological and psychosocial care teams.
6. Ensure availability of generator sets and buffer stock of fuel at disposal.
7. Ensure availability of adequate supply of life saving equipments and stock of medicines, portable supplies including portable oxygen cylinders, portable X-ray machine, portable ultrasound machines, triage tags, etc.
8. Ensure availability of adequate space with suitable facilities for storage of medicines.
9. Prepare a database of private hospitals and nursing homes with services and facilities available.
10. Prepare a database of doctors registered with Indian Medical Association (IMA).
11. Prepare a database of available ambulance services from government, private agencies and District Red Cross Society, if any.
12. Ensure, at disposal, list of MAH units and hazardous chemicals stored in them.
13. Ensure, at disposal, the list of antidotes for various hazardous chemicals. This list is prepared by Department of Industrial Safety and Health.
14. Ensure availability of adequate supply of blood units.
15. Prepare database of blood donors in the district and update the same in DDMRI.
16. Prepare a database of providers of refrigerated vehicles for transportation of vaccines, blood, blood products, etc.
17. Train drivers and attendants of ambulance and mobile medical units in first aid and basic life saving techniques.
18. Prepare a decontamination ward in view of any possible chemical or industrial hazard.

19. Prepare for prompt establishment of temporary hospital, mobile surgical unit, etc at short notice, near the affected area.
20. Ensure proper and safe mechanism for medical waste disposal.
21. Prepare for proper disease surveillance system.
22. Make proper arrangement and mechanism for mass casualty management.
23. Open water chlorination.
24. Prepare a database of halwai sanghs, caterers, hotels for emergency procurement of cooking utensils.

5.2.16 Home Guards/Civil Defence

1. Ensure proper functioning of all equipments.
2. Prepare teams trained in search and rescue, first aid, fire fighting, etc.
3. Prepare a database of volunteers and equipments and update the same in DDMRI.

5.2.17 Industrial Safety & Health

1. Prepare offsite emergency plan.
2. Prepare a database of MAH units and their contact details.
3. Enlist methods of packaging and handling, safe transportation, disposal, containment and precautions for all the hazardous materials present in district.
4. Inspect premises and machinery in plants, industries for adequacy of safety and emergency arrangements in industries and direct for corrective measures, if necessary, with respect to statutory provisions for safety.
5. Ensure all drivers of vehicles, carrying hazardous materials, must have HAZCHEM cards related to hazardous chemicals.
6. Direct the management of industries and units to prepare on-site emergency plan of their units.

5.2.18 Irrigation Department

1. Ensure proper early warning mechanism in place for flood by monitoring water level of surface water bodies.
2. Ensure proper and timely inspection of conditions of bunds, siphons, regulators, embankments, inlet and outlets of lakes and reservoirs, channels, etc.

3. Ensure timely de-silting and dredging of rivers and canals, if required.
4. Ensure prompt repair of channels, if required.
5. Village-water for animals, ponds.
6. Ensure proper functioning of all equipments including dewatering pumps.

5.2.19 Municipal Corporation

1. Prepare for sanitation operations in view of post flood situations within jurisdiction of the area.
2. Urban solid waste management.
3. Ensure availability of tractor trolleys and other required equipments for the same.
4. Prepare mechanism for proper solid waste management, disposal of waste and removal of debris in shelter and relief camps, feeding centres and affected areas in their jurisdiction.
5. Plan to provide building/ guest house at different locations to establish control room, first aid and medical post or shelters during emergency in coordination with HUDA.

5.2.20 Police Department

1. Ensure proper functioning of all equipments.
2. Ensure proper mechanism in place for early warning of different hazards through police stations and police posts.
3. Arrange for public address system and siren.
4. Prepare for temporary installation of wireless systems between district and sub-divisions in case of any damage to existing wireless system with the department.
5. Train the communication wing of police in setting up control room at short notice at a required site.
6. Prepare contingency Plan for response to bomb blast, riots, terrorist attack and other law and order emergencies.
7. Prepare deployment plan of home guards and other volunteers for protection of property of affected community.
8. Prepare for proper arrangement for custody of recovered belongings and property from dead bodies and affected sites.

9. Train police personnel and staff of PCR vans in first aid and basic life saving techniques.
10. Police personal and staff of PCR vans, should keep basic first aid box and ensure equipments kept in van in proper working condition.
11. Prepare for proper protection to women, girls and children to avoid cases of human trafficking.
12. Prepare for protection of dead bodies to avoid their theft and false claims.
13. Prepare for safety and security of food and other commodities.
14. Prepare for protection against hoarding, black marketing of relief material.
15. Prepare for safety and security arrangements for evacuated area, affected area, transit camps, relief camps, hospital, medical centre, cattle camps and feeding centres.
16. Keep telephone numbers and database of BDS and Dogs Squad Team in police control room and update in three months.
17. Keep telephone numbers and database of reserve battalion of police located nearby for reinforcement.
18. Ensure availability of district road maps.
19. Ensure availability of operational security checkpoints at crowded places.
20. Develop do's and don'ts and IEC material regarding road safety, terrorist attacks, bomb blasts, stampede and crowd management.

5.2.21 Pollution Control Board

1. Prepare a database of hazardous chemicals and pollutants in the districts and their probable adverse effects on environment.
2. Prepare for methods and techniques of decontamination of the same.

5.2.22 Public Health Engineering Department

1. Ensure availability and well functioning of all equipments and vehicles.
2. Prepare for distribution of water purifying tablets, bleaching powder and chlorination of public water resources, if required.
3. Prepare for arrangement of safe drinking water supply for surviving community in the affected areas and also in relief camps and shelters. Also prepare for provisioning of water for other purposes.

4. Prepare a database of suppliers and distributors of packaged drinking water.
5. Prepare for prompt repair of pipelines supplying potable water.
6. Prepare for prompt repair of sewerage systems and water works.
7. Make standby arrangements of generators for running the water pumps.
8. Ensure cleaning of drains before the monsoon season.
9. Ensure installations of tube wells, if needed, before the monsoon to provide underground water to the livestock during flood period.
10. Ensure availability of adequate number of water tankers, drums, jerry cans or identify their private suppliers to prepare for supply of water, in scarcity period and in emergency.
11. Ensure availability of water supply/ filling points for fire tenders, water cannons, hospitals and other necessary life saving infrastructure.
12. Prepare for prompt provision of temporary toilets/ trench latrines in the affected area and relief camps.
13. Ensuring filling of water ponds/ lakes in the district with canal water/ tube wells prior to the onset of summer in coordination with Irrigation department.
14. Prepare for the arrangements of clean drinking water for affected livestock and poultry.
15. Urban drinking water and liquid waste management.
16. Piped water chlorination.
17. Prepare mechanism for proper solid waste management and disposal of waste in shelter and relief camps, feeding centres and affected villages.

5.2.23 Public Relations Department

1. Prepare for proper public address system ensuring rumour control.
2. Prepare for media management.
3. Ensure database of dos and don'ts of all possible hazards in the district.
4. Ensure distribution of IEC material to community for awareness generation about the same.
5. Publicise the information in the interest of public awareness through booklets,

pamphlets, radio, television, film shows, newspapers, documentary films, door to door campaign, meetings and folk media, etc.

5.2.24 Public Works Department

1. Ensure availability and functioning of all equipments like cranes, JCB, etc.
2. Prepare a data base of availability of heavy equipments like cranes, JCB with private agencies also.
3. Ensure, at disposal, the list of MAH units and other vulnerable buildings.
4. Prepare for prompt clearance of debris.
5. Prepare the demolishing squad for prompt demolition of unsafe buildings.
6. Prepare for prompt clearing and repairing of damaged roads, culverts, bridges and flyovers.
7. Prepare for construction of new temporary roads at short notice for diverting traffic from the affected area.
8. Prepare for construction of temporary facilities like that of medical post, temporary shelters etc at short notice.
9. Prepare for prompt establishment of helipad near the affected site for VVIP visits.
10. Prepare for restoration of government buildings damaged during disaster.

5.2.25 Regional Transport Authority

1. Make a database of private vehicles available with schools, colleges and other private agencies.

5.2.26 Revenue and Disaster Management Department

1. Ensure regular monitoring of rain gauge and regular updation of database for distribution and variation in rainfall.
2. Ensure proper mechanism in place for early warning of different hazards to village level through tehsildars, patwaris, DDPO.
3. Prepare Flood Control Order by 31st May of each year.
4. Ensure proper functioning of district Flood Control Room during monsoon period and otherwise, if required.
5. Identify villages vulnerable to flood and drought.
6. Prepare a database of critical and lifesaving infrastructure in the district

District Disaster Management Plan, Sirsa

7. Prepare a database of safe locations for evacuation.
8. Identify possible safe sites for temporary shelters, relief camps and staging area.
9. Ensure availability of fully functional boats, life jackets and oars in view of flood condition of the district.
10. Prepare a database of voluntary organizations and service they offer. Ensure the authenticity of the same.
11. Identify competent persons/experts from various required fields for carrying out damage and need assessment post disaster.
12. Prepare proper mechanism for disbursement of compensation to victims or families of deceased.
13. Prepare a database of safe locations for relief distribution site for mass care and housing.
14. Identify site for temporary burial

6 Capacity Building and Training Measures

As per the National Disaster Management Act (2005), capacity-building includes:

- i. Identification of existing resources and resources to be acquired or created;
- ii. Acquiring or creating resources identified under sub-clause (i);
- iii. Organisation and training of personnel and coordination of such training for effective management of disasters.

The primary purpose of capacity-building in disaster management is to reduce risk and thus make communities safer. This can be done by increasing resilience and enhancing coping capacities. Effective capacity-building at the district level requires the active participation of all those tasked with it. It must therefore include maintaining a comprehensive and up-to-date Disaster Management Resource Inventory, awareness generation, education, Research and Development (R&D) and systematic and systematized training.

The Deputy Commissioner should ensure the following capacity-building activities of the entire district, and the various Heads of Departments should ensure capacity-building of their respective departments. Furthermore, the Nodal Officers should, in coordination with the HODs, procure relevant equipment for disaster management activities.

6.1. Institutional Capacity-building

Institutional capacity-building will be structured upon a level-system that will be

designed to bring officials and professionals from multiple fields and skill-sets at the district level. The District Disaster Management Authority will utilise the abilities and expertise of representatives from following areas, structured in the form of levels on the basis of priority.

6.1.1. Level-1 Capacity-Building

a. Centre for Disaster Management, HIPA

The Centre for Disaster Management (CDM), HIPA holds responsibility at the State level for conducting training programs on Disaster Management in all the districts of Haryana. The trainings take place over three to five days and involve district officials from various departments, as per the specificities of the training being conducted. Trainings are conducted in the Institute in Gurgaon as well as within the districts, for which officials are nominated by the District Administration. It is incumbent upon these officials to attend the trainings for which they have been nominated, and upon completion of the program, they shall receive certification from HIPA. The officials in charge of updating the DDMP Sirsa are also responsible for keeping track of all trainings conducted and at the time of updating the plan, they are to include the names and contact details of all officials from Sirsa district who have attended any Disaster Management-related training in the past six-months. This will ensure the availability of trained human

resources capable of dealing with disasters at the district level.

b. DDMA / HODs

The role of District Level Officials in Sirsa in terms of capacity-building and training is primarily that of the District Disaster Management Authority (DDMA), Sirsa. The Authority will ensure that participants from various departments are nominated for the various disaster management-related trainings conducted by CDM, HIPA and any other body/authority that is competent to conduct/organise trainings in the field of disaster management. The role of the DDMA will, thus, be predominantly that of coordination and monitoring. Furthermore, capacity-building at the institutional level should be done by carrying out various activities under the Mini-Secretariat Safety Programme (MSSP).

The DDMA will also be responsible for ensuring that the Heads of Department (HODs) of the following departments discharge their responsibility of nominating officials from their departments for various disaster-management trainings pertaining to their specific areas of work. Formation of Damage and Need Assessment teams.

Revenue	dept.
1. Train divers	
2. Train boat drivers	
3.	

Agriculture Department

The HOD must ensure:

- i. Formation and training of a Weather Watch Group for the purpose of monitoring crops in the district.
- ii. Putting in place disaster management protocols for the hazards of drought, flood, hailstorm, etc.

- iii. Provision of training to farmers in alternate cropping techniques and mixed cropping.
- iv. Provision of Rapid Damage Assessment Teams who will be capable of assessing the condition of soil, fields, irrigation systems and any other damage to crops in post-disaster situations.

Animal Husbandry

The HOD must ensure:

- i. Formation of Rapid Damage Assessment teams capable of examining and assessing damage caused to livestock, feed and fodder, and other things within the domain of animal husbandry.

Civil Defence & Home Guards

The HOD must ensure:

- i. Provision of trainings for volunteers, in Search and Rescue (SAR), First Aid, Traffic Management, Dead Body Management, Evacuation, Shelter and Camp Management, Mass Care and Crowd Management.
- ii. The purchase of SAR equipment through the appropriate channels of the District Administration.

District Red Cross Society

The HOD must ensure:

- i. Provision of training for the preparation of ward-level and village-level First Aid teams.
- ii. Ensure organisation of blood donation camps on a regular basis during normal times.
- iii. Organise drives to recruit volunteers to help with blood donation camps and other activities.

Education Department

The HOD must ensure:

- i. Formation and training of damage and need assessment teams within the department.
- ii. Provision of trainings in First Aid and basic survival skills for teachers and students in the district.
- iii. Education and awareness programs should be designed in such a way as to include the disaster management education in the school / college curriculum.
- iv. Capacity-building at the institutional level should be done by carrying out various activities under the School Safety Programme (SSP).

Electricity Department

The HOD must ensure:

- i. The timely purchase of electric equipment necessary for maintaining a state of adequate preparedness and for speedy and efficient disaster response, through the appropriate channels of the District Administration.

Forest Department

The HOD must ensure:

- i. Formation and training of teams within the department, for catching wild/escaped animals that pose a threat to human safety.

Haryana Roadways

The HOD must ensure:

- i. Provision of training to drivers, conductors and staff in First Aid and basic life saving techniques
- ii. Adequate stocking/replenishing of First Aid kits and maintenance of fire extinguishers in all vehicles and depots in the district.

Health Department

The HOD must ensure:

- i. Formation and training of damage and need assessment teams within the department.
- ii. Provision of trainings for paramedics, mobile medical teams, psychological first aid teams and psycho-social care teams and QRMTs.
- iii. Timely procurement/ purchase of portable equipment for field and hospital diagnosis, triage, etc.
- iv. Provision of trainings for health attendants and ambulance staff in First Aid and life-saving techniques.
- v. Provision of training to members of local communities in health and hygiene practices.
- vi. Capacity-building at the institutional level should be done by carrying out various activities under the Hospital Emergency Preparedness Programme (HEPP).

Irrigation Department

The HOD must ensure:

- i. Provision of trainings to all human resources with regard to early-warning for flood.
- ii. The timely purchase of early warning and communication equipment through appropriate channels of the District Administration.

Development and Panchayat Department

The HOD must ensure:

- i. Provision of training for formation of teams to engage with the issues of hygiene and sanitation at the village- level through the Gram Panchayats.

Police Department

The efforts of the police go a long way in helping avoid and/or control chaos at disaster sites. They also help prevent human

trafficking which is increasingly common in the aftermath of disasters these days.

A training module on Disaster Preparedness and Response for Haryana Police has been prepared by CDM, HIPA and will need to be modified from time to time as per the requirement in Sirsa district. Other training programs on disaster management that are relevant to the role of the police force are conducted by CDM, HIPA from time to time, and the Sirsa District Administration should ensure that police personnel are deputed for such trainings. The trained police personnel should be placed on record within a district-level database of persons trained in disaster management. Such trainings are thus an important aspect of capacity-building in the district. District police will also receive training specific to the role of the department from the Haryana Police Academy (HPA) in Karnal District.

Fire Services Department

Haryana Fire services operate at the district level through both, the Municipal Councils and Market Committees. For capacity-building, Fire Services in Sirsa district should be made responsible for conducting fire-safety trainings for all district officials as well as for housing societies, shopkeeper associations, and the suchlike, from time to time. Sirsa Fire Services should also be made responsible for conducting safety audits of various government and civilian buildings in order to check whether they are compliant with fire-safety norms. Furthermore, the Fire Services should conduct mock-drills for fire-fighting and evacuation procedures from time to time, following a schedule stipulated by the District disaster Management Authority (DDMA) in Sirsa. Training programs on disaster management that are relevant to the role of the Fire Services are conducted by CDM, HIPA from time to time, and the Sirsa District Administration should ensure that fire personnel are deputed for such trainings. The trained Fire Services personnel should be

placed on record within a district-level database of persons trained in disaster management. Such trainings are thus an important aspect of capacity-building in the district.

6.1.2. Level-2 Capacity Building

a. Civil Engineers (structural capacity-building)

There is strong evidence that appropriate engineering intervention can significantly reduce the risk of disasters. Civil engineers also play an important role in post-disaster conditions – in rescue operations, damage assessment and the retrofitting of structures. Civil engineers need to keep themselves updated about the latest research and developments in construction technology, advances in construction materials and analysis or design procedures. Civil engineers should also take support from other branches of engineering for the better planning, execution and functioning of their building and infrastructure projects. Trainings to Civil Engineers will be provided by CDM, HIPA. Furthermore, at the district level, civil engineers will conduct training of masons for construction of earthquake-resistant structures. Such trainings will be facilitated by the DDMA.

b. Corporates, Professionals

The National Disaster Management Framework emphasizes on the ‘involvement of corporate sector in awareness generation and disaster preparedness and mitigation planning’. Keeping in mind the need to mainstream disaster management concerns at multiple levels of the corporate sector, the following steps should be taken into consideration:

Through Corporate Social Responsibility (CSR), Corporates can assist in development projects can

- i. thus help enhance the capacity at the district-level.
- ii. Conducting mock-drills at regular intervals to determine the efficacy of the DM plans.
- iii. Large-scale association with awareness generation initiatives aimed at building the knowledge, attitude and skills of the common people for a safer habitat.
- iv. To move away from relief-centric approach to a pro-active assault on vulnerabilities through risk management measures and capacity-building of industrial personnel through Business Continuity Planning (BCP), trainings and other measures.
- v. Training of a core team of Structural Engineers for retrofitting of existing industrial infrastructure as per requirement.

6.2 Strengthening of District (EOC)

As mentioned in Chapter 5, the Emergency Operations Centre (EOC) contains important equipment and certain resources such as maps and communication equipment including landline telephones, mobile phones, satellite phones, walkie-talkie, ham radio, computer/laptop with printer facility, email facility, fax machine, television, etc. In addition, it will also contain, LCD monitors, printers, video-conferencing equipment, power sources and backups, copies of plans, etc. It is crucial to strengthen the district-level EOC. This can be done by ensuring regular training of all staff meant to be present in the EOC.

6.3 Capacity-building at the Community Level

Capacity-building at the community level includes awareness, sensitisation, orientation and developing skills of communities and community leaders. At the district-level, assistance will be provided by consolidating the know-how and practical training provided

by NDRF, Civil Defence and NGO, District Red Cross and Self-Help Groups (SHGs) and disseminating it within the communities. Multiple responsibilities within the arena of capacity-building and training will be delegated to local authorities, PRIs and ULBs under the overall guidance of District authorities. It is also crucial to focus on imparting training, cultivating community awareness and ensuring skill-development among members of the community. Furthermore, capacity-building at the community level should be done on the Public Private Partnership (PPP) model. This can be done by ensuring identification of local resources and developing local infrastructure through PPP. Community-based Disaster Risk Reduction (CBDRR) and Village Contingency Planning (VCP) is also critical for capacity-building at the community-level and will be managed by the concerned departments in the district.

6.4 Development of IEC Material

Addressing the specific requirements of vulnerable regions and the risk mitigation and preparedness needs of identified communities, various IEC material like list of do's and don'ts, posters, leaflets, banners, training modules and audio visual material must be produced using capacity building funds of the state. The aim is to develop a large body of advocacy and awareness materials, especially in vernacular languages, targeting vulnerable groups such as women, children, elderly, differently abled, and marginalized and excluded groups.

7

Response and Relief

7.1 Declaration of Disaster

Deputy Commissioner as the ex officio chairperson of DDMA is responsible for declaration of disaster and activation of response and relief activities. To do so, first priority is to determine whether the resources are sufficient or not. If the situation is beyond the coping capacity of community in the affected area then a disaster shall be declared.

Declaration can be on the basis of level of disasters (L0, L1, L2 and L3) in affected area as per the NDMA guidelines.

L0 denotes normal times which are expected to be utilised for close monitoring, documentation, prevention, mitigation and preparatory activities. This is the planning stage where plans at all levels from community to the State shall be put in place. Training on search and rescue, rehearsals, evaluation and inventory updation for response activities will be carried out during this time.

L1 specifies disasters that can be managed at the district level, however, the state and centre will remain in readiness to provide assistance if needed.

L2 specifies disaster situations that may require assistance and active participation of the state, and the mobilisation of resources at the state level.

L3 disaster situations arise from large scale disasters where districts and the state may not have the capacity to respond adequately and require assistance from the central government for reinstating the state and district machinery.

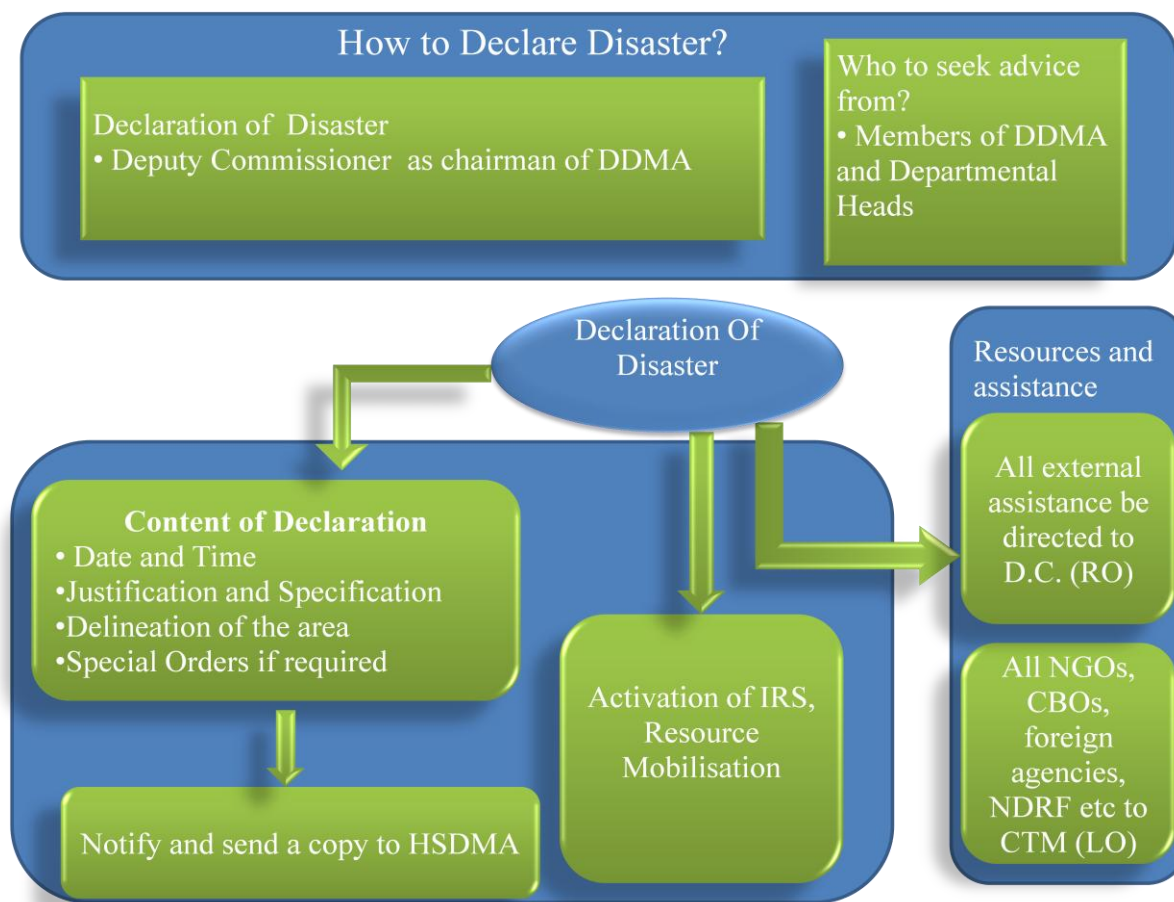
Level of disaster should be based on rapid damage and need assessment reports (Annexure 5).

7.1.1 Important elements for Declaration

1. Declaration of Disaster – D.C. (Ex officio chairman of DDMA)
2. Situation shall be discussed among DDMA and HODs of various departments.
3. DDMA has full authority to declare disaster and issue orders to carry out necessary actions like activation of IRS and resource mobilisation to protect people, environment and resources in the affected district.
4. DDMA shall notify Haryana State Disaster Management Authority when a disaster is declared and forward constant updates on the situation.

7.1.2 Content of Declaration

1. Date and Time
2. Justification for declaring of disaster, specification of the event and level of disaster.
3. Delineation of the area (Representation by map)
4. Special orders associated with situation and reason justifying these orders
5. Declaration signed by Deputy Commissioner.



7.2 Implementation of DDMP

DDMA shall ensure implementation of District Disaster Management Plan for

7.2.2 Establish and activate Incident Command post

The ICP is the location at which primary command functions are performed. IC will be located at ICP, and there would be only one ICP. This also applies to situations with multi-agencies or multi-jurisdiction under unified command. ICP may be located at the headquarters. In case total destruction or lack of space it can be in a tent or a vehicle as well.

7.2.1 Activation of IRS

On declaration of disaster, DDMA shall activate IRS at district level. D.C. as responsible officer will activate various sections, branches, divisions, units and other facilities as and when required. Various roles

activation of IRS, roles and responsibilities, emergency support functions and DDMRI for resource mobilisation. This is further discussed in chapter 10.

and responsibilities under IRS are discussed in chapter 3.

7.2.3 Establish Staging Area

Staging area is an area where mobilised resources are collected and accounted for field operations. These may include food, vehicles, equipments and other materials. It should be located at suitable site near the affected area for immediate, effective and quick deployment of resources. The overall in charge of staging is staging area manager as discussed in chapter 3.

7.2.4 Establish Incident Base

All primary services and support activities are usually located and perform at the incident

base; the logistics section is preferable located here.

7.2.5 Coordination

There should be proper liaison and coordination amongst these stakeholders involved in the comprehensive disaster management for ensuring the implementation of the components involved in the DDMP.

It is the responsibility of the CTM to liaison with concerned line departments, agencies, NGO's, INGO's, CBO's etc. and their representatives at various locations, keeping IC informed about arrivals of all the Government and Non Government agencies and their resources and organise briefing sessions of all Governmental and Non Governmental agencies with the IC. This coordination will involve facilitating response by addressing special needs of services like sign language interpreters or language translators for communication and other needs. CTM will also be responsible for management of all the VIPs and VVIPs visiting the affected area. CTM must coordinate with police to ensure their safety and security without affecting response and relief work.

7.3 Disaster Reporting

Importance of disaster reporting is an important aspect to maintain clear communication between different levels of administration. This helps people responsible to understand situation precisely and respond effectively and efficiently. This involves documentation of situation and photographs as well.

7.3.1 Rapid assessment report

Rapid damage and need assessment team will produce a report describing the magnitude of disaster with respect to life loss, property loss and other urgent needs of the affected areas. This assessment provides a base for planning

response activities. This report should further be communicated to HSDMA

7.3.2 Preliminary assessment report

This will give an account of disaster in first 24 hours. With some basic needs and damages.

7.3.3 Detail assessment report

This report highlights severity of disaster and provides detailed information on damage and needs of the affected area. It is prepared by damage and need assessment team and is based on reports from departments and specialists in health, irrigation, public health infrastructure etc. It gives a clear picture to district administration for proper resource mobilization and external help and forms the basis of relief and rehabilitation activities.

It should be prepared within 72 hours of disaster and forwarded to HSDMA.

7.3.4 Interim Report

Based on earlier reports, interim reports provide additional and more precise information, and are to be submitted every 24 hours to DDMA. This time may vary depending upon the recipient and activities involved and this should be forwarded to HSDMA.

As time goes by, the emphasis of interim reports will shift from the needs for relief to the needs for rehabilitation and reconstruction (e.g. Repairs to damaged structures, restoration of agriculture, animal husbandry, fisheries and industrial production). It is not necessary to repeat what has already been said in earlier reports unless the earlier details require updating. Interim reports should provide forecasts (with inputs from specialists and people who have experience of previous disasters) and highlight information which may not otherwise be obvious to the recipients e.g. potential problems, changes, patterns, trends and indicators, essential component to vulnerable group etc.

7.3.5 Final Report:

A summary of

- a. About disaster
- b. Management of activities
- c. Lessons learnt

detailed roles and responsibility of departments.

7.4 Emergency Support function

Emergency support functions are essential services for prompt and well coordinated management of disaster. Refer Annexure 2 for

It is to be noted that Response branch director will be responsible for task assigned for their department

Emergency Support function will support following functions:

ESF No	Emergency Support Functions	Purpose
1	Early warning	Primary purpose is to alert departments and public.
2	Communication	To provide provisions for communications support before, during, and after an emergency/disaster situation. It will coordinate communications resources (equipment, services, and personnel) that may be available from a variety of sources (i.e., District/State agencies, voluntary groups, county agencies, the telecommunications industry, armed forces) before or after the activation of the State Emergency Operations Centre
3	Evacuation	To provide necessary information for administration and people to evacuate to safe places.
4	Damage and need assessment	To assess the extent of damage caused by a disaster. This assessment helps in planning and execution of relief and response activities. The needs assessment of the affected population is a vital and continuous activity. Since the situation and needs changes, the assessments should be carried out regularly and results should be updated accordingly.
5	Fire Fighting	To provide life and property saving assistance to manage fire incidences following natural or man-made disasters.
6	HAZMAT	To provide state support to local governments in response to an actual or potential discharge or release of hazardous materials resulting from a natural, manmade or technological disaster and other environment protection issues. Also, it has to establish and coordinate the basic roles and responsibilities for oil & hazardous materials
7	Search and Rescue	To provide life saving assistance from natural as well as human caused events
8	Health	To coordinate assistance in response to an all-hazards emergency or disaster event requiring a coordinated response, and/or during a developing potential health and medical emergency. Furthermore, it has to respond to medical needs associated with mental health, behavioural health, and substance abuse considerations of incident victims and response workers. And then it has to cover the medical needs of members of the “at risk” or “special needs” population (it includes a population whose members may have medical and other functional needs before, during, and after an incident)

9	Dead Body Management	To identify and maintain the record of the dead (Human beings) and facilitate in appropriate cremation /burial, claim of compensation and belonging to reduce the psychological impacts on the family members
10	Food and supplies	To provide food and other supplies to relief centres and affected areas.
11	Shelter and Camp Management	To provide requirements like food, clothing, shelter, water, basic amenities to the affected people in the relief camp and ensure safe, secured and healthy environment in culturally appropriate manner.
12	Mass care and Housing	This ESF facilitates various services to be provided to the affected population until the recovery is achieved. These services cater to mass care needs beyond the scope of relief camps and shelters. Human services programs help disaster survivors recover their non-housing losses including replacement of destroyed personal property, and assist with obtaining disaster loans, food supplies, crisis counselling, disaster unemployment and other Central and State benefits
13	Water, Sanitation and Hygiene (WASH)	To promote good personal and environmental hygiene in order to protect health. Effective WASH relies on identification of key hygiene problems and culturally appropriate solutions. Ensuring the optimal use of all water supply and sanitation facilities and practicing safe hygiene will result in the greatest impact on public health. Hygiene promotion is integral to WASH function and is reflected in the specific tasks relating to water supply, excreta disposal, medical waste disposal, vector control, solid waste management and drainage.
14	Media Management	To disseminate information about various hazards in the district, and the relevant dos and don'ts for before, during and after a disaster. This may be done through various media such as newspapers, television, radio, internet, media and information van, street theatre, etc. This ESF will also help in control of rumours and panic and for crowd management.
15	Law & Order	To provide safety and security to citizens and their property during disaster. To establish command and control in coordination with law enforcement personnel.
16	Public Works	Provides technical assistance for damage assessment and repair and restore damaged public infrastructure
17	Transport	To coordinate the use of transportation resources to support the needs of human, technical, equipment, facility, materials and supplies etc to the emergency responding department/agencies requiring transportation capacity to perform task of emergency response, recovery and assistance during an emergency/disaster situation
18	Livestock	To establishes procedures to coordinate local government agencies, volunteer organizations, allied animal interest groups, and veterinary medical personnel to provide their services to animals affected by any disaster with emergency medical care, temporary confinement, shelter, food and water, identification and tracking for return to owners and ultimate disposal of dead and unclaimed animals as necessary

7.5 Relief

The norms of compensation for ex-gratia grant payable to persons affected by calamities like flood, drought, hailstorm, fire, lightening, and earthquake for loss of human life, for damage of crops, for loss of cattle, for loss of personal property by fire and damage to houses due to floods.

Relief in district should be cultural sensitive and appropriately distributed. It should be noted that relief distribution should include all community and all parts of society,

considering this district, special attention is necessary for population from scheduled caste, women, children and old age people during the process. It is the responsibility of each responsible department with district administration to see that their rights are not violated during the process.

7.6 Withdrawal of Declaration of Disaster

This would be about normalization and withdrawal of special orders which were given to bring situation under control.

8 Reconstruction, Rehabilitation and Recovery

The International Strategy for Disaster Reduction (ISDR) defines recovery as the “*decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk*”. The process demands co-ordinated focus on multi disciplinary aspects of reconstruction and rehabilitation for recovery and is essential to understand disaster reconstruction, rehabilitation under the holistic framework of post disaster recovery.

8.1 Post Disaster Reconstruction

Post disaster reconstruction includes both short term and long term activities. The short term activities refer to repair, restoration and strengthening of damaged structures, whereas long term reconstruction activities refer to reconstruction of multi-hazards resilient housing, relocation, provision of basic amenities etc. along with psychological, socio-economic, environmental and agronomic rehabilitation. DDMA, Sirsa should initiate the reconstruction activities based on the details of damage assessment. Further, on the basis of extent and type of damage to buildings (public, private, government, etc.), district administration should initiate reconstruction measures.

8.1.1 Short Term Reconstruction Activities

I. Repair

The main purpose of repair is to bring back the architectural shape of buildings to resume their functioning at the earliest. The following actions can be taken for repair:

1. Patching up of defects such as cracks, fall of plaster, etc.
2. Repairing doors, windows, placement of glass panes.
3. Checking and repairing electric wiring.
4. Checking and repairing gas pipes, water pipes, sewerage and other plumbing services.
5. Repairing of broken walls, disturbed roofing tiles, cracked flooring and its redecoration with washing, painting etc.

The architectural repairs as stated above do not restore the original structural strength of cracked walls or columns and may sometimes be very illusive.

II. Restoration

The main purpose of restoration is to carry out structural repair to load bearing elements. It may involve cutting portions of the elements and rebuilding them or simply adding more structural material so that the original strength is restored.

1. Removal of portions of cracked masonry wall and piers and rebuilding them in richer mortars. Use of non-shrinking mortar is preferred.

2. Addition of reinforcing mesh on both faces of the cracked walls holding it to the wall through spikes or bolts and covering it suitably. Several alternatives can be used.
3. Injecting epoxy like material which is strong in tension into the crack in the walls, columns, beams etc.

Where structural repairs are considered necessary, these should be carried out prior to or simultaneously with the architectural repairs so that total planning of work could be done in a coordinated manner and wastage is avoided.

III. Strengthening of Existing Buildings

Strengthening is an improvement over the original strength where the evaluation of the building indicates that the strength available before the damage was insufficient and restoration alone will not be adequate in resisting future impacts. Strengthening procedure should aim at one or more of the following objectives:

1. Increasing the lantern strength in one or both directions, by reinforcement or by increasing wall area or the number of wall and columns.
2. Giving unity to the structure by providing a proper connection between its resisting elements in such a way that inertia forces generated by the vibration of the building can be transmitted to the members that have the ability to resist them.
3. Eliminating features that are sources of weakness or that produce concentrations of stresses in some members or cause abrupt changes of stiffness from one floor to the other concentration of the large masses. For example, large opening in wall without a proper peripheral reinforce.
4. Avoiding the possibility of brittle modes of failure by proper reinforcement and connection of resisting members.

8.1.2 Long Term Reconstruction Activities

Reconstruction of housing and associated infrastructure plays most important role in betterment of psychological trauma, livelihood, health, education in entire disaster recovery process. Therefore, it should consist of a comprehensive approach involving rehabilitation of housing, infrastructure, livelihood, health, education, environment, etc to ensure sustainable development of disaster affected communities. It should be taken into consideration that below mentioned multi disciplinary activities and approaches should be incorporated in reconstruction process in consultation of the affected community in an institutionalised manner. This would ensure sustainable development of the community.

a) Design & Material

The reconstruction of housing requires appropriate design i.e. culturally acceptable, environmentally suitable and suitable to contextual needs of community. The material and technology used should also be context specific and in full consultation with the people so that they are able to maintain the housing after they occupy them. For the same, owner driven approach is preferred.

b) Disaster Resilient Construction

DDMA, Sirsa shall constitute a committee to meet the technical requirements for disaster resilient housing in reconstruction. This committee shall have members from PWD (B&R) department, Development and Panchayat Department and other members best suited for ensuring disaster resilient housing. These members shall assist in multi hazard resilient design and monitor the entire process of reconstruction. The committee should ensure that disaster resilient techniques are incorporated in various schemes and development projects. Therefore, funds under schemes can also be used for reconstruction Indira Awaas Yojana and other such as

Housing Schemes for Scheduled Castes and Denotified Tribes.

c) Owner-Driven Approach

One of the significant approaches for disaster reconstruction is owner driven approach. This approach facilitates the owner to build the housing as per their own conveniences. The intervention of district administration is limited to provision of the funds and technical expertise for construction activity. This approach will facilitate the owners to design houses as per their needs, at preferable locations. This gives them a sense of ownership and helps them to maintain their social capital. The involvement of owner helps in reducing the cost and proper monitoring.

d) Relocation

When reconstruction also involves relocation of the community, the relocation site should be in close proximity to the existing sources of livelihood such as places of work, agricultural farms, livestock facilities, markets, etc. This will ensure favourable conditions for livelihood generation and other economic activities. DDMA, Sirsa should plan and procure land for rehabilitation in consultation with the targeted community members to meet the above mentioned aspects.

8.2 Basic Amenities

DDMA shall ensure the provision of the following basic amenities at all reconstruction and relocation sites.

8.2.1 Health Facilities

1. DDMA shall constitute a committee to ensure for provision of health facilities at all reconstructing sites in the district.
2. The committee shall co-ordinate with constructing agencies and departments (Private agencies, PWD (B&R), HUDA, Housing board, etc.) in association with Health department and ensure functioning of health facilities along with necessary infrastructure at strategic locations at all reconstruction sites.

3. Schemes under health department such as NRHM should be used for the same.

8.2.2 Educational Facilities

1. DDMA shall constitute a committee to ensure provision of educational facilities for all the reconstructing sites in the district.
2. The committee shall co-ordinate with constructing agencies (PWD B&R, HUDA etc) in association with Education department for ensuring education for disaster affected children/ students in the district.
3. Various departmental schemes such as *balwari* programme, creche programme, children's library can be used for the same.

8.2.3 Water

1. DDMA shall constitute a committee to ensure provision of adequate water supply for all the reconstructing sites in the district.
2. The committee should ensure potable water for drinking and water for other use is provided by PHED department through proper functional pipelines and other arrangements.
3. The committee shall co-ordinate with reconstruction agencies to ensure that each household/ constructed unit is provided with adequate water storage facilities.

8.2.4 Drainages and Sanitation Facilities

1. DDMA shall constitute a committee to ensure provision of proper drainage and sanitation facilities for all reconstruction sites in the district.
2. The committee shall co-ordinate with PHED and constructing agencies (Private, PWD (B&R), HUDA, Housing Board, etc.) to ensure proper drainage system and other hygiene and sanitation activities in rehabilitation sites.

8.2.5 Electricity

1. DDMA shall constitute a committee to ensure provision of electricity and sufficient lighting facilities for all the reconstructing sites in the district.
2. The committee shall coordinate with electricity department and MC to ensure provision of electricity and associated infrastructure in all the rehabilitated sites with permanent connections.

8.2.6 Transportation and Connectivity Facilities

1. DDMA shall constitute a committee to ensure provision of proper road connectivity and transportation facilities for all the reconstructing sites in the district.
2. The committee shall coordinate along with PWD (B&R) Department, Haryana roadways and RTA, Sirsa to ensure road connectivity and transportation facilities for the reconstruction sites.

8.3 Rehabilitation

Post-disaster rehabilitation is a complex process involving several dimensions such as livelihood restoration, psychological care, environmental rehabilitation, etc. This requires strong linkages between government, non-governmental organisations as well as international organisations and should be seen as opportunity to work with communities in the district.

8.3.1 Socio-Economic Rehabilitation

1. DDMA shall constitute a committee to ensure revamping of economy for affected people in the district.
2. This committee shall provide mechanisms and schemes for livelihood generation and support for livelihood.
3. The committee shall have members from Development and Panchayat department, Dist. Social Welfare department, Welfare Department, District Red Cross Society, DCCW, and Health Department etc.

4. Various measures such as seed capital, micro finance and other related schemes should be used for the same.
5. Following are some of essential activities for different target groups. The committee shall ensure the execution of the same at every reconstruction and rehabilitation sites.

a. Livelihood Generation

The socio- economic rehabilitation committee shall further co-ordinate along with Department of Employment, District welfare department and NGO's to ensure financial arrangements such as loans and assistance for self employment. Other livelihood support activities which can be provided by the schemes under Welfare Department are given below:

1. Training tailoring to SCs/BCs destitute/ widowed women/girls.
2. Up-gradation of typing and data entry skills of the SC/BC unemployed youth through computer training.
3. Financial Assistance for training to Scheduled Castes candidates in unorganised sector through private institutions
4. Creation of employment generation opportunities by setting up Employment oriented Institutions/ training programme.
5. Other schemes such as MGNREGS, PMGSY, Hunar se Rojgar Yojana (as discussed in Table 4.2) can also be used for livelihood generation.

The socio- economic rehabilitation committee shall also co-ordinate with Animal Husbandry and Dairying Department to ensure alternate livelihood generation activities by providing cows and buffaloes. Various schemes under Animal Husbandry and Dairying Department shall be used for the same:

1. Schemes for Employment Opportunities to Scheduled Castes families by establishing livestock units and insurances of their livestock (SCSP)

2. Special Employment to educated/uneducated young men/women of rural area through Dairy Development
3. Self employment generation in dairy sector by establishing Hi-tech/ Mini dairy units
4. Schemes for salvaging and rearing of the male buffalo calves.
5. Piggery Development Scheme in the State under Rashtriya Krishi Vikas Yojana

b. Children

The socio- economic rehabilitation committee shall further co-ordinate along with DCCW department to install playschools, orphanages etc. at community level. Under the Balwadi Programme, pre-school education, routine health check-up, nutrition, play and other related activities are covered. DCCW, Sirsa should ensure that each and every child from affected community is benefitted from such schemes and programmes. Financial Assistance under the Non-School Going Disabled Children and Destitute Children, ICDS, etc. could also be used.

c. Widows

1. The socio- economic rehabilitation committee should co-ordinate along with Department of Social Welfare to ensure that each widow/destitute is registered under various schemes and measures to support livelihood.
2. The Widow and Destitute Women Pension Schemes and other such schemes under Welfare and Social Welfare Department can be used for the same.

d. Old Age

1. The socio- economic rehabilitation committee shall further coordinate along with Department of Social Welfare to ensure that each elderly/ old-aged people is registered under Old Ages Pension Scheme and Samman Allowance.
2. The committee shall also coordinate with various NGO's to address various needs of the old age.

e. Physically Challenged

1. The socio- economic rehabilitation committee shall coordinate with Department of Social Welfare and District Red Cross Society to ensure that each physically challenged person is provided with artificial limbs, hearing aids, wheel chairs, etc.
2. Assistance should be given by Social Welfare Department under Handicapped Person Pension Scheme, Scholarship to Handicapped Students and Unemployment Allowance to Literate Handicapped Persons, etc.

f. Scheduled Castes and Backward Castes

1. The socio-economic rehabilitation committee shall co-ordinate along with Social Welfare Department for provision of support for livelihood to SCs and BCs.
2. Various schemes such as Financial Assistance for Training, Tailoring to Scheduled Castes/ Backward Castes destitute/widowed women/girls, Indira Gandhi Priyadarshini Vivah Shagun Yojna and Housing Schemes for SCs, etc. have potential to support the targeted vulnerable sections.

8.3.2 Psychological Rehabilitation

1. DDMA shall constitute a psychological rehabilitation committee to ensure provision of psychological care and psychological first aid to the disaster affected community.
2. The committee shall co-ordinate with Health Department, Women and Child Development, DCCW to carry out activities at community level to reduce the psychological trauma of the disaster affected communities. Support and co-ordination from NGOs should also be utilized for the same.

Various programmes like Balbhavans, Play ground, Hobby classes under DCCW Department can be used to provide

3. psychological care for the disaster affected children.

8.3.3 Agronomic Rehabilitation

1. DDMA shall constitute an agronomic Rehabilitation committee to ensure soil reclamation in case of any changes in composition and fertility of soil in the district.
2. The committee shall co-ordinate with Department of Agriculture to ensure that Soil testing labs undertake research and formulate necessary steps required for agronomic rehabilitation.
3. The committee shall co-ordinate with NGO's working in same fields and their support should also be channelized for the same.
4. They should also suggest cropping patterns, suitable compositions of fertilizers pesticides etc. depending upon the changes in soil and develop a model of rehabilitation of the same.

8.3.4 Environmental Rehabilitation

1. DDMA shall constitute an Environmental Rehabilitation committee to ensure decontamination of water bodies, soil, air and other environmental problems
2. The committee shall co-ordinate along with Haryana State Pollution Control Board, Industrial Safety and Health, Forest, Agriculture and Health department to monitor carry out decontamination.
3. The committee shall monitor rehabilitation sites and take necessary steps to reduce pollution.

8.3.5 Restoration of Social Capital

1. DDMA shall constitute a Social Capital restoration committee to ensure intact social bonding of the people during distribution of houses.
2. The committee shall co-ordinate with distributing agency to ensure that the social fabric is not weakened in the process of allocation of houses. Families with better cooperation with each other should be allocated close to each other.

8.4 Coordination ensuring Holistic Recovery Process

DDMA should formulate necessary institutional mechanisms for ensuring that each above mentioned parameters/ activities of reconstruction and rehabilitation are provided at each site. DDMA should monitor and coordinate NGO/ INGO/ or any other agency depending upon their mandates and utilize their resources appropriately. It should be noted that the external agencies have a time bound approach and communities may or may not be completely rehabilitated before that time, therefore DDMA, Sirsa should ensure rehabilitation of such communities. Most essentially to avoid communities getting dependent on assistance, DDMA should design achievable indicators and ensure proper and timely withdrawal.

9

Financial Arrangements for Disaster Management

9.1 Financing Arrangements

The Disaster Management Act, 2005 provides for Disaster Response Fund (DRF) and Disaster Mitigation Fund (DMF), each at the national, state and district levels. As per Section 46(I) and section 48(I) (a) of the Act, the National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) were constituted in 2010 vide Letter No. 32-3/2010-NDM-1 dated 28th September, 2010 by the Ministry of Home Affairs (Disaster Management Division). In the same notification, the Calamity Relief Fund (CRF) was converted into SDRF. Under the 13th Finance Commission (FC), this provision of funds was made. The National Disaster Mitigation Fund is to fund projects exclusively for the purpose of mitigation and is to be administered by the NDMA. The district level provision of the Disaster Response Fund and Disaster Mitigation Fund, however, has not been created.

Table 9.1: Allocation of Haryana State Disaster Response Fund in 13th Finance Commission (in Crores)

2010-11	2011-12	2012-13	2013-14	2014-15	Total
192.9	202.55	212.68	223.31	234.48	1065.92

Table 9.2: Allocation of Funds in Haryana under 13th Finance Commission

S. No	Project/ Service	Year	Sanctioned Amt. (in INR)
1.	Capacity Building	2010-15	5 Crores per financial year
2.	Revamping Fire Services	Allocated once in 13 th FC	100 Crores
3.	Strengthening of Fire & Emergency Services	Allocated once in 13 th FC	Central Allocation: 361 Crores State Contribution: 90.25 Crores
4.	Revamping Civil Defence	Allocated once in 13 th FC	Central-Allocation: 390.20 Lacs State-contribution: 10.00 Lacs
5.	UNDP Program (externally aided funds)	Allocated once in 13 th FC	For DRR: 150.00 Lacs For URR: 50.00 Lacs

(Source: 'Disaster Management in India' book, Ministry of Home Affairs, 2012)

9.2 Additional Central Assistance

In the context of disaster finance post-disaster reconstruction which is not covered under the NCCF, there is provision for Additional Central Assistance (ACA). Over and above the provision of the SDRF, Funding is provided from the NDR Fund in the wake

of calamities of severe nature. On receipt of memorandum from the affected states, an inter Ministerial Central Team comprising of representatives of the central ministries/departments is constituted and its report after examination by the inter Ministerial Group (IMG) headed by Home Secretary is placed before High Level Committee (HLC) for their consideration and approval of funds from NDRF.

It has been given to states in recent years, particularly for the Gujarat earthquake of 2001, the Indian Ocean tsunami of 2004, the Kashmir earthquake of 2005 and the Kosi floods of 2008 in Bihar.

9.3 Capacity Building Fund

Effective disaster response requires trained manpower to deal with complex situations where effective and speedy handling can reduce the impact of a disaster on human life and property. It is necessary to continuously undertake measures to build capacity amongst those handling response and create awareness amongst people. 10% of SDRF received at the state level is meant for capacity building. As the district demands the state to carry out capacity building exercises at its level, the state would release the same as per the need. The activities that can be included in capacity building exercises are mentioned in Chapter 6.

9.4 Prime Minister Relief Fund

At the national level Prime Minister's National Relief Fund was created shortly after Independence with public contribution to provide immediate relief to people in distress for:

- a. Immediate Financial assistance to the victims and next of kin.
- b. Assisting search and rescue.
- c. Providing health care to the victims.
- d. Providing shelter, food, drinking water and sanitation.
- e. Temporary restoration of roads, bridges, communication facility and transportation.
- f. Immediate restoration of education and health facilities.

9.5 Chief Minister Relief Fund

At the state level, a provision has been made to provide immediate support to the distressed people affected by the natural calamities or road, air or railways accidents, under the Chief Minister Relief Fund.

9.6 Member of Parliament Local Area Development Scheme (MPLADS)

In the context of natural & man-made calamities MPLADS works can also be implemented in the areas prone to or affected by the calamities like floods, cyclone, Tsunami, earthquake, hailstorm, avalanche, cloud burst and pest attack, landslides, tornado, drought, fire, chemical, biological and radiological hazards. Lok Sabha MPs from the non-affected areas of the State can also recommend permissible works up to a maximum of Rs.10 lakh per annum in the affected area(s) in that State. The funds would be released by the Nodal district of the MP concerned to the District Authority of the affected district. MPLADS funds may be pooled by the District Authority of the affected district for works permissible in the Guidelines. The amount so

- a. transferred from the nodal district to the natural calamity affected district may be shown in the UCs as well as MPRs as amount transferred to natural calamity affected district for rehabilitation work. The Works Completion Report, Audit Certificate and Utilization Certificate for such works and funds will be provided by the District Authority of the affected districts directly to the Ministry of Statistics and Programme Implementation for overall reconciliation. No separate UC/AC/Completion Report in respect of the transferred amount would be required from the Nodal District authority in this regard while processing release of subsequent installment of MPLADS funds.
- b. In the event of “*Calamity of severe nature*” in any part of the country, an MP can recommend works up to a maximum of Rs.50 lakh for the affected district. Whether a calamity is of severe nature or not, will be decided by the Government of India. The funds in this regard will be released by the District Authority of Nodal district of the MP concerned to the District Authority of the affected district to get permissible works done.

9.7 Convergence with Central Sponsored Schemes

- a. Various employment generation schemes, especially those such as the National Rural Employment Guarantee Scheme (NREGS) assure financial relief to needy families in drought-affected areas. They can be easily integrated with

relief programmes to increase the availability of funds for relief expenditure.

- b. Another scheme that has been effectively dovetailed with calamity relief is the Indira Aawas Yojana (IAY), which has accomplished useful relief work in terms of providing housing to the affected families. Ten percent of the annual allocation under IAY is earmarked for this purpose. Similar allocation of five percent is also made under the Accelerated Rural Water Supply Programme (ARWSP).
- c. The provision has been made for the mid day meal to remain functional in the drought hit areas.

9.8 Other financial sources

District authority can take assistance from UN bodies and International organization, NGOs and private donors (depending on their mandates) for relief, rehabilitation and other disaster risk reduction activities.

Activities undertaken as corporate social responsibility (CSR) can be channelized for mitigation and capacity building purposes as well as the disaster response.

9.9 Risk Transfer and Insurance (A Recommendation)

Risk Transfer is a tool that enables a concerned party to share/transfer a portion of the disaster risk to another party, for a certain fee. This party can be the

government itself or the microfinance institutions. The absence of disaster insurance means that the government has to bear a huge cost for compensation and rehabilitation work in post-disaster situations.

The Insurance Regulatory and Development Authority of India have

framed micro insurance regulations that allow distribution of micro insurance products in the state. The regulations cover insurance for personal accidents, health care for individual and family and assets like houses, livestock, tools and others.

In Haryana various Ministries/Department have their insurance schemes related to health, crops, livestock, and other which can be utilize in case of disaster.

10 Implementation, Monitoring and Updation of DDMP

This chapter talks about the monitoring, evaluation, updation and implementation of the District Disaster Management Plan of the district Sirsa. The District Disaster Management Authority (DDMA), Sirsa will have to ensure the planning, coordination, monitoring and implementation of the DDMP. The Deputy Commissioner, Sirsa is the overall incharge of all the activities related to disaster management.

10.1 Implementation

The nodal authority for the task of implementation during and after disasters will be the District Disaster Management Authority, Sirsa.

For the process of implementation, the most important component of testing the DDMP is to conduct quarterly mock drill or simulation exercise in order to identify the positive elements as well as gaps. Mock drill exercise is required in order to verify the level of preparedness and improve the coordination during emergencies. This has to be based on past experiences and lessons learnt. Mock-drills help in evaluating response and improving coordination within the administration, with various departments, non-government agencies, other stakeholders and communities. They help in identifying the extent to which the plans are effective and also aid in revising these if required. These drills enhance the ability to respond faster, better and in an organized manner during the response and recovery phase.

DDMA Sirsa must ensure the following:-

- i. Implementation of DDMP within district, its updation and quarterly mock-drill
- ii. Implementation of all policies and plans of state govt.
- iii. Implementation of all NDMA guidelines
- iv. Implementation of all instructions of Revenue & Disaster Management department
- v. Department should ensure that all schemes based on the parameters of mitigation, relief and rehabilitation to be identified and implemented
- vi. Implementation of all guidelines/instructions related to disasters from GoI and state govt.
- vii. All officers to be trained in Disaster Management through CDM, HIPA
- viii. Implementation of National bylaws
- ix. Implementation of Fire-safety bylaws
- x. Implementation of all on-site plans of the respective industries
- xi. Establishment and functionality of Emergency operation Center (EOC)

10.2 Monitoring and Evaluation

The DDMA Sirsa will be responsible for the proper monitoring and evaluation of the DDMP. The purpose of monitoring and evaluation of DDMP is to determine

- i. adequacy of resources
- ii. co-ordination between various departments/ agencies
- iii. community participation
- iv. partnership with NGOs
- v. partnership with insurance companies

10.2.1 Roles & Responsibilities of DDMA Sirsa in Monitoring and Evaluation of DDMP:-

1. Identify and ensure implementation of DRR into all developmental projects and schemes.
2. Monitor the functioning and adequacy of the resources present in the district every six months.
3. Based on the analysis, the DDMA Sirsa has to procure/purchase/borrow resources from the concerned authorities and replace the dilapidated and non-functioning resources using the developmental funds.
4. Ensure that all the departmental plans are operational and checked by the respective nodal officers.
5. Monitor that all the officers of the frontline departments have to be trained as per their requirement.
6. Monitor that all prevention, mitigation, preparedness and response measures (as mentioned in chapters 4, 5 and 7 of the DDMP) are properly implemented within the district.
7. All departmental heads at the district level must ensure to identify their suitable and relevant schemes (centrally-sponsored or state-funded) which will be suitable to be used in disaster management, keeping in view of their parameters of the central-sponsored schemes.

The monitoring and evaluation could be done through various audits such as:

- i. Electrical Safety Audits of critical infrastructure
- ii. Fire-Safety Audits of critical infrastructure
- iii. Enforcement of National Building Code in construction of lifeline buildings
- iv. Audit reports of various departments such as environment, irrigation

(regarding canals), labor (Industrial Safety & Health)

- v. All on-site emergency plans of the respective industries which fall within the district
- vi. Off-site emergency plan of the district

10.3 Review and Update

The DDMA Sirsa will be responsible for the review of the DDMP. This needs constant review and updation based on the following requirements:-

- a) Major change in the operational activities and location
- b) Valuable inputs from actual disasters
- c) Lessons learnt from training
- d) Inputs from mock drills/ simulation exercises
- e) Lessons learnt from near-miss incidents
- f) Changes in disaster profile
- g) Technological developments/ innovations in identifying potential hazards
- h) Changes in regulatory requirements
- i) Updation of databases using GIS
- j) Change in demography of surrounding population
- k) Changes in geo-political environment

The DDMP is an effective document for the District and The ADC, Sirsa and District Revenue Officer, Sirsa along with the help of the nodal officer of the frontline departments will update it on a biannual basis taking into consideration. Inventory of equipment in the district (DDMRI),

- i. Human Resources, their addresses and contact numbers (DDMRI),
- ii. Medicinal stock,
- iii. List of flood prone villages,
- iv. Technology to be used,
- v. Coordination issues from the lessons learnt

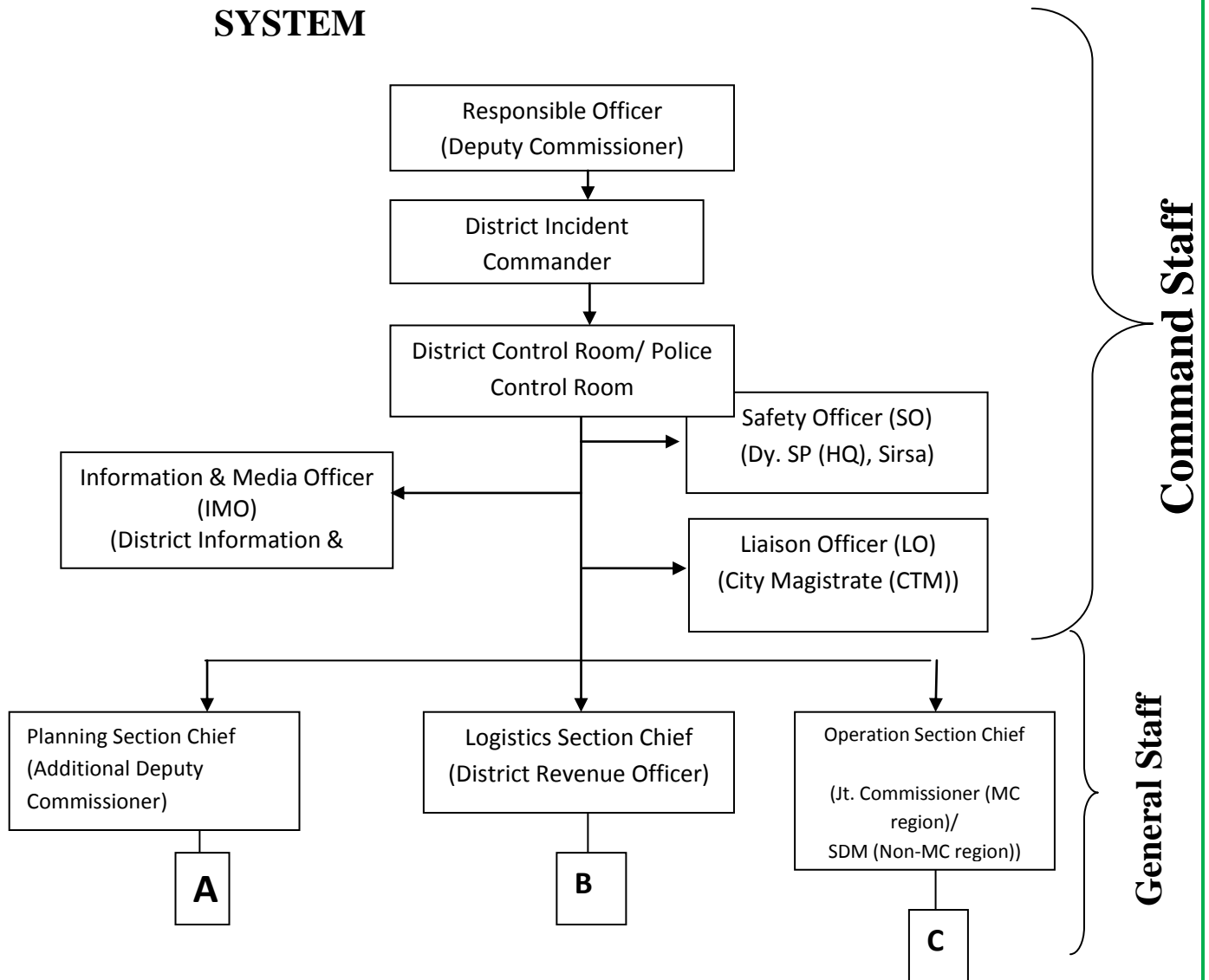
The District Information Officer, Sirsa in coordination with DRO, Sirsa will update and upload the DDMRI every three months. A quarterly meeting for DDMP update will be

District Disaster Management Plan, Sirsa

organized by the DDMA Sirsa under the chairmanship of Deputy Commissioner. DC should ensure for progress and gap analysis. All concerned departments and agencies have to participate and give recommendations on specific issues and submit their updated reports on the above mentioned factors to the DRO, Sirsa quarterly. The DDMA Sirsa has to ensure the review of updation of the DDMP every six months. DC should make a report of DDMA Sirsa activities/ departmental activities for capacity building and present in CM annual meeting.

**Annexure – IRS flowcharts in District
Sirsa**

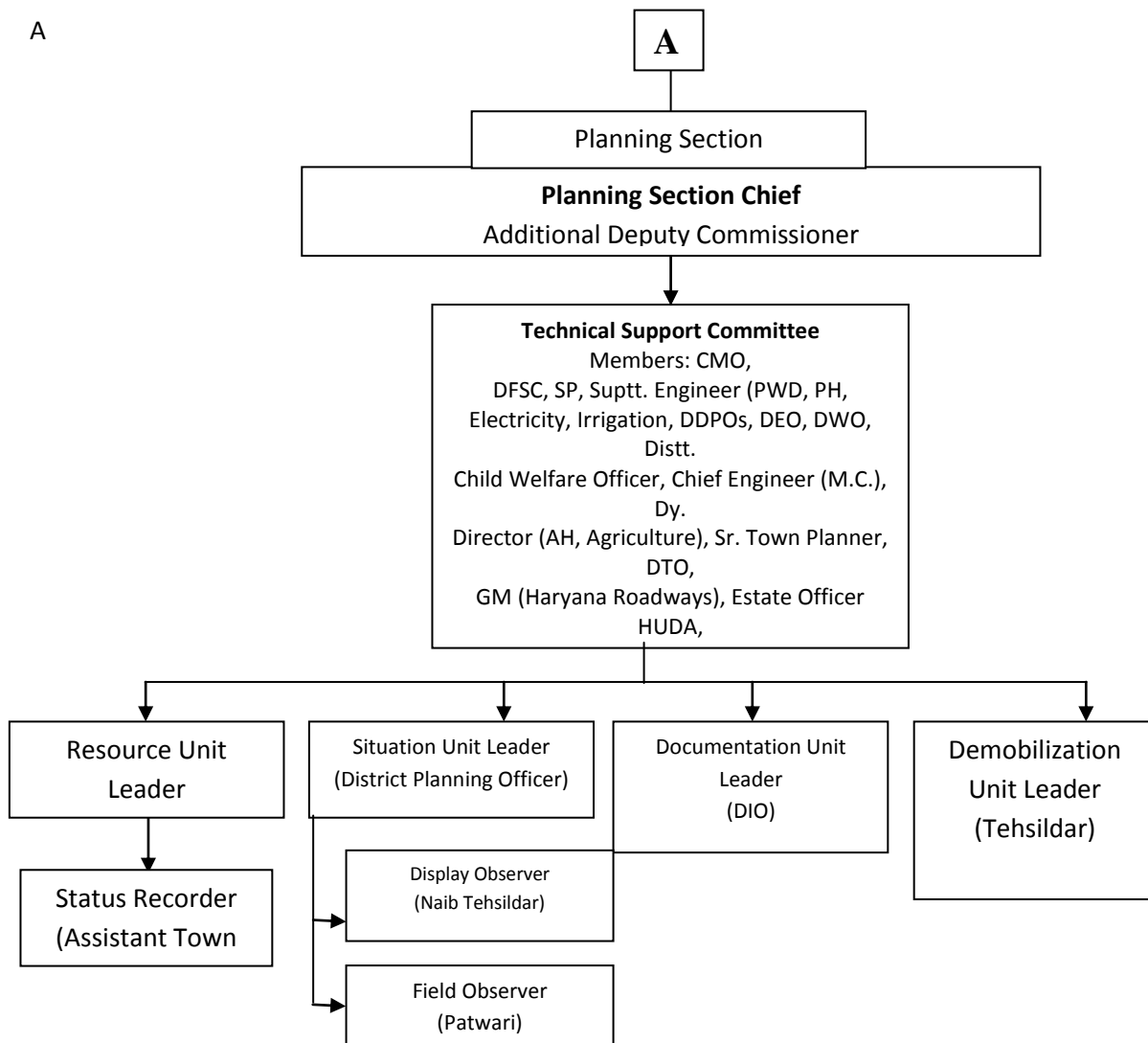
**INCIDENT RESPONSE
SYSTEM**



General Staff – a. Planning Section

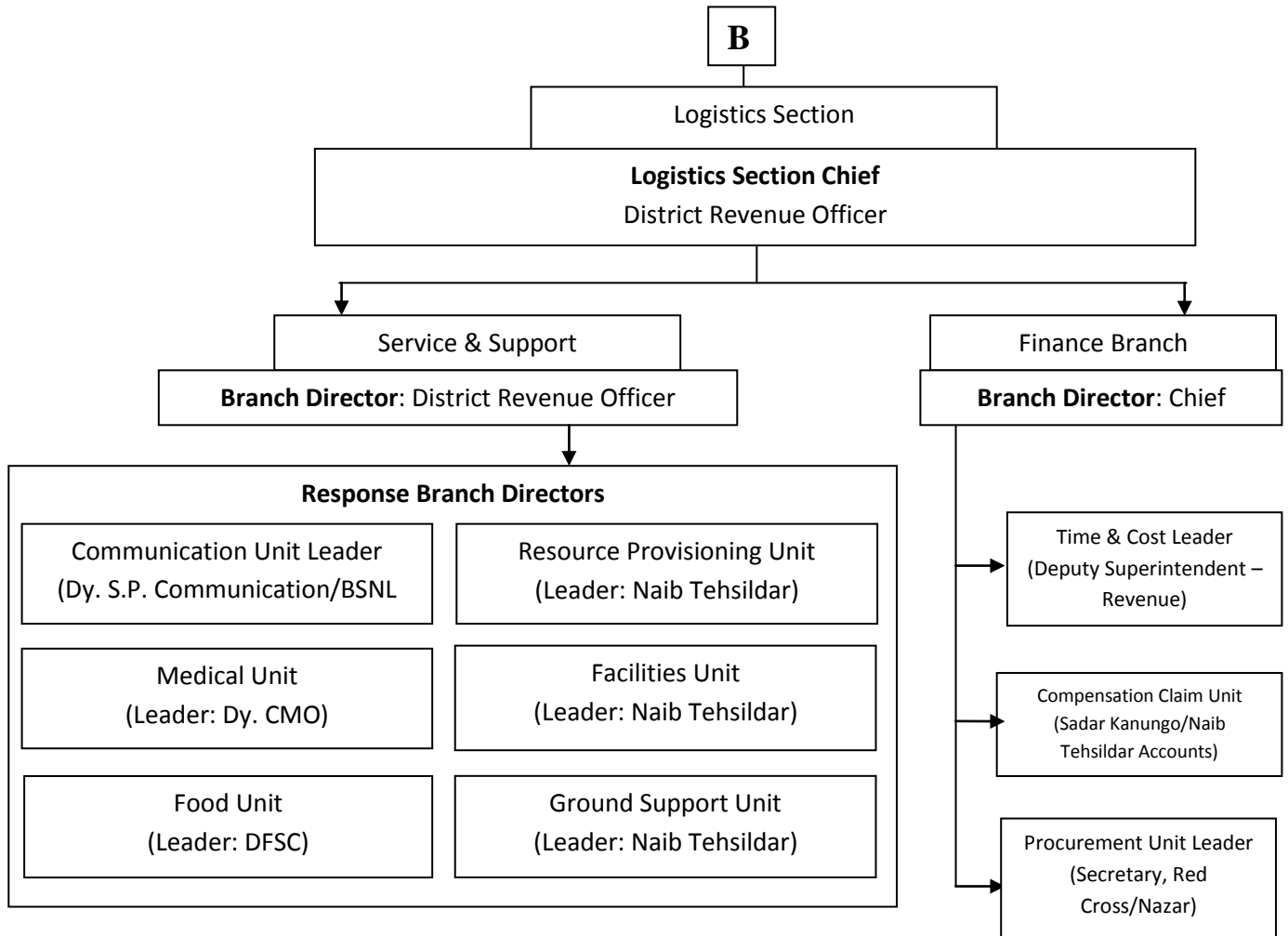
PLANNING SECTION

A



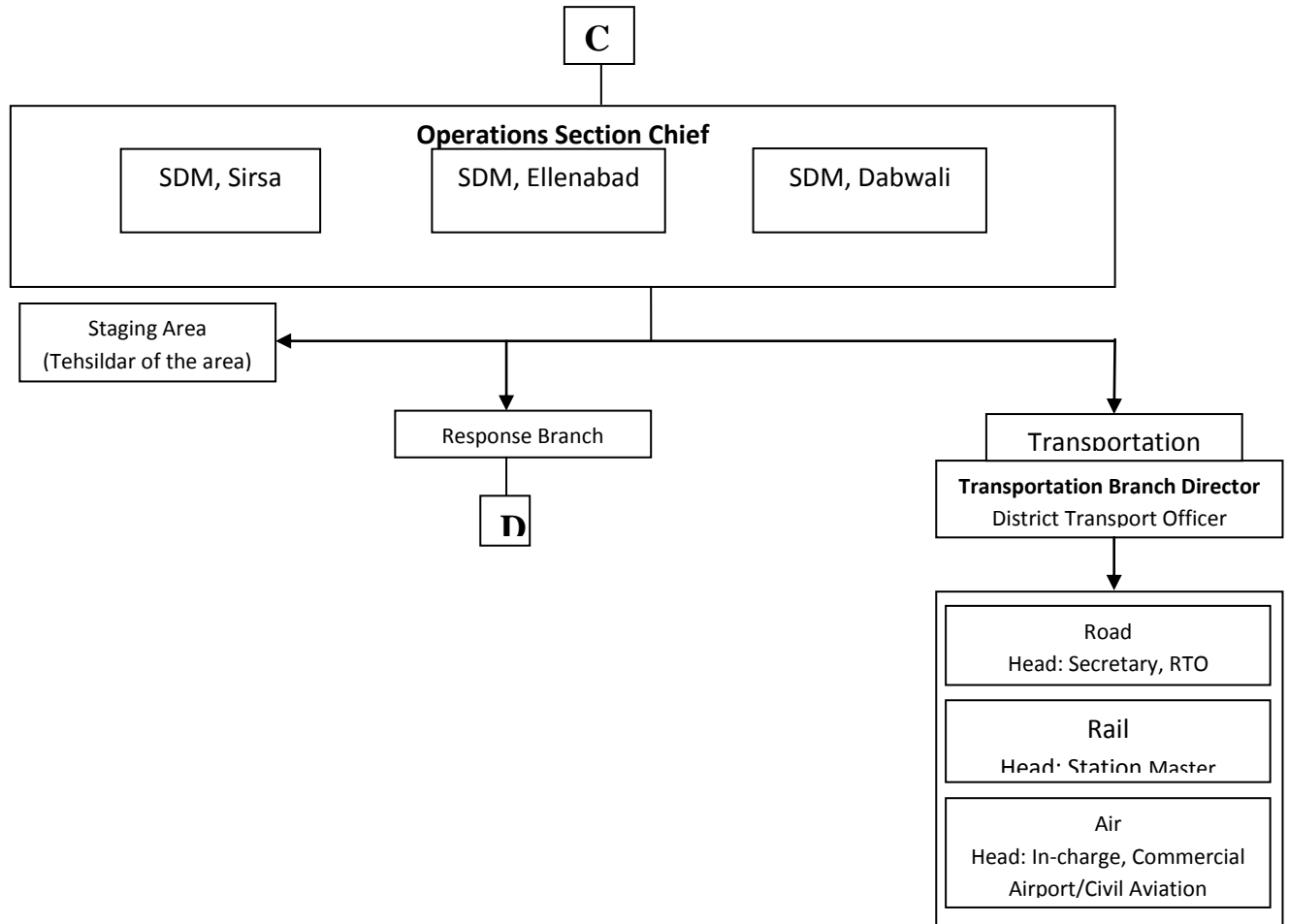
General Staff – b. Logistics Section

LOGISTICS SECTION

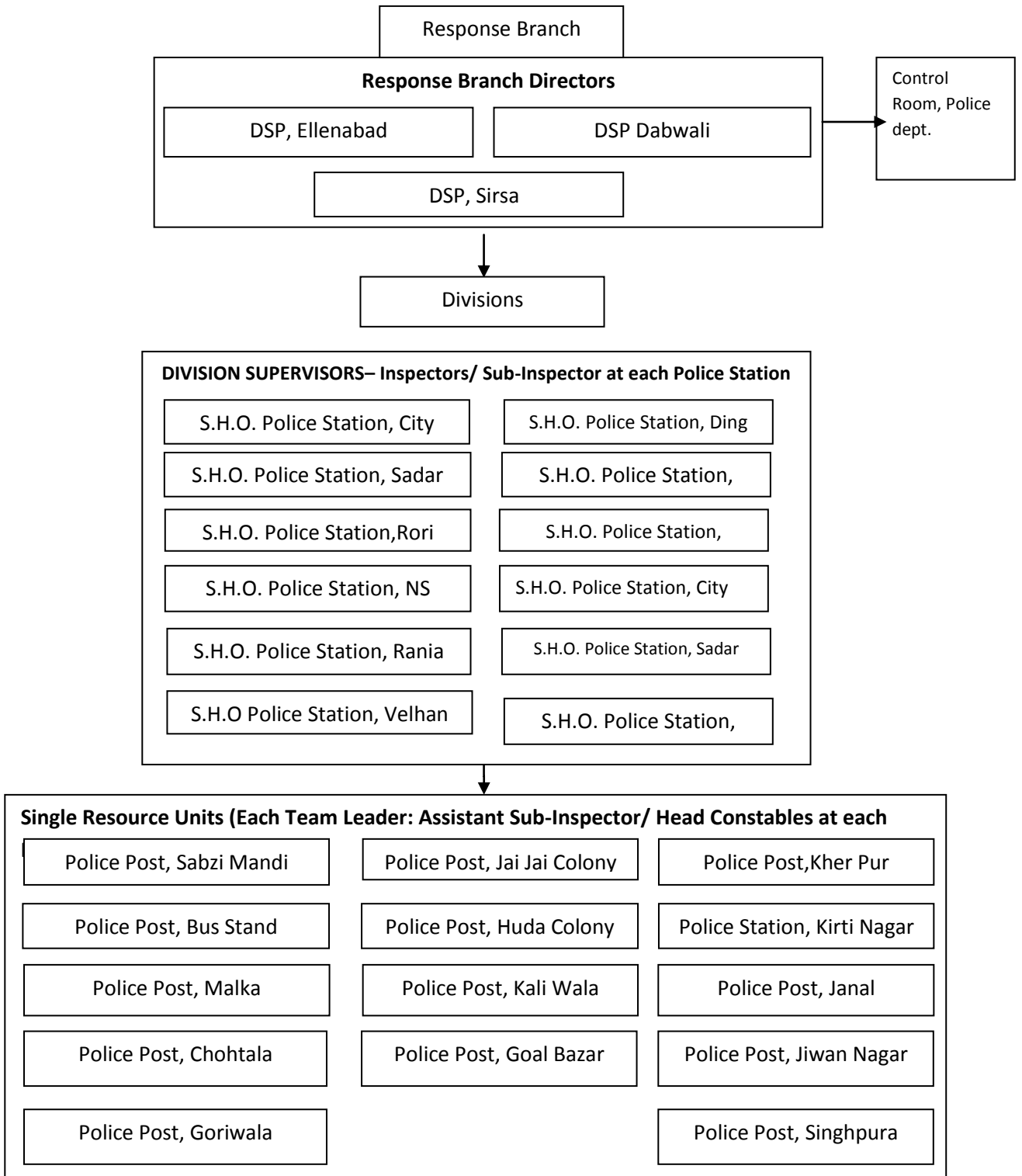


General Staff – c. Operations Section

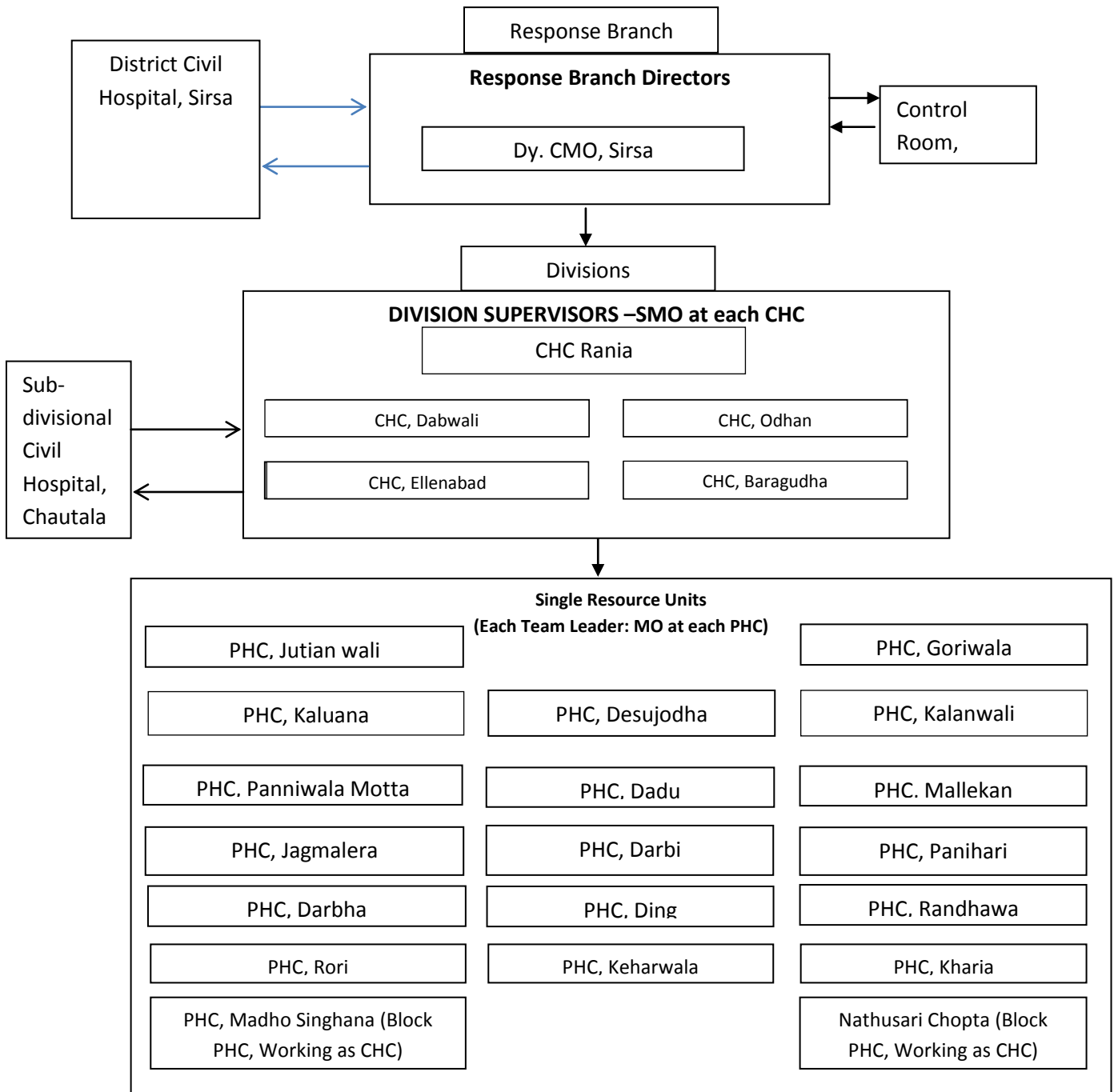
OPERATIONS SECTION



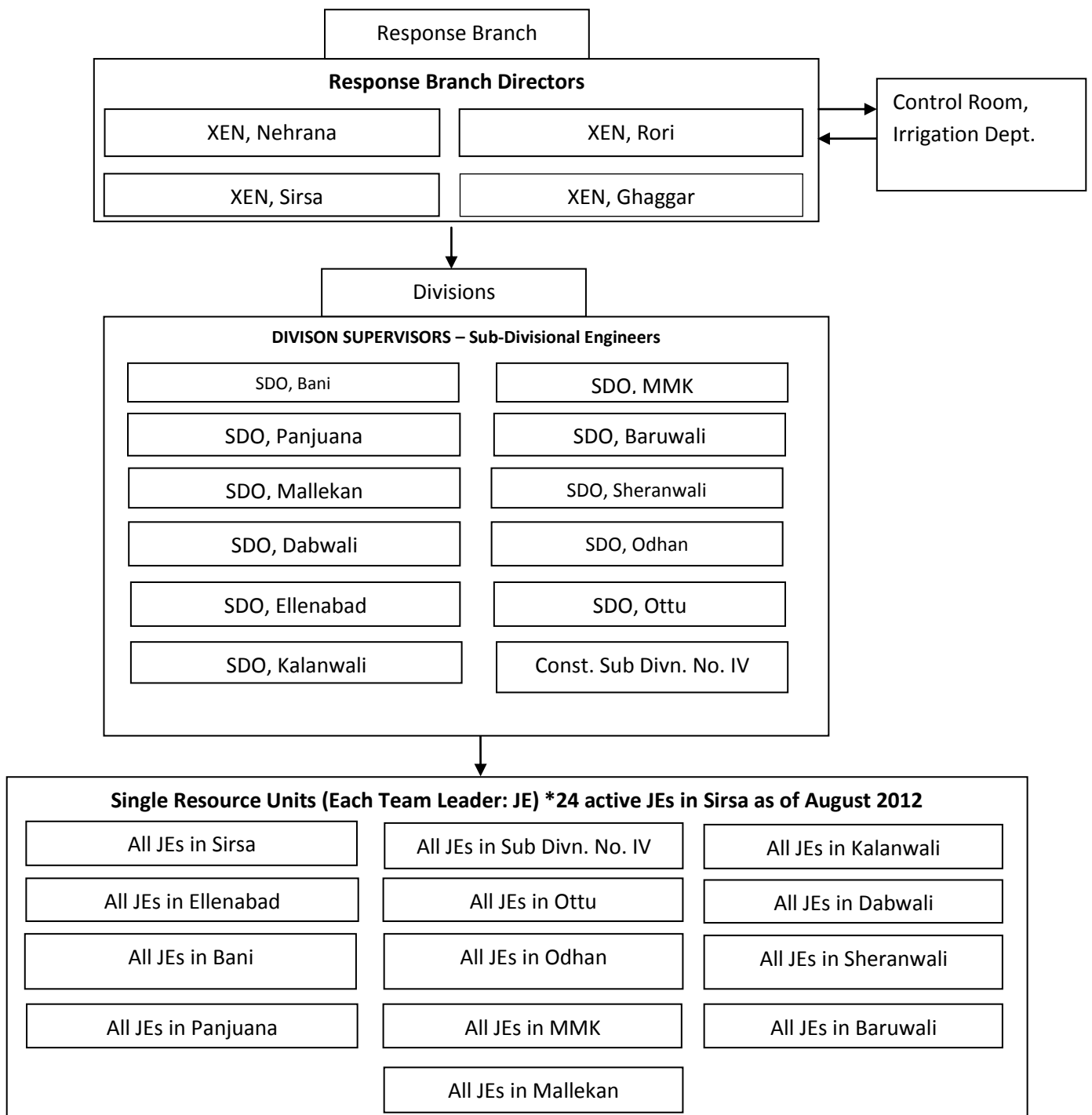
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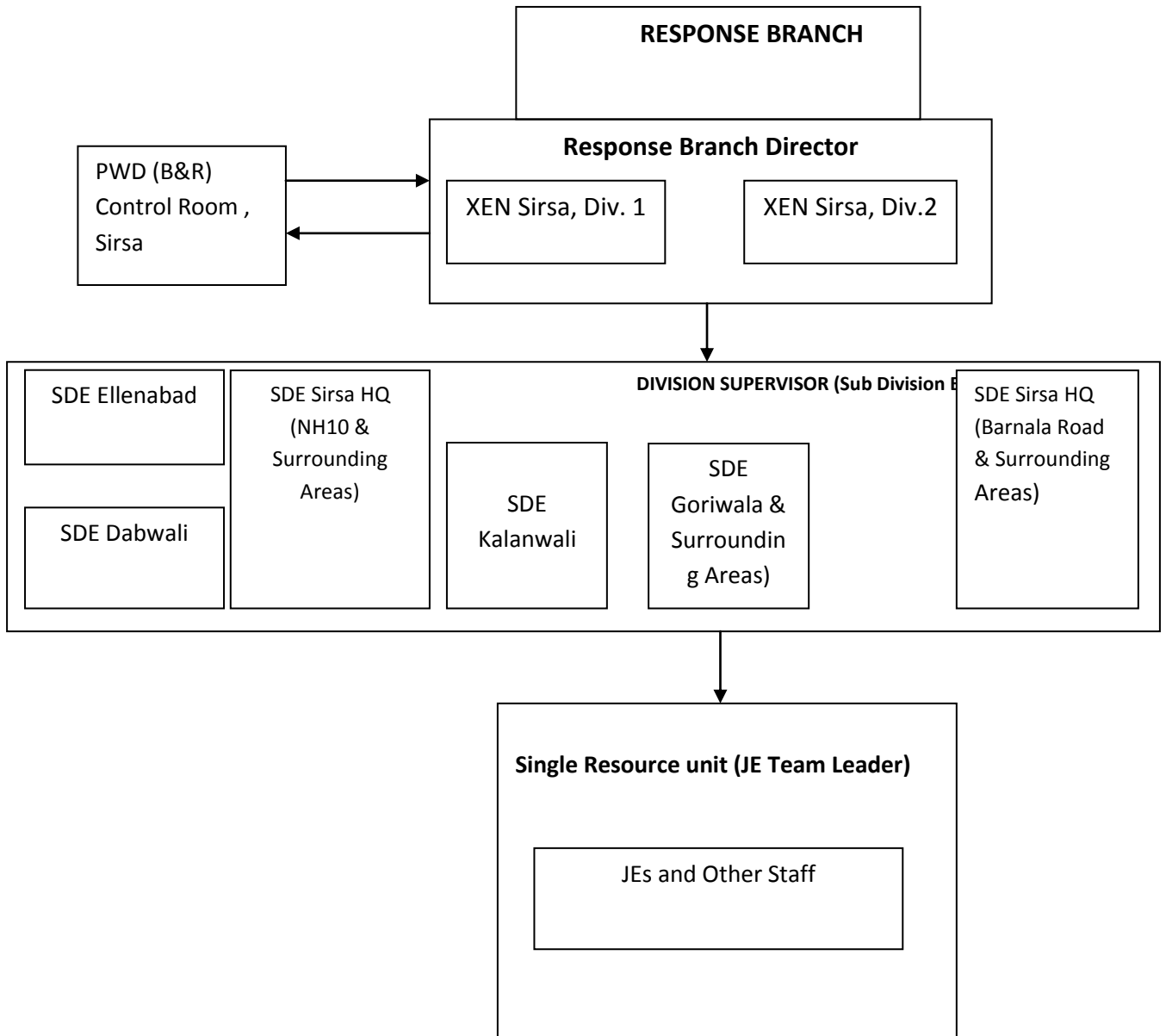
2. RESPONSE BRANCH – Health Department



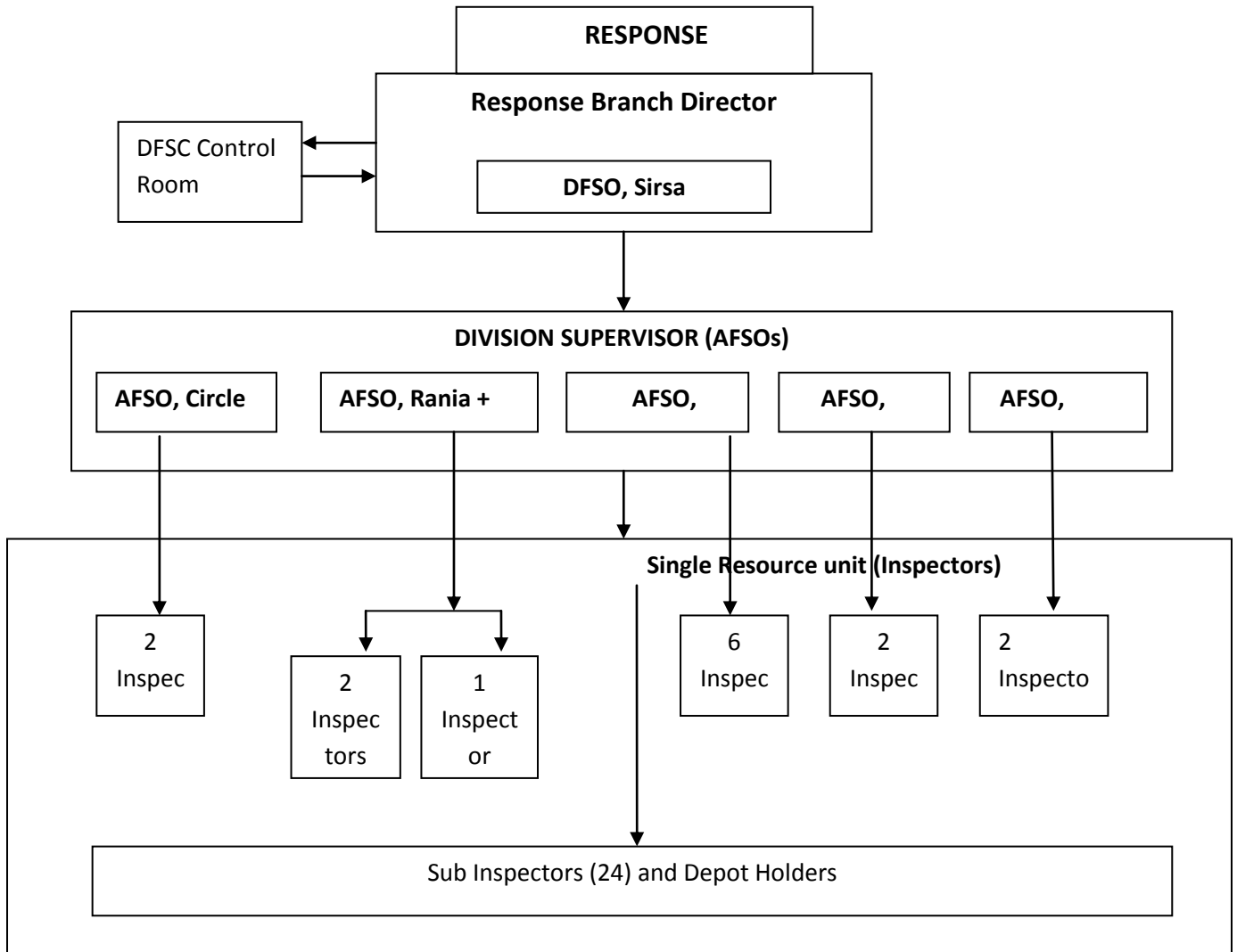
4. RESPONSE BRANCH – Irrigation Department



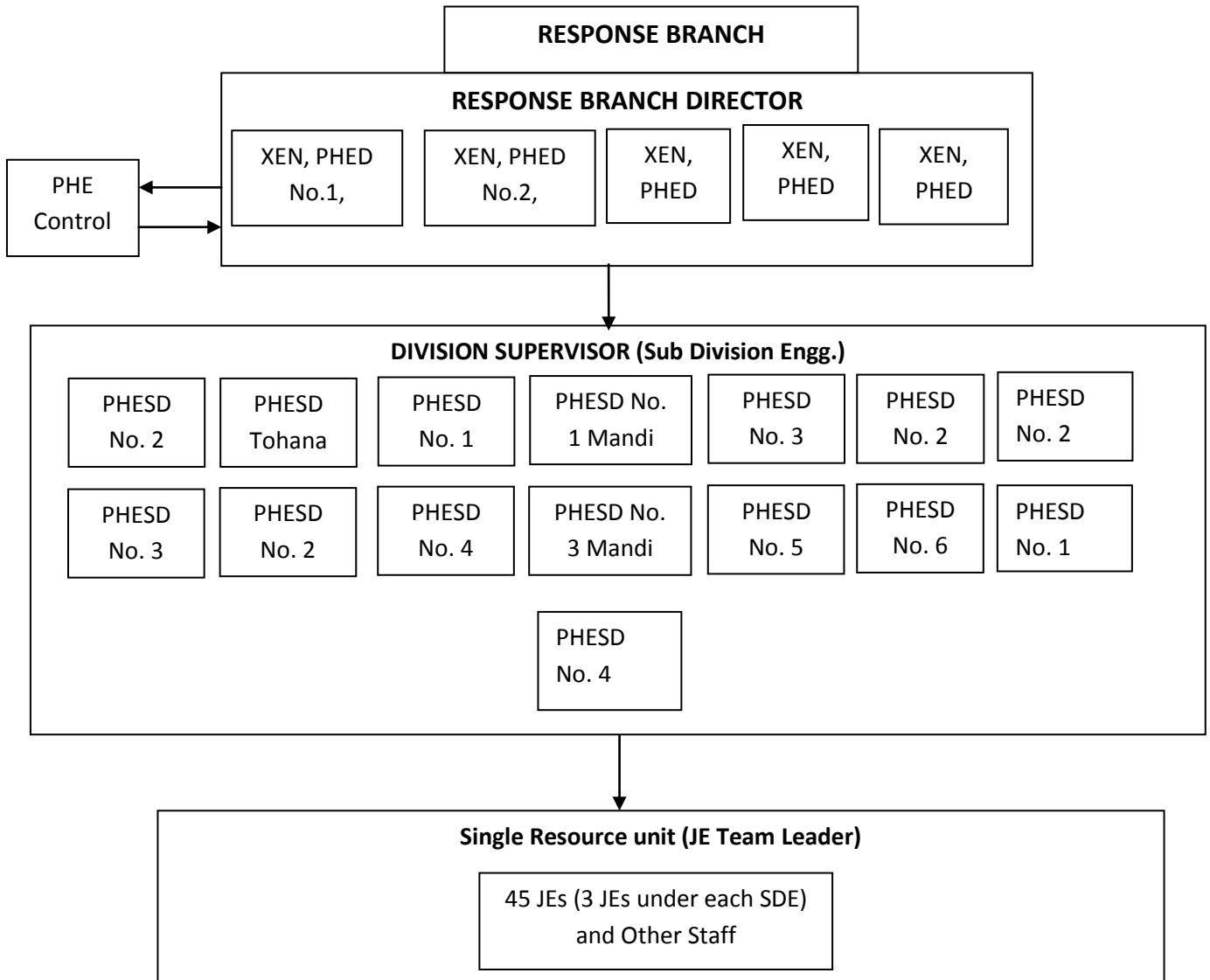
**5. RESPONSE BRANCH – PWD
(B&R) Department**



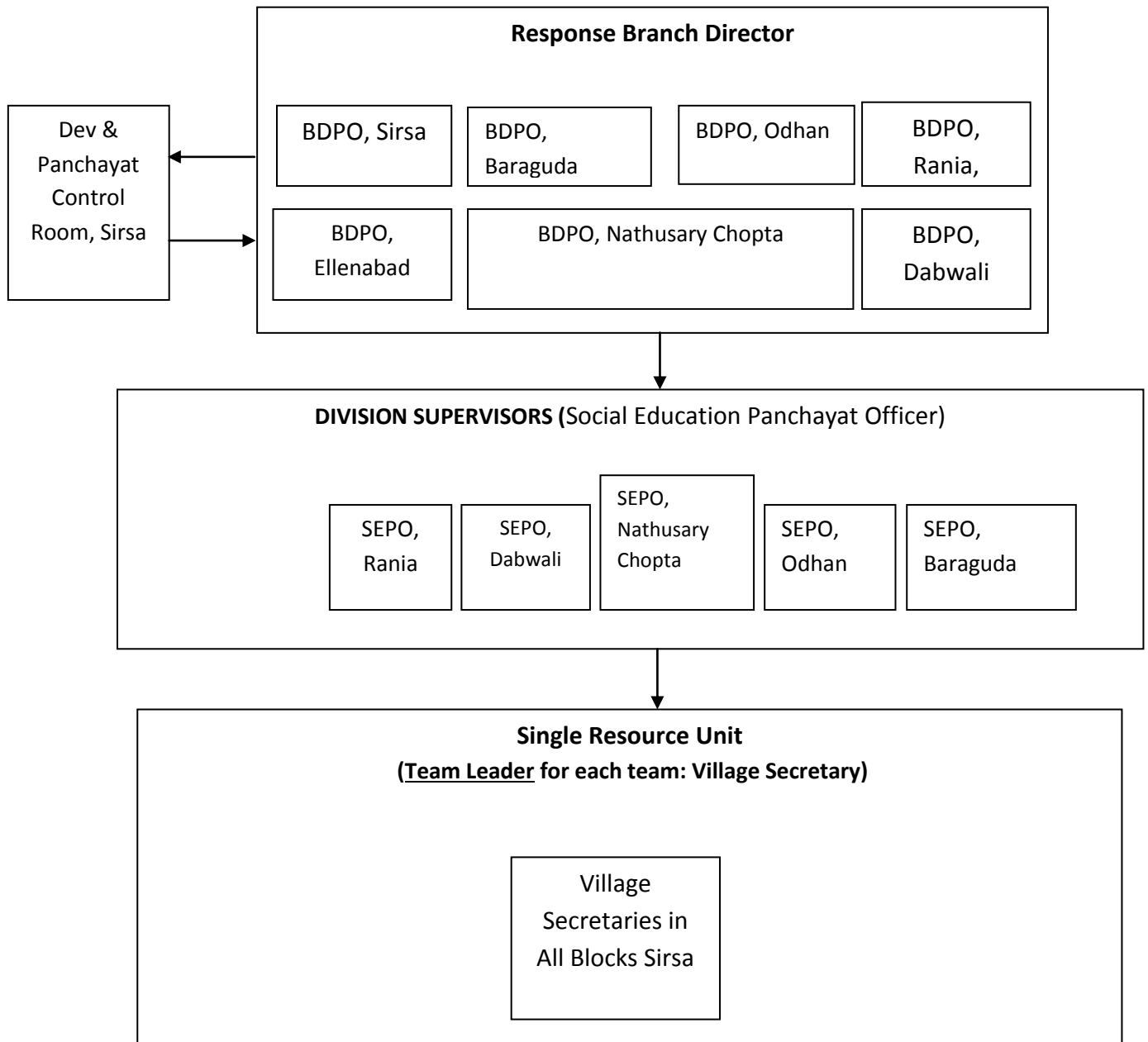
6. RESPONSE BRANCH – Food & Supplies Department



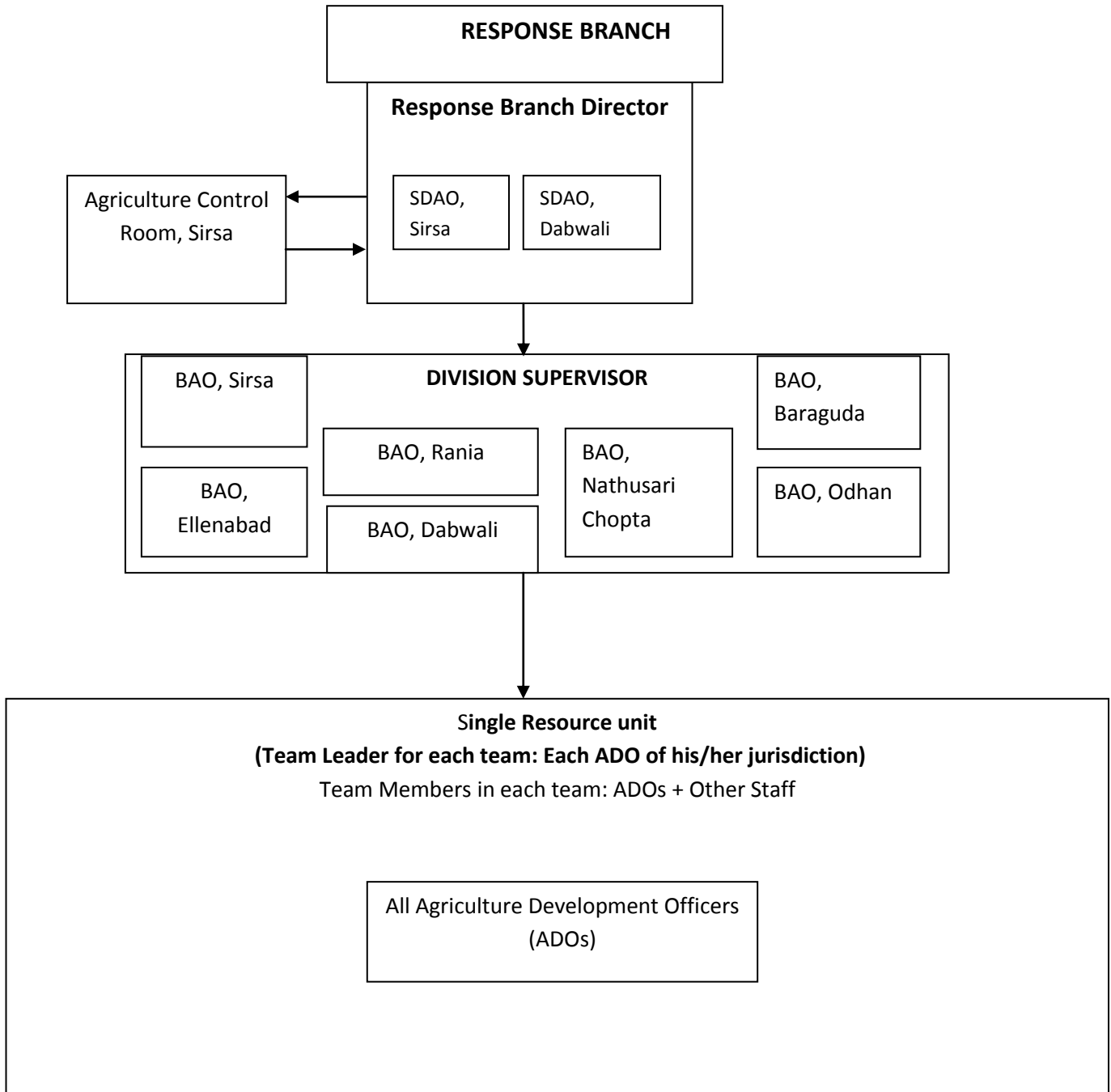
7. RESPONSE BRANCH – Public Health Engineering Department



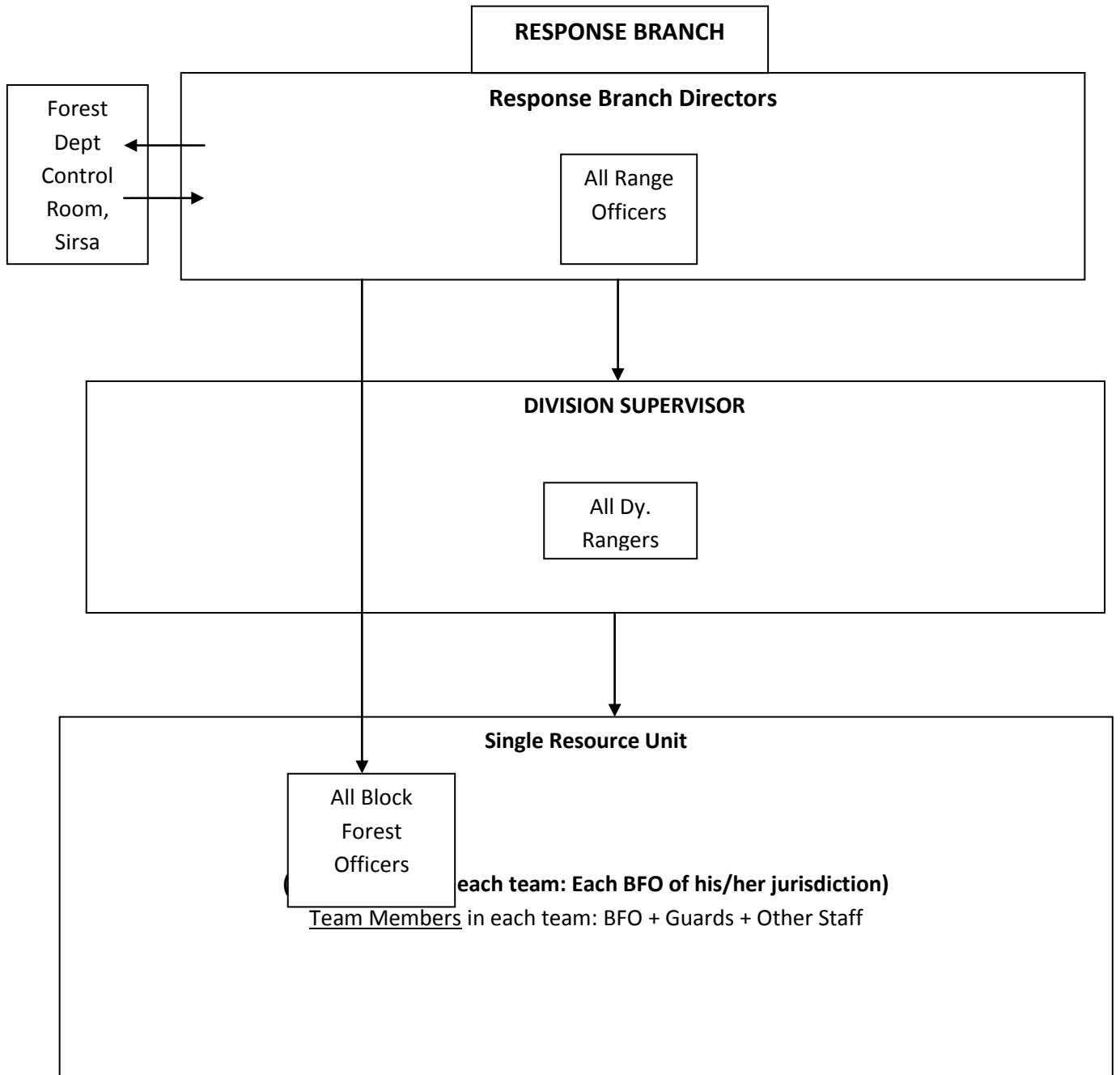
8. RESPONSE BRANCH –Development & Panchayat Department



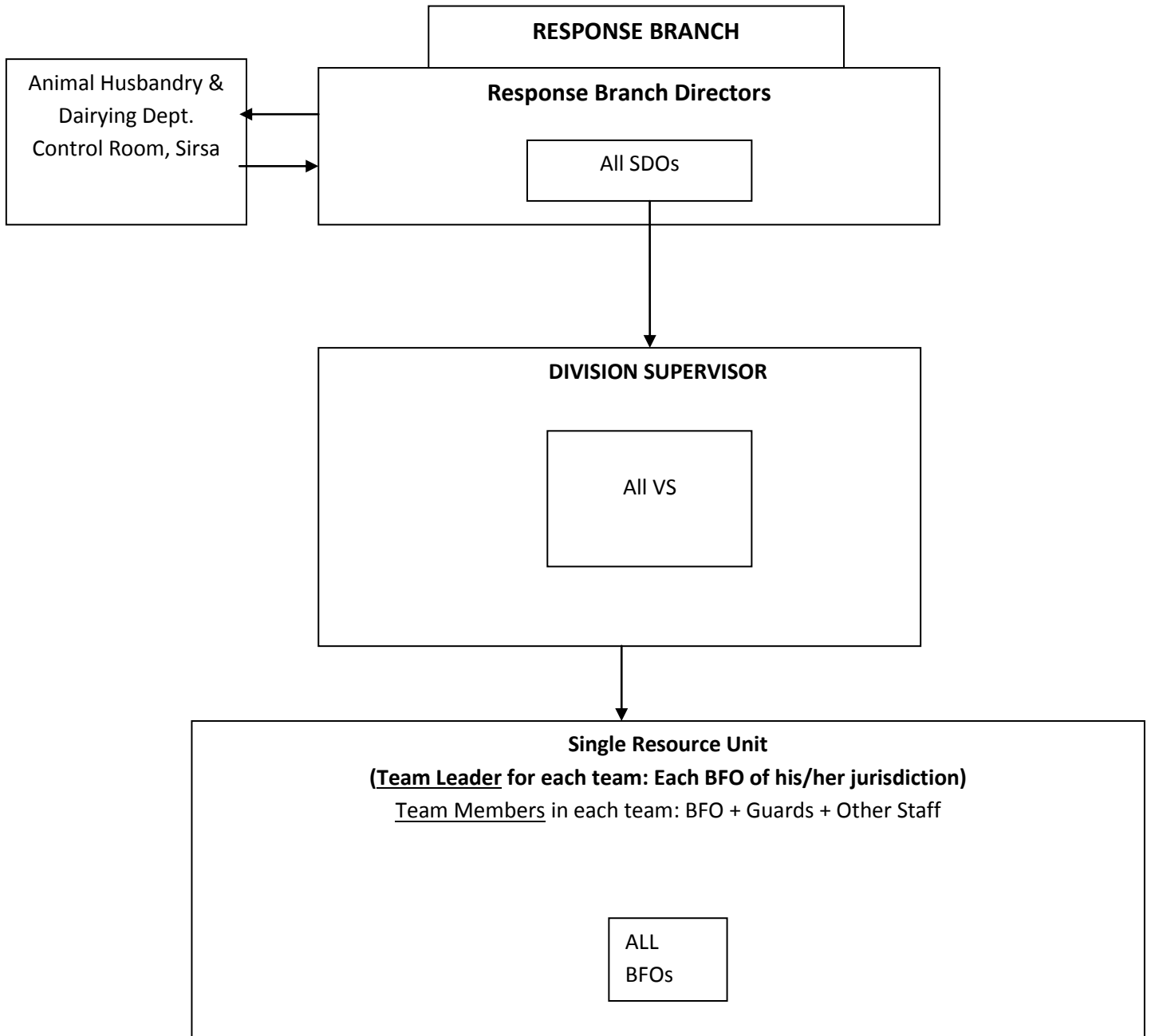
9. RESPONSE BRANCH – Agriculture Department



10. RESPONSE BRANCH – Forest Department



11. RESPONSE BRANCH – Animal Husbandry & Dairying



Annexure II Emergency Support Functions

ESF No. 1: Early Warning

Hazards	Nodal Department	Support Department
Flood	<ul style="list-style-type: none"> • Irrigation 	<ul style="list-style-type: none"> • Revenue • Public Relations • NIC • Police • Development and Panchayat • IH&S, HSIIDC and DIC • Food and supplies • Municipal Committee • ZP • Roadways
Hailstorm, Extreme Temperature, Wind Storm, Heavy Rain	<ul style="list-style-type: none"> • Agriculture 	<ul style="list-style-type: none"> • Revenue • Public Relations • NIC • Police • Development and Panchayat • IH&S, HSIIDC and DIC • Food and supplies • Municipal Committee • ZP • Roadways

Department	Task	Responsible person as per IRS	Time Frame
Agriculture (Hailstorm, Extreme Temperature, Wind Storm, Heavy Rain)	1. Coordinate with IMD and meteorological department at HAU for weather updates	Deputy Director Agriculture	Ongoing
	2. Notify immediately about weather updates to the D.C. Office, Sirsa	Deputy Director Agriculture	within 15 mins of weather update received
Irrigation	1. Monitor situation round the clock and constantly update directly DC office and flood control room(during monsoon)	XEN as RBD	Ongoing
	2. Monitor water level for all the surface water bodies like canal, river, Lake, etc.	XEN as RBD	Ongoing

3. Provide information for rising water level and any breach of embankment or likely incident.	XEN Water Services	Every 24 hrs at fixed time for the month of June, July, August and September
	XEN Water Services	In case of sudden change- immediately
1. Receive information from IMD, CWC and Irrigation department and issue warning as per the information from the above departments.	Deputy Commissioner, Sirsa	Ongoing after receiving weather update from agriculture department
2. Disseminate warning ADC, SDMs, DRO, CTM, DIO, DIPRO, SP, DFSC, CONFED, HAFED, IH&S, PWD B&R, Public Health, DIC, HSIIDC, E.O, Municipal Committee, Agriculture, Animal Husbandry, Electricity, HPCL and other crucial department.	Deputy Commissioner, Sirsa	Within 1 hour of notification received
1. Share on going rainfall data	DRO, Sirsa	
2. Establishing flood control room	DRO, Sirsa	For the month of June, July, August and September
3. Share rainfall data with irrigation, agriculture, DFSC and other relevant department	DRO, Sirsa	Within 15 mins for all
4. Issue early warning based on rainfall data	DRO, Sirsa	Within 15 mins for all
5. Flood Control Room will report any incident immediately to DC (Responsible Officer) and ADC (Incident Commander).	DRO, Sirsa	Within 15 mins for all
6. Flood Control Room should be activated in case of flood like situation in any other period of the year.	DRO, Sirsa	with in 1 hour of notification from credible source

	7. Inform all Tehsildars about the situation	DRO, Sirsa	Within 1/2 hour of notification received
	8. Tehsildars would further inform Patwaris and report back to DRO	Tehsildar of respective tehsil	Within 1 hour of notification received
	9. Patwari will spread the warning and report back respective Tehsildar	Patwari of respective area	Within 1.5 hour of notification received
	10. Identify safe location for relief camps and temporary shelters	Tehsildar of respective tehsil	Within 1 hour of notification received
NIC	1. Upload and update warning status District administration website	DIO, Sirsa	Ongoing
	2. Disseminate early warning through mass messaging	DIO, Sirsa	Ongoing
	3. Get information from IMD and CWC website.	DIO, Sirsa	Ongoing after receiving weather update from agriculture department
Police	1. Disseminate the early warning received from District Administration to relevant police stations and police posts.	DSP head quarter	with in 1 hour of notification from credible source
	2. Provide Communication system to irrigation department to communicate field level information to irrigation department	S.P, Sirsa	within 3 hours of
	3. PS and PP will be responsible for warning people with the help of public addressal system.	SHO of respective area	Ongoing throughout the warning process
Public Relations	1. Disseminate information to Newspapers, TV channel including local Cable Channels and Radio which would involve information about current status of Hazard and warning related information	DIPRO	Within 24 hours or depending upon the need it can be done earlier also
	2. Use publicity van for disseminating early warning	DIPRO	with in 1 hour of notification from credible source

Development and Panchayat	Inform all the village secretaries and BDPOs	DDPO	Within 15 minutes of notification received
	Village Secretaries shall inform village immediately, they can use public addresses system available in places like Temples, Mosque, Gurudwara etc.	Village Secretaries	Within 15 minutes of notification received from DDPO
IH&S, HSIIDC and DIC	Immediately inform Hazardous Units about the situation	GM DIC, Estate Manager HSIIDC, Assist Director IH&S	within 1/2 hour of notification received
Food and supplies	Inform all godowns and market committees for necessary action	DFSO as RBD	Within 2 hours of notification received
Municipal Committee	With the use of public address system of various places like temple, mosque, gurudwara issue early warning	E.O Municipal Committee	Within 15 minutes of notification received

ESF No 2: Communication

Hazards	Nodal Department	Support Departments	Others
All type of Hazard	Police	<ul style="list-style-type: none"> • Revenue & Disaster Management • Health • Irrigation • State Informatics Centre • BSNL Haryana • DIPRO • DHBVN/ UHBVN, HVPNL 	<ul style="list-style-type: none"> • Telecomm Companies • Aviation • NGOs

Department	Tasks	Responsible person as per IRS	Time Line
Police	1. Maintain 24-hour continuous communication with local, state, and national agencies.	Dy SP (HQ) as Com UL	Ongoing
	2. In special cases like bomb blast, terrorist attack Police Control room acts as District Control Room and follows the crisis management plan	Dy SP (HQ) as Com UL	Ongoing
	3. Establish (temporary) control room wherever required.	Dy SP (HQ) as Com UL	Within 1 hour of notification

	4. Provide emergency communication using TETRA, VHF Radios, Wireless Sets & Walkie Talkie sets, HAM Radios.	Dy SP (HQ) as Com UL	Ongoing
Revenue and DM	1. Maintain continuous communication, in coordination with police, between District Control Room and state, national and affected areas.	DRO as LSC	Ongoing
	2. Maintain communication from district control room with various departments and other control rooms in the District.	DRO AS LSC	Ongoing
	3. Maintain communication of District Flood control room with state control room and irrigation, Police, health control rooms, camp office, SDM offices and tehsils.	DRO	During Monsoon period
National Informatics Centre	1. Facilitate video conferencing at district level.	DIO	Immediately
BSNL, Telecom Companies	1. Provide communication facility as and when required	Manager	Immediately
	2. Restore communication in the affected areas as early as possible.	Manager	Immediately
Development and Panchayat	1. Establish communication centre at block level	BDPO	Immediately
	2. Establish communication centre at village level.	Village Secretary	Immediately
All Front Line Departments	1. Maintain continuous communication of departmental control room with field level and District Control room	Second in charge	Ongoing

ESF No 3: Evacuation

	Nodal Department	Support Department
All type of Hazard	Revenue and DM	<ul style="list-style-type: none"> • Police • C.D. & H.G. • Transportation (Roadways) • Health • Fire • DIPRO • DIO • Red Cross • DFSC • Department of Social welfare • Women and Child Development • Municipal Committee.

Department	Task	Responsible personas per IRS	Time Frame
Revenue and DM	1. Ensure Information of evacuation to disseminated to all Tehsildars/ NT	DRO, Sirsa	Within 10 mins of notification
	2. Ensure evacuation by Tehsildar and Patwaris in coordination with Police.	Tehsildar (As Staging area manager)	Before expected time of disaster hitting
	3. Ensure evacuation information to Patwaris from Tehsildar	Tehsildar (As Staging area manager)	Before expected time of disaster hitting
	3. Ensure evacuation at village level by patwari, Village sec, Village level team for evacuation and police (if required).	Patwari of respective village	Before expected time of disaster hitting
	4. Ensure grievances and doubts of people to be addressed.	Tehsildar (As Staging area manager)	Ongoing
	5. Ensure safety of evacuating people specially old aged, disabled, girls and women (including widow), orphan children with the help from Police these department should assist when asked for.	Tehsildar (As Staging area manager)	Ongoing

	6. Ensure arrangements for safe shelter for the people being evacuated. With food, water, sanitation, electricity, safety and security	Tehsildar (As Staging area manager)	With in 1 hour of people being brought to that location
	7. Ensure cattles are set free so that they can find safe evacuation	Patwari of respective village	Immediately
Police	1. To maintain law and order which should take special consideration of the women, girls and children so that they don't fall under trap of human traffickers	SHO of that area	Ongoing
	2. Any incident of mobbing in evacuated area must be avoided by police department.	SHO of that area	Ongoing
	3. Cordon off the area	SHO of that area	Immediately
	4. Protect property and provide security of evacuated areas, including the establishment of cordons.	SHO of that area	Ongoing
	5. Ensure that each and every person is being evacuated.	SHO of that area	Ongoing
	7. Ensure information on safe route In coordination with traffic police department	SHO of that area	Immediately
	C.D. & H.G.	1. Follow deployment plan of police and assist police, patwari and village sect if needed in the process of evacuation	District Commandant
3. Process to avoid stampede.		District Commandant	Ongoing
4. Control access to and within an affected area so as to assist rescue, medical, fire, and other essential services.		District Commandant	Ongoing
5. Protect property and provide security of evacuated areas, including the establishment of cordons.		District Commandant	Ongoing
6. Conduct any initial evacuations to ensure protection of life.		District Commandant	Ongoing
Transportation (Roadways)	1. Make available buses and other transportation mode, for evacuation and supply chain management to the Control room.	GM Roadways	Within 1/2 hour of call for evacuation

	2. Make use of diesel pumps at the roadways depot.	Works Manager	Ongoing
	3. Provide special vehicles for evacuation of livestock	Traffic manager	Ongoing
Development and Panchayat	1. Inform all the BDPO about evacuation and its process	DDPO	Within 15 mins of notification
	2. Ensure Village Secretary shall get information on evacuation	BDPO	With in ½ hour of notification
	3. Ensure village secretary should inform at village level	Village secretary	Within ½ hour of notification
Health	1. Ensure provision of ambulances for evacuation of sick, old age people and people with disability if required General Hospital/CHC/PHC for the concerned area	MO	Ongoing
Fire Services	1. Activate response team as per norms and SOPs of the fire department.	Fire Officer	Within 15 minutes of call for evacuation
Public Relation	1. Information for the evacuation process and safe sites to TV channel, Radio, Newspaper.	DIPRO	within 1 hour of notification of evacuation
	2. Any information of evacuation for media has to approved by DIPRO or designated person by DIPRO(which include print media, electronic media and internet)	DIPRO	Ongoing
NIC	1. Information for the evacuation process, safe sites, and shelter on on the website of District.	DIO	Ongoing
Red Cross	1. Assess need as per evacuation and also provide information regarding all available inventories in coordination with Logistics Section Chief, DRO.	Secretary Red Cross	Ongoing
Food and Supplies	1. To provide information on Filling Station and Fuel.	DFSO (Response branch director)	Ongoing

Railways	1. Provide adequate number of railways for evacuation if needed	Railways Superintendent, Rewari	As required
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ESF 4: Damage and Need Assessment

Hazard	Nodal Department	Support Departments	Others
All hazards	Revenue and DM	<ul style="list-style-type: none"> • Police • NIC • Social Welfare • DDPO • Agriculture • All Departments 	<ul style="list-style-type: none"> • Housing Board • Civil Society • Organisations • Independent Organisations/NGOs

Department	Task	Responsible Person as per IRS	Time Frame
District Administration	1. Conduct aerial assessment, if devastation is very large.	Deputy Commissioner	Immediately
	1. Ensure transportation needs of responders' (staff) are met	CTM as Liasioning officer	Ongoing
Revenue and DM	1. Activate the Damage & Needs Assessment Team* specific to hazard and ensure the team is sent at field	DRO	Immediately
	2. Ensure cultural sensitivity & hygiene requirements for all needs assessment.	DRO	Ongoing
	3. Ensure <i>Rapid Damage Assessment Report</i> (to confirm that disaster has occurred, steps are being taken to cope with it, and tentative relief that would be required) ** from the Damage Assessment Team and submit to Deputy Commissioner	DRO	Within 1 hour
	4. Prepare PDA (<i>Preliminary Damage Assessment</i>) ⁺ Report to be prepared and submitted to Deputy Commissioner	DRO	Within 24 hours
	5. Prepare DDA (<i>Detailed Damage Assessment</i>) Report and submit to Deputy Commissioner	DRO	Within 72 hours
	6. Prepare <i>Interim Report</i> of damages caused and needs changing from time to time at the field; and submit it to EOC/District Control Room ¹ .	BDPOs as Task Force Leaders	Every 24 hours, after the first 72 hours

* (DAT = includes team from PWD (B&R), Health, PHED, MC, Irrigation, Animal Husbandry & Dairying, Industrial Health & Safety), Experts from Education Department/Universities and other experts as required.

**Quote the source of the information when presenting facts and figures.

⁺Do not delay a report because certain information is lacking; send it next time.

¹ As the time elapses, prepare this report focussing restoration, rehabilitation and reconstruction

	7. Ensure the needs of critical areas are prioritised	DRO	Ongoing
	8. Classify the needs as most urgent/urgent/normal so as to plan further the methods to meet them most effectively.	DRO	Ongoing
Police	1. Ensure safety & security of Assessment Teams at field.	SHO	Ongoing
Agriculture	1. Coordinate with Damage Assessment Team regarding assessing the damage to soil, crops, irrigation system, water bodies etc. that would impact agricultural activities	SDAO	Ongoing
NIC	1. Provide technical assistance to develop assessment forms, questionnaires and other per-forma	DIO	Ongoing
	2. Provide appropriate Management Information System (MIS) software for data analysis (of the information received from field and other departments)	DIO	Ongoing
All Departments	1. Ensure that specialist reports are prepared with technical details of all impacts of disaster caused to their respective departments; and sent to EOC/District Control Room.	HODs of all departments	Ongoing
Social Welfare	1. Ensure the needs of most vulnerable groups in the affected population is assessed & prioritised.	District Social Welfare Officer	Ongoing
Operations Section Chief	1. To monitor and evaluate the efficiency, effectiveness and impact of relief operations as per the needs assessment reports; and recommend follow-up.	Operations Section Chief	Ongoing
Development & Panchayat	1. Establish village communication centres for continuous needs assessment throughout the recovery process.	DDPO	Within 24 hours

ESF 5: Fire Fighting

Hazard	Nodal Department	Support Departments	Others
Fire	Fire Services	<ul style="list-style-type: none"> • Municipal Corporation/Municipal Committee • Police • Home Guard and Civil Defence • Forest • PWD (B&R) • Public Health Engineering • Health • Red cross • HVPNL/DHBVN • Red Cross 	<ul style="list-style-type: none"> • Private agencies for Fire Fighting Services

Department	Task	Responsible	Time Frame
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		Person as per IRS	
Fire Brigade	1. After getting the information, quickly rush to the scene of emergency/disaster.	AFSO as Divisional Supervisor	Immediately
	2. First check whether power is there or not then cut off the supply.	AFSO as Divisional Supervisor	Immediately
	3. Cordon-off affected area.	Leading Firemen as Single Resource Unit Leader	Immediately
	4. Deploy personnel, equipment and supplies during fire fighting operations as per requirement.	AFSO as Divisional Supervisor	As required
	5. Procure personnel, equipment and supplies from private agencies as required.	DFO as RBD	As required
	6. In case of hazardous material mishappening, equip the fire fighting teams with Personal Protective Equipments	AFSO as Divisional Supervisor	As required
	7. Carry out necessary evacuation in and around incident area.	AFSO as Divisional Supervisor	Immediately
	8. Safe guard the adjacent property/ population from fire by confining the fire spread.	AFSO as Divisional Supervisor	Immediately
	9. Search and rescue injured/ trapped/ buried persons and casualties.	AFSO as Divisional Supervisor	Immediately
Police	1. Cordon-off affected area.	SI/ASI as Single Resource Unit Leader	Immediately
	2. Clear traffic for emergency service vehicles.	Traffic Inspector	As required
Home Guard and Civil Defence	1. Assist in carrying out necessary evacuation, search and rescue operations in and around incident area.	District Commandant	As required
PWD (B&R)	1. Ensure debris clearance of roads for unhindered passage of emergency service vehicles.	SDO as Divisional Supervisor	Immediately
Health	1. Provide necessary health and ambulance services to the affected people.	SMO as a Divisional Supervisor	Immediately
Red Cross Society	1. Provide necessary health services to the affected people.	Secretary	Immediately
	2. Provide assistance to health department to provide necessary health services to affected people		
Electricity Department	1. Cut and restore power supply of incident area as and when required.	SDO as Divisional Supervisor	As required

PHED	1. Provide water for fire tenders	SDO as Divisional Supervisor	As required
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ESF 6: Hazardous Material (HAZMAT) Safety Services

Hazards	Nodal Department	Support Department	Others
All Hazards	Industrial Health & Safety	<ul style="list-style-type: none"> • Police • Fire • Health • Civil Defense & Home Guard • Public Health Engineering • Transport • Haryana Pollution Control Board • Public Relations • Agriculture 	<ul style="list-style-type: none"> • IMD • NDRF • NFSC, Nagpur • IOCL • BPCL • HPCL • NTPC • NHAI

Department	Tasks	Responsible Person as per IRS	Time Frame
Industrial Health & Safety	1. Provide information regarding precautions (handling and packaging), modes of transportation of hazardous substances, methods of containment and disposal, antidotes, etc. to the responders.	Assistant Director, IH&S	Immediately
	2. Prepare a Rapid assessment (as per Annexure-3) of the hazardous materials by detection or identification and affected site in coordination with Police, Health and Fire and communicate the same to the District Control Room.	Assistant Director, IH&S	Immediately
	3. Ensure all drivers of vehicles, carrying hazardous materials, must have HAZCHEM cards related to hazardous chemical.		
	4. Ensure expertise/ external assistance if needed.	Assistant Director, IH&S	Within 24 hours

Police	1. Cordon off the affected area.	SHO of the area as Divisional Supervisor	Immediately
	2. Provide coordinated response to actual or potential discharges/ releases of hazardous materials in coordination with Fire, Health and Transport.	SP	Within 24 hours
	3. Ensure Crowd Management in coordination with Civil Defense and Home Guards.	SHO of the area as Divisional Supervisor	Immediately
	4. Participate with the Evacuation Coordination Team (determine state park closures, respond to highway blockages involving hazardous materials) in coordination with Roadways, NHAI and RTA.	SHO of the area as Divisional Supervisor	Within 24 hours
	5. Restrict traffic moment near or around affected or exposed area.	Traffic Inspector	Immediately
	6. Ensure rerouting of traffic.	Traffic Inspector	Within 24 hours
	7. Participate in Search and Rescue with Civil Defense, Fire and Health.	SHO of the area as Divisional Supervisor	Immediately
	8. Provide communication assistance if needed.	SHO of the area as Divisional Supervisor	Ongoing
Health	1. Conduct a preliminary health assessment of the casualties.	SMO/MO	Immediately
	2. Conduct appropriate testing for symptoms due to exposure and provide necessary health care, also maintain the records of the same.	SMO/MO	Ongoing
	3. Arrange for relevant emergency medicine, blood and antidote in sufficient quantity.	CMO/CS/Dy. CMO/CS	Ongoing
	4. Determine all possible health hazards due to exposure to hazardous material.	SMO/MO	Within 24 hours
	5. Arrange for isolation and decontamination ward for the exposed individuals if needed.	Dy. CMO/CS as RBD	Within 24 hours
Haryana Roadways	1. Identify vehicle for rescue operation.	GM	Immediately
	2. Help in evacuation of the general public.	Traffic Manager	Immediately
Fire Services	1. Contain, clean up and dispose the released hazardous materials in coordination with Industrial Health & Safety.	FSO as RBD	Immediately
	2. Conduct Search and Rescue along with Police and Civil Defense.	FSO as RBD	Immediately
Haryana State	1. Assess the effects of pollutants on environment.	RO	Within 24 hours

Pollution Control Board (HSPCB)	2. Provide expertise on environmental effects of releases of hazardous substances, pollutants, contaminants, oil discharges and environmental pollution control techniques.	RO	Within 24 hours
	3. Ensure communication to relevant departments like health, irrigation, PHED, MC, Agriculture, Animal Husbandry and Dairying etc. about the effects of the pollutants.	RO	Within 24 hours
	4. Predict and monitor pollutant movement, dispersion, and characteristics (atmospheric or marine) over time.	RO	Within 24 hours
Agriculture	1. Acquire and disseminate weather data, forecasts, and emergency information in coordination with IMD.	Deputy Director Agriculture	Within 24 hours
Animal Husbandry & Dairying	1. Assess health hazards of the affected livestock and take necessary measures.	Deputy Director	Within 24 hours
Public Relations	1. Ensure Rumour Management and provide necessary information regarding precautions and other dos and don'ts.	DIPRO as IMO	Within 24 hours
	2. Ensure use of Public Addresses System if needed.	DIPRO as IMO	Within 24 hours
	3. Ensure dissemination of information regarding possible health hazards to the community.	DIPRO as IMO	Ongoing

ESF 7: Search and Rescue

Hazard	Nodal Department	Support Departments	Others
For all the Hazards	Police	<ul style="list-style-type: none"> • Civil Defence • Electricity • Fire • Haryana Roadways • Health • Home Guard • PHED • PWD(B&R) • Red Cross Society • Regional Transport Authority (RTA) • Revenue and Disaster Management 	<ul style="list-style-type: none"> • Defence Forces • NDRF

Department	Task	Responsible Person as per IRS	Time frame
Police	1. Cordon off the affected area	SHO as Single Resource Unit Leader	Immediate
	2. Mobilise specialised human resources and equipments required for the operation	SHO as Single Resource Unit Leader	Immediate
	3. Provide security to personal belongings and corpses	SHO as Single Resource Unit Leader	Ongoing
	4. Provide communication equipments for the operation	SHO as Single Resource Unit Leader	Immediate
	5. In case of hazardous material mishap, equip the search and rescue teams with person protective equipments (PPEs)	SHO as Single Resource Unit Leader	Immediate
	6. Ensure safe transportation of dead bodies	SHO as Single Resource Unit Leader	Ongoing
Electricity	1. Cut power supplies to the affected area if needed.	JE as Single Resource Unit Leader	Immediate
	2. Arrange power supply to facilitate search and rescue operation	JE as Single Resource Unit Leader	Immediate
Fire Services	1. Control fire to facilitate other operations	Leading Firemen as Single Resource Unit Leader	Immediate
	2. Conduct search and rescue operation	Leading Firemen as Single Resource Unit Leader	Immediate
	3. Coordinate with Department of Industrial Health and Safety for handling, control and disposal of hazardous material	AFSO as Divisional Supervisor	Immediate
	4. Deploy resources from private agencies if required	AFSO as Divisional Supervisor	Immediate
PHED	1. Ensure adequate water supplies for fire tenders	JE as Single Resource Unit Leader	Immediate
PWD(B&R)	1. Clear routes/ debris/ building structures to carry out the necessary search and rescue operation.	JE as Single Resource Unit Leader	Immediate
Home Guard	1. Provide volunteers required for the operation	District Commandant	Immediate

Civil Defence	1. Provide volunteers and equipments required for the operation	Civil Defence Instructor (CDI)	Immediate
Health	1. Provide ambulance at the site of operation	SMO as Divisional Supervisor	Immediate
	2. Perform Triage	MO as Single Resource Unit Leader	Immediate
	3. Provide first aid and emergency health services to the survivors	MO as Single Resource Unit Leader	Immediate
	4. Transport victims to hospitals, if required	MO as Single Resource Unit Leader	Immediate
Red Cross Society	1. Provide first aid and emergency health services to the survivors.	Secretary	Immediate
Revenue and Disaster Management	1. Deploy trained human resources, divers and swimmers, if required.	DRO as LSC	Immediate
	2. Provide equipments like boats, oars, OBM, etc for search and rescue operation	DRO as LSC	Immediate
Haryana Roadways	1. Provide vehicles and equipments for execution of search and rescue operation.	GM	Immediate
Regional Transport Authority	1. Procure and provide vehicles wherever required	Secretary	As required
Indian Railways	1. Provide human resources and equipments for search and rescue operation, in case of railway accident	Superintendent	As required
Civil Aviation	1. Provide aircraft and air support for execution of search and rescue operation, if required	HOD, Civil Aviation, Haryana	As required

ESF 8: Health

Hazard	Nodal Department	Support Department	Others
All hazards	Health	<ul style="list-style-type: none"> • Police • Red Cross Society • Irrigation • Industrial Health & Safety • Fire • Haryana Roadways 	<ul style="list-style-type: none"> • IMA • Private Health Institutions • NRHM • Indian Railways • NDRF • NGO • Civil Aviation

Department	Tasks	Responsible Person as per IRS	Time frame
Health	1. Conduct Triage and provide health care as per need.	MS/SMOs/MOs of affected area	Immediately after the event
	2. Screen and Isolate the patients from that area if needed.	MS/SMOs/MOs of affected area	Ongoing
	3. Assess the medical needs of the affected area.	SMOs/MOs of affected area	Within 24 hours
	4. Increase patient treatment capacities and surgical capacities as per the need.	CMO/CS	Ongoing
	5. Ensure adequate stock of regulated drugs, biologics (including blood and vaccines), medical devices (including radiation emitting and screening devices), and other medical products.	CMO/CS	Ongoing
	6. Ensure quality check on medical supplies received during relief.	CMO/CS	Ongoing
	7. Ensure availability of blood and blood products through Red Cross Society and other- related agencies.	CMO/CS	Ongoing
	8. Provide behavioral and mental health care wherever required and set up a separate unit for it.	MS/SMOs/MOs of affected area	Ongoing
	9. Facilitate adequate ambulance service for the affected area.	CMO/CS	Ongoing
	10. Facilitate adequate victim identification/ mortuary services to the area.	CMO/CS	Within 1 hour
	11. Ensure proper medical waste disposal.	MS/SMOs/MOs of affected area	Ongoing
	12. Monitor and provide information to families of the victims through public information booth.	MS/SMOs/MOs of affected area	Ongoing
	13. Coordinate with IMA to provide with the additional medical necessities and doctors and nurses from private hospitals in times of disaster when the local resources are inadequate/ limited.	CMO/CS	Ongoing
	14. Ensure medical posts at shelter and camp site.	MO of affected area	Within 24 hours
	15. Assess and address nutritional need of affected population.	MO of affected area	Ongoing
	16. Issue Official Statements concerning the post-disaster health situation.	CMO/CS	Immediately
	17. Conduct health surveillance within that area.	MS/SMO/MO of affected area	within 24 hours

Police	1. Manage crowd at hospitals and medical posts.	SHO of that area	ongoing
	2. Ensure Traffic control.	Traffic SHO	ongoing
	3. Ensure safety of belongings of injured and dead people at hospital.	MS/SMO/MO	Ongoing
	4. Ensure Dead Body Management.	SP	ongoing
PHED	1. Ensure dewatering of flood water/ rainwater in health institutions.	XEN, Water Services	within 2 hours
Fire	1. Ensure fire safety at hospitals and medical posts.	DFO/AFSO	immediately after the event
Indian Railways	1. In case of train accidents, provide immediate medical aid.	Superintendent, Rewari	Immediately
	2. Deploy recovery van to the disaster site.	Supdt., Rewari	Immediately
Red Cross Society	1. Assist the Health department in providing the volunteers.	Secretary, Red Cross	ongoing
	2. Provide blood and blood products to the Health Department.	Secretary, Red Cross	ongoing
PWD	1. Construct temporary site of medical camp.	XEN, PWD (B&R)	Ongoing
Civil Aviation	1. Coordinate with the health institutions and the other departments in case of an air accident.	Concerned Official	Ongoing
	2. Provide air ambulance if needed.	Concerned Official	Ongoing

ESF 9: Dead Body Management

	Nodal Department	Support Department	Other
For all Hazards	Police Department	<ul style="list-style-type: none"> • Revenue and Disaster Management • Health • District Red Cross Society • Forest • Civil Defence & Home Guards • PWD (B&R) • Municipal Corporation/ Committee 	<ul style="list-style-type: none"> • NGOs • Panchayat and Ward Representatives.

Department	Task	Responsible person as per IRS	Time frame
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Police	1. Identify of dead with the help of Development and panchayat, ward member, panchayat member and Resident welfare association(RWA)	ASI, as single resource unit	Ongoing
	2. Record of dead bodies, missing family member (Photograph/Description / ID etc.)	SP, Sirsa	within 3 days of Disaster
	3. Ensure collection of finger prints and other identification marks for forensic identification.	SP, Sirsa	within 3 days of Disaster
	4. Protect of dead bodies	SHO of affected area	Ongoing
	5. Protect of belongings of dead bodies	SHO of affected area	Ongoing
	6. Record of temporary disposal of unidentified	SHO of affected area	Ongoing
Health	1. Carry out post mortem of the dead bodies.	CMO/CS	Ongoing
	2. Arrange Temporary Mortuary.	CMO/CS	Ongoing
	3. Take DNA sample of unidentified body.		
Red Cross	1. Facilitate health department in arrangement of temporary mortuary	Secretary Red Cross	within 12 hours days
	2. Arrange shroud/coffin/polythene Bags	Secretary Red Cross	Ongoing
DFSC	1. Arrange shroud/coffin/polythene Bags/ fuel and other essential items for cremation and burial	AFSO	Ongoing
Revenue and Disaster Management	1. Identify land for temporary burial in coordination with M.C and District Town and Country Planning.	Tehsildar	Ongoing
	2. Temporary disposal of unidentified dead bodies in coordination with MC, NGOs, Panchayat, Police, representative of local media and DIPRO	Tehsildar	Ongoing
Forest	1. Arrange wood for cremation	Range Officers/ District Forest Officer	Ongoing
Home Guards & CD's	1. Provide human resource for disposal and other activities	District Commandant	As required

ESF 10: Food and Supplies

Hazard	Nodal Department	Support Department	Others
For all the Hazards	Food and Supply Department	<ul style="list-style-type: none"> • Revenue • Warehousing Corporation • HAFED, CONFED • HSAMB • Transport Department • Health • Police • Red Cross Society • Civil Defence • Home Guard • Women and Child Development 	<ul style="list-style-type: none"> • NGOs • Religious institutions • Paramilitary forces • NDRF • Defence forces • Donor agencies • Federation of cooperative Sugar Mills ltd. • Youth clubs, NYK etc

S. No.	Departments	Task	Responsible Person as per IRS	Time Frame
1	Food and Supply	1. Based on 'Need Assessment' and availability of stock, procure essential food items with special care for baby food, pregnant ladies, old persons, etc	DFSC	Within 24 hours after Need Assessment
		2. Arrange storage facilities within the staging area for sufficient food storage. If required arrange warehouses in coordination with Warehousing Corporation, HAFED, CONFED, FCI and Market Committees, etc	DFSC	Ongoing
		3. Ensure safety of stored food grains in godowns/ warehouses, etc against inundation and water logging, fire, pest attack and other possible hazards	AFSO as Divisional Supervisor	Ongoing
		4. Ensure proper arrangement for set-up of community kitchens	Food Inspectors/ Sub-inspectors as Single Resource Unit leader	Ongoing
		5. Check the expiry date of packed food items and ensure the quality of cooked food items.	Food Inspectors/ Sub-inspectors as Single	Before distribution

			Resource Unit leader	
		6. Prepare food packets/ kits as per the need assessment.	AFSO as Divisional Supervisor	Ongoing
		7. Distribute food items with the help of depot holders, fair price shops, NGOs and voluntary agencies.	Food Inspectors/ Sub-inspectors as Single Resource Unit leader	Ongoing
		8. Provide cooking kits (utensils, cooking oil, stove, fuel, match box/lighter, spices, etc) to affected families.	Food Inspectors/ Sub-inspectors as Single Resource Unit leader	Ongoing
		9. Monitor and coordinate flow of food items to the affected area.	DFSC/DFSO	Ongoing
		10. Keep a check on hoarding and black marketing of relief food material in association with Police.	AFSO as Divisional Supervisor	Ongoing
2	Health	1. Assess the nutritional need of women, children, old persons and affected population as per minimum standards of relief.	SMOs as Divisional Supervisors	Ongoing
		2. Ensure hygienic conditions from cooking to consumption.	MOs as Single Resource Unit	Ongoing
3	Warehousing Corporation, HAFED, CONFED, FCI and Market Committees	1. Arrange warehouses for food storage wherever needed.	Head	Ongoing
4	Police	2. Ensure safety and security of food and other commodities in godowns, warehouses and community kitchen and also during transportation and distribution.	Dy SP as Response Branch Director	On going
		1. Keep a check on hoarding and black marketing of relief food material.	SHOs as Divisional Supervisors	Ongoing
5	Women and Child Development	1. Assess the nutritional need of women (lactating, pregnant, old) and children (0-6 years) in affected population.	PO-ICDS	Immediate and as required

		2. Assist Food and Supply department in preparation of food packets/ kits and for bulk distribution of food items	CDPO as Divisional Supervisor	Ongoing
6	Revenue and Disaster Management	1. Ensure equitable distribution of food items through food and supplies department in all affected areas.	Patwari and numberdaar	Ongoing
7	RTA	1. Provide Transportation for food material to godowns and affected areas	RTO as Transport Branch Director	Ongoing
8	Civil defence	1. Assist Food and Supplies department in preparation of food packets/ kits and for bulk distribution of food items	Volunteers under Single Resource Unit	Ongoing
9.	Development & Panchayat	1. Ensure equitable distribution of food items through Food &supply department in all affected areas.	Village Secretary and Sarpanch	Ongoing

ESF 11: Shelter and Camp Management

	Nodal Department	Support Department	Others
For all the Hazards	Revenue	<ul style="list-style-type: none"> • DFSC • PWD • Red Cross • MC • Panchayat • Health • PHED • DVHBN • Forest • Police • Civil defence/ Home guards • Zilla sainik board • Education Department • DSW; DCCW; DSW□ • Sports and Youth Affairs 	<ul style="list-style-type: none"> • NGOs • Civil Society Organisations • Religious Institutions • NCC • NSS • NYK

Department	Task	Responsible person as per IRS	Time Frame
Revenue and Disaster Management	2. Setup relief camps and temporary shelters ensuring minimum standards of relief.	Tehsildar (of the affected area)	Within 2 hrs for relief camps and 2 days for temporary shelter
	3. Ensure overall arrangement and management of camp	Tehsildar(of the affected area)	Ongoing
	4. Register and allocate passes and maintain entry and exit records	Tehsildar(of the affected area)	Ongoing
	5. Procure commodities such as clothing, bedding and other requirements	District Nazar	Ongoing
	6. Prepare/ Update list of inmates kin	Camp In charge	Ongoing
	7. Also prepare and update list of Women,Children, Injured, Sick, Orphans, Widows	Camp In charge	Ongoing
	8. Ensure availability of staff by maintaining their duty charts	Camp In charge	Ongoing
	9. Arrange for appropriate storage and usage of perishable goods and other items	Camp In charge	Ongoing
	10. Manage kitchens, cooks and other needed items	Camp In charge	Ongoing
	11. Ensure equitable distribution of food and other material in the camp	Camp In charge	Ongoing
	12. Depopulate people from relief camps/ temporary shelters ensuring their houses are in liveable conditions	Camp In charge	Ongoing
	13. Conduct detailed assessment of needs and address those needs as per the eligibility	Camp In charge	Ongoing
	14. Ensure segregation of waste biodegradable and non-biodegradable and medical waste	Camp In charge	Ongoing
	15. Ensure proper lighting in the area such as toilets, kitchens, passages etc for safety and security	Camp In charge	Ongoing

	16. Arrange the necessary support (human resource and material) as and when required with the help of NGOs.	Camp In charge	Ongoing
	17. Ensure that bedding and clothing are aired and washed regularly	Champ In charge	Ongoing
	18. Ensure universal design by putting ramps, sign boards, signage etc for people with disabilities	Camp In charge	Ongoing
	19. Monitor and assess the beneficiary satisfaction for distributed relief items and other facilities	Camp In charge	Ongoing
Food and Supplies	1. Provide food and shelter items required (Tents, poles, <i>kanats</i> , cooking utensils, tarpaulins) etc. also provide fire woods and other fuels for cooking	DFSO (as Response Branch Director)	As required
	2. Provide fuel for generators and other required activities	DFSO (as Response Branch Director)DFSO (as Response Branch Director)	As required
	3. Arrange appropriate transportation of food items and storage facilities	DFSO (as Response Branch Director)	As required
Red Cross	1. Provide blankets, tarpaulin sheets for tents and floor, shrouds for wrapping dead bodies, sanitary napkins, baby diapers, adult diapers, and ante-natal baby cloths.	Secy. Red Cross, Nazar	As required
	2. Also provide mosquito nets and repellents, match box, candles and utensils (glasses, plates etc.)		As required
	3. Prepare/ Update list of inmates of camps near kin;	Secy. Red Cross	Ongoing
PHED	1. Repair and maintain pipelines and ensure non-contamination	JE (as single resource unit)	As required
	2. Provide safe drinking water and tanks, drums, jerry cans for storage of water	JE (as single resource unit)	Ongoing

	3. Provide water purifying tablets, bleaching powder and facilitate chlorination of water resources.	JE (as single resource unit)	As required
	4. Provide trench latrines and toilets as per the minimum standards for relief	JE (as single resource unit)	As required
	5. Ensure hygiene and sanitation by appropriate waste management system	JE (as single resource unit)	Ongoing
Municipal Committee/ Municipal councils/ Zila Parishad (for rural)	1. Provide dumpster, garbage bins at the camp site and ensure hygiene and sanitation by appropriate solid waste management system	Secretary	Ongoing
	2. Ensure segregation of waste biodegradable and non-biodegradable and medical waste	Secretary	Ongoing
	3. Carry out timely spraying/ fogging against malaria and other epidemics	Secretary	As required
	4. Maintain functioning of lighting facilities in camp area	Secretary	Ongoing
Health Department	1. Set up mobile clinics, medical posts and arrange timely medical camps	MO (as SRUL)	As required
	2. Ensure safe and institutional delivery	MO (as SRUL)	As required
	3. Carry out immunization for probable diseases	MO (as SRUL)	As required
	4. Supply special supplements like vitamin, glucose etc as per the requirement of the camp		
	5. Carry out timely spraying against malaria and other epidemics	MO(as SRUL)	Ongoing
	6. Make use of mobile medical unit.	MO(as SRUL)	As required
	7. Provide psychological first aid and psychosocial care in the camp area.	MO(as SRUL)	Ongoing

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	8. Spread awareness for hygiene practices, do's and don'ts	MO(as SRUL)	As required
Public Relations	9. Ensure availability of contraceptives and awareness regarding the same	DIPRO	As required
PWD(B&R)	1. Spread awareness for hygiene practices, do's and don'ts by various medium of street-plays or folk art programmes	JE (as single resource unit)	As required
	1.		
	2.	JE (as single resource unit)	As required
Electricity Department	3.	JE (as single resource unit)	As required
	4. Construct temporary structures like roads, parking spaces, spaces for dining, washing area, kitchens, medical posts, administrative areas etc. with the structures of camps area	JE (as single resource unit)	As required
Irrigation Dept.	5. Ensure universal design to address the needs of persons with disabilities.	JE (as single resource unit)	As required
Forest Department	1. Ensure electric supply to the camp area	RFO ()	As required
Police Department	2. Ensure emergency backup for electric supply through generators, inverters etc.	ASI (as single resource unit)	Ongoing
	1. Carry out dewatering in case of water logging in the camp area	ASI (as single resource unit)	Ongoing
Home Guards & Civil Defence	1. Provide wood as fuel for cooking and other purposes	Dist Commandant	As required
Zila Sainik Board	1. Ensure law and order in the camp and also make necessary measures for safety and protection of women and children	Secy. ZSB	As required
Education Department	2. Facilitate family reunification services through public information booth	DEO	As required

DCCW	1. Provide volunteers/ human resources required for various activities of camp management	HOD	As required
Sports and Youth Affairs	1. Provide volunteers/ human resources required for various activities of camp management	District sports officer	As required
DSW/ Welfare Department	1. Provide education to children in the camps	HOD	As required
BSNL	1. Conduct various activities like playschools, hobby classes and other programs for children	GM	As required
	1. Conduct sports activities for the people in the camp area		
	1. Identify and provide special care and financial assistance to destitute, orphans, widows and eunuchs		
	1. Setup communication booth at the camp site		

ESF 12: Mass care and Housing

Hazard	Nodal Department/Agency	Frontline Department	Others
All hazards	Revenue	<ul style="list-style-type: none"> • PWD • HUDA • DRDA • MC • Zilla Parishad • Health 	<ul style="list-style-type: none"> • Housing Board • Civil Society Organisations

Department	Task	Responsible Person as per IRS	Time Frame
Revenue	Identify and set-up relief distribution sites.	Patwari	Within 1 hour
	Ensure each affected household is registered for disaster assistance and compensation.	Tehsildar	Ongoing
	Determine eligibility for assistance, compensations, housing programs etc.	DRO	Ongoing
	Provide compensation to eligible population.	NT/SK	Ongoing
	Provide financial assistance to the affected population for the reconstruction and rehabilitation activities.	DRO	Ongoing

	Ensure each affected household receives relief in remote locations in coordination with Development & Panchayat Dept.	Patwari	Ongoing
	Provide appropriate resources like clothes, cots, blankets, utensils, tents, tarpaulin etc.	Nazar	As per requirement
Education	Ensure that all schools are reopened and functional as soon as possible.	DEO	Ongoing
DFSC	Arrange and provide – food & supplies items in support with private-sector if required.	DFSC	As per requirement
Red Cross	Provide appropriate resources like cots, blankets, utensils etc.	Secretary	As per requirement
Health	Provide accessible health care.	MO	Ongoing
	Provide post-disaster psychological and psychosocial care.	MO	Ongoing
	Setup mobile clinics, medical posts and arrange timely medical camps.	MO	As per requirement
	Carry out timely spraying/fogging against malaria and other epidemics.	District Epidemiologist	As per requirement
Police	Facilitate family reunification services through Public Information Booth.	SHO	Ongoing
	Provide safety at relief distribution sites.	SHO	Ongoing
Haryana Roadways	Provide vehicles for relief activities.	GM, Roadways	As per requirement
RTA	Provide vehicles for relief activities and procure private vehicles, if needed.	Secretary, RTA	As per requirement
DFSC	Provide mobile Petrol/Diesel/CNG filling points where petrol pumps have become dysfunctional.	AFSO	As per requirement
Electricity	Restore electricity supply as soon as possible.	SDE	Within 48 hours
	Provide movable battery charging points in localities for people to charge their mobile phones, laptops and other electronic devices to communicate with family/friends etc., if needed.	SDE	As per requirement
Agriculture	Establish public information booths for information on insurance, compensation, repair of agro equipments and restoring of agricultural activities.	SDAO	Ongoing
Forest	Ensure protection of people from wild animals	BFO	Ongoing

ESF 13: Water, Sanitation and Hygiene (WASH)

	Nodal Department	Support Departments	Others
For all the Hazards	PHED	<ul style="list-style-type: none"> • Health • Women and Child Development • Municipal Committee • Haryana Roadways • RTA • PWD (B&R) • District Development and Panchayat Office (DD&PO) • Public Relations • District Red Cross 	<ul style="list-style-type: none"> • Local/regional newspapers • Local/regional news channels • Local theatre groups • CBOs/NGOs • Doordarshan • All India Radio (AIR)

Department	Task	Responsible Person as per IRS	Time-Frame
Public Health Engineering	1. Ensuring equitable access to safe water as per minimum standards of relief.	JE as Single Resource Unit Leader	Within 1 hour of notification of relief camp
	2. Assess water quality and initiate response for restoration of sanitation facilities.	Member(s) of Damage Assessment Team	Within 6 hours
	3. Ensure adequate quantities of potable water availability for drinking and cooking.	JE as Single Resource Unit Leader	Within 24 hours
	4. Ensure adequate quantities of water availability for washing and bathing.	JE as Single Resource Unit Leader	Within 48 hours
	5. Wastewater and solid waste disposal.	JE as Single Resource Unit Leader	Ongoing
	6. Maintain water-supply infrastructure.	SDO as Divisional Supervisor	Ongoing
	7. Ensure functioning of drainage infrastructure.	SDO as Divisional Supervisor	Ongoing
	8. Ensure chlorination and decontamination of surface water in affected areas.	JE as Single Resource Unit Leader	Within 48 hours

	9. Regularly monitor key hygiene practices and the usage of facilities provided, and seek feedback on the design and acceptability of facilities provided from all user groups in coordination with Health Department.	XEN as Response Branch Director	Ongoing
	10. Identify key risks of public health importance in consultation with the affected.	XEN as Response Branch Director	Ongoing
	11. Assess needs of affected population on the priority hygiene items they require.	Member(s) of Need Assessment Team	Within 72 hours
	12. Develop and display information material regarding hygiene promotion at strategic locations in the affected area.	SDO as Divisional Supervisor	Ongoing
	13. Distribute hygiene items such as soap, sanitary napkins, diapers, as per minimum relief standards.	JE as Single Resource Unit Leader	Within 48 hours
Health	1. Provide chlorine tablets wherever required.	MO as Single Resource Unit Leader	Within 24 hours
	2. Conduct regular vector-control activities in the affected areas.	MO as Single Resource Unit Leader	Within 48 hours
	3. Ensure that all clothing, sheets and other items used by patients and medical-staff are thoroughly washed and sanitized before re-use.	SMO, MO and MS	Ongoing
	4. Ensure proper medical waste disposal at all areas requiring intervention of health department.	MO of affected area as Single Resource Unit Leader	Ongoing
	5. Ensure that the premises of the medical treatment areas are cleaned and sanitized on a regular basis	MO of affected area as Single Resource Unit Leader	Ongoing
District Red Cross	1. Assist Health Department with hygiene promotion activities.	Secy. Red Cross	Ongoing
	2. Procure and distribute mosquito nets, repellents, soap (bathing and laundry) and acceptable material for women's hygiene (e.g. washable cotton cloth) as per minimum relief standards.	Secy. Red Cross as Procurement Unit Leader	Within 72 hours

	3. Coordinate with NGOs / CBOs working in the district on WASH activities.	Secy. Red Cross	Ongoing
Municipal Committee/ Zila Parishad	1. Ensure solid waste management in camps and all other affected areas at town/city level.	JE as Single Resource Unit Leader	Within 24 hours
	2. Ensure vector-control (fogging and spraying) in coordination with Health Department.	JE as Single Resource Unit Leader	Ongoing
District Development and Panchayat Office (DD&PO)	1. Assist in hygiene promotion and other WASH activities at the Block/Panchayat/Village level.	Village Secretary	Ongoing
	2. Install mechanisms for regular sweeping and cleaning in order to maintain hygienic environment at block, Panchayat and village levels.	BDPO as Divisional Supervisor	Ongoing
DFSC	1. Maintain hygienic conditions at community kitchens in all affected areas.	Food Inspector as Single Resource Unit Leader	Ongoing
	2. Ensure quality control of all food items in coordination with Health Department.	Food Inspector as Single Resource Unit Leader	Within 24 hours
Women and Child Development	1. Identify and assess community-specific hygiene promotion activities considering social, cultural, and religious factors.	PO-ICDS	Within 72 hours
Public Relations Department	1. Promote Water, Sanitation and Hygiene awareness, dos-and-don'ts and other relevant information and ensure rumor control through the media.	DIPRO as Information and Media Officer (IMO)	Within 72 hours and ongoing
	2. Assist in the dissemination of written materials regarding hygiene promotion in coordination with Health Department.	DIPRO as Information and Media Officer (IMO)	Within 72 hours and ongoing
Revenue Department	1. Investigate and assess the use of alternatives to the distribution of hygiene items, e.g. provision of cash, vouchers and/or non-food items (NFIs).	District Revenue Officer (DRO)	After 72 hours

ESF 14: Media Management

	Nodal Department	Support Departments	Others
For all the Hazards	District Information and Public Relations Department	<ul style="list-style-type: none"> • Police • Health • NIC 	<ul style="list-style-type: none"> • Local theatre groups • Doordarshan • All India Radio (AIR)

Department	Task	Responsible person as per IRS	Time-Frame
Public Relations Department	1. Prepare Official Statements and interact with media.	DIPRO as IMO	Within 1 hour of declaration of disaster
	2. Arrange for and advertise news briefings	DIPRO as IMO	Within 2 hours and subsequently, every 24 hours
	3. Brief the Deputy Commissioner/City Magistrate and other department heads as necessary for interacting with the media	DIPRO as IMO	Within 4 hours/ Ongoing process
	4. Monitor the news and respond to media inquiries	DIPRO as IMO	Ongoing process
	5. Perform rumor control by providing factual and to-the-point information	DIPRO as IMO	Ongoing process
	6. Prepare and disseminate disaster-related communications for warnings (alerts, evacuation orders)	DIPRO as IMO	Ongoing process
	7. Prepare and disseminate disaster-related communications for advisories (dos-and-don'ts, camp location and arrangement, other information important for the public)	DIPRO as IMO	Ongoing process
	8. Disseminate IEC material regarding disaster preparedness and response	DIPRO as IMO	Ongoing process
	9. Use local/regional theatre/performing art groups to disseminate warnings, alerts and other pertinent information	DIPRO as IMO	Ongoing process
Police	1. Maintain order and ensure safety of members of media	Dy.SP as RBD	Within 1 hour
	2. Issue 'Official Statements' concerning the state of Law and Order.	SP	Within 12 hours
	3. Perform rumor control by providing factual and to-the-point information in coordination with the DIPRO	Dy.SP as RBD	Ongoing process
	4. Provide details of area access restrictions and of change in traffic routes/alternate routes to the DIPRO	SHO as Divisional Supervisor	Within 8 hours
	5. Provide information regarding missing people and updated list of deceased to the Public Information Booth and the media, through DIPRO	Dy.SP as RBD	Within 24 hours / ongoing process

Health	1. Issue 'Official Statements' concerning the post-disaster Health situation	CMO	Within 24 hours
	2. Monitor the media (electronic and print) for reports of health-related incidents in the aftermath of the disaster(s)	MO as SRU Leader	Ongoing process
	3. Maintain all material regarding health-related do-and-don'ts, kept ready for prompt dissemination	MO as SRU Leader	Ongoing process
NIC	1. Update the district website with relevant information concerning the disaster	DIO	Ongoing process
	2. Perform the task of postings on the web including social networks, in coordination with the DIPRO	DIO	Ongoing process
	3. Facilitate video-conferencing at the district-level as and when required	DIO	Within 4 hours/ ongoing process

ESF 15: Law and Order

Hazard	Nodal Department	Support Departments	Others
All type of Hazards	Police	<ul style="list-style-type: none"> • Home Guard and Civil Defence • Public Relations 	<ul style="list-style-type: none"> • NCC, NSS • Defence forces • Paramilitary Forces

Department	Task	Responsible Person as per IRS	Time Frame
Police	1. Assess initial situation of the affected area	DSP (HQ) as Safety Officer	Immediate
	2. Issue Official statements concerning the state of Law and Order	DSP of affected area as RBD	Immediate
	3. Determine status of staff and facilities and deploy additional staff and resources, if needed according to deployment plan.	SHO as Divisional Supervisor	Immediate
	4. Identify hazardous and unsafe situations and recommend measures for safety of responders	SHO as Divisional Supervisor	Immediate
	5. Cordon-off the affected area	SHO as Divisional Supervisor	Immediate
	6. Provide safety and security at affected sites, evacuated sites, demolition sites, shelters and camps, medical post, distribution sites, staging	SHO as Divisional Supervisor	On going

	area, godowns/warehouses, etc.		
	7. Keep a check on hoarding and black marketing of relief material.	SHO as Divisional Supervisor	On going
	8. Provide security to personal belongings recovered from evacuated and demolished sites.	SHO as Divisional Supervisor	On going
	9. Carry out preventive arrests where required.	SHO as Divisional Supervisor	As required
	10. Make security arrangements for orphans and destitute women to save them from human trafficking.	SHO as Divisional Supervisor	As required
	11. Keep a check on theft and looting during or after disaster.	SHO as Divisional Supervisor	Ongoing
	12. Protect dead bodies to avoid false claims.	SI/ASI as Single Resource Unit Leader	As required
	13. Provide additional security as required to VIPs and VVIPs visiting the affected sites.	SP	As required
	14. Secure and prevent public access to damaged or impassable routes.	DSP, Traffic	As required
	15. Ensure rumour control in coordination with Public Relations Department	DSP of affected area as RBD	On going
Home Guards and Civil Defence	1. Assist the police department in maintaining law and order situation	District Commandant	As required

ESF 16: Public Works

Hazard	Nodal Departments	Support Departments	Others
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Department	Tasks	Responsible Person as per IRS	Time Frame
PWD (B&R)	1. Determine the levels of damage of public infrastructure in the affected area (for rapid damage assessment)	As member(s) of Damage Assessment Team	Within first 2 hours
	2. Ensure clearance of debris.	JE (Civil & Mechanical wing)	Immediately

	3. Demolish or stabilize damaged structures (public and private) to facilitate evacuation and search and rescue in presence of Police, Fire, Revenue and Disaster Management and Health department.	JE as Single Resource Unit	Immediately
	4. Construct temporary shelters, toilets, medical post, helipad and other infrastructures as needed and new temporary roads if required.	XEN as Response Branch Director	Immediately and as required
	5. Demolish unsafe structures in presence of Police, Fire, Revenue and Disaster Management and Health department.	JE as Single Resource Unit	After 3 days (Once Detailed damage assessment received)
	6. Repair or restore damaged segments of public infrastructure	JE as Single Resource Unit	Ongoing
Police	1. Cordon off and maintain law and order at demolition site.	SHO as Divisional Supervisor	Immediately
	2. Provide security to belongings recovered from demolished site.	SHO as Divisional Supervisor	During and after demolition
M.C.	1. Ensure clearance of debris in coordination with PWD (B&R)	JE (Civil & Mechanical wing)	Immediately
	2. Ensure the clearance and disposal of waste material from affected area.	JE as Single Resource Unit Leader	Immediately
Forest	1. Remove fallen trees on roads and affected areas.	Forest Guards as Single Resource Unit Leader	Immediately
PHED	1. Repair damaged water pipeline, sewerage system, drainage system, water works and water tanks etc	SDO as Divisional Supervisor	Ongoing
	2. Install tube wells for water supply if required.	SDO as Divisional Supervisor	Ongoing
Irrigation	1. Repair water control structures, dams, canals, levees, etc	SDO as Divisional Supervisor	Ongoing
Electricity Department	1. Collect and analyse information on power system damage and outages (field assessments). [Damage could be in form of damage to hydro/thermal power plants, substations, transformers and service drops]	As member(s) of Electrical wing, PWD(B&R) in Damage Assessment Team	Immediately
	2. Restore power supply of critical infrastructure (District control room,	JE (electrical wing,(PWD)	Immediately

	hospitals, and relief camps etc.) on priority basis.	along with JE (Electricity)	
	3. Ensure supply of electricity from private sources wherever required.	XEN as Response Branch Director	Ongoing
	4. Regulate power supply prioritising facilities over other sources of consumption; and resume the supply when operations have come back to the stage of normalcy.	SDE as Divisional Supervisor	Ongoing
	5. Provide electrical connections and system at short notice in affected areas for purpose of pumping flood water and illumination of the area	JE as Single Resource	Immediately.
HSIDC	1. Repair sites of hazardous materials and hazardous waste.	Manager	Ongoing
RTA	1. Procure and provide vehicles for disposal of debris and waste.	RTO	Immediately
BSNL	1. Repair and restore communication as and when required	SDOs	Immediately
Panchayati Raj	1. Repair and restore damaged infrastructure at village level in coordination with PWD (B&R)	XEN	Ongoing
HSAMB	1. Ensure repair and restoration of damaged infrastructure in coordination with PWD (B&R)	SDE	Ongoing
	2. Ensure debris clearance in coordination with PWD (B&R)	SDE	Immediately
HUDA	-----DO-----	SDE	--DO--

ESF 17: Transport

	Nodal Department	Support Dept.	Others
For all Hazards/Disasters	RTA	<ul style="list-style-type: none"> • Police • Health • Civil aviation • Railway • PHE • Police • DFSC • RTA • Forest • Market Committee 	<ul style="list-style-type: none"> • Pvt. Bus Association • Taxi Association

Department	Tasks/Functions	Responsible person as per IRS	Time Frame
Roadways	1. Track vehicle engaged in emergence services	GM	Ongoing
	2. Multi-modal logistical transportation of evacuees, personnel, equipment, and materials and supplies.	GM	Within 24 hrs.
	3. Maintenance and functioning of buses, other vehicles and equipments with use of mechanical team.	Work manager	Ongoing
PHE	1. Ensure adequate number of tankers available with the department or from private sources if needed	SDE of affected area.	Within 15 hrs.
Health	1. Arrange special transportation for items like blood, vaccines and other medical relief	SMO of Hospital where these items are available.	Within 7 hrs
Forest	1. Provide equipment and manpower for clearance of fallen trees on Road	RFO of the affected area	Within 3 hrs.
RTA	1. Acquire and provide vehicle required for all transportation activities from government as well as private agencies	RTO	Within 10 hrs
Police	1. Ensure safety while transportation of relief goods as necessary.	DSP, HQ	Within 20 hrs
	2. Clearing and restoration of the traffic	Traffic police Inspector	Within 20 hrs.
Civil Aviation	1. Provide transportation facilitates for air transport	Concerning officer.	As requirement

	2. Identify safe location for air support, helipads	Concerning officer.	As requirement
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Indian Railways	1. Provide transportation and storage facilities	Superintendent Railways	As requirement
PWD	1. Provide road maps to district control room	Superintendent PWD	As requirement
	2. Construct Helipads where ever needed	XEN of respective jurisdiction	As requirement
Animal Husbandry	1. Arrange transportation facilities for injured and dead animals	Deputy Director	Ongoing

ESF 18: Livestock

	Nodal Department	Support departments	Others
For all hazards/Disasters	Animal Husbandry	<ul style="list-style-type: none"> • Police • Health • Transport • Revenue • Development & Panchayat • DFSC • HAFED 	<ul style="list-style-type: none"> • Vet. Medical association • Local Transport Association • Gosala Sanstha

Department	Tasks/ Functions	Responsible person as per IRS	Time Frame
Animal Husbandry	1. Public health and veterinary care concerns with injured and dead animals.	Head of GVH of affected area	Within 12 hrs.
	2. Provide emergency medical care and temporary shelter	Head of GVH of affected area	Within 24 hrs.
	3. Provide fodder, feed and water for cattle and poultry	Head of GVH of affected area	Within 24 hrs.
	4. Ensure availability of grazing area for cattle based on need assessment	Head of GVH of affected area	Within 48 hrs.
	5. Make necessary arrangement for Tatties, gunny bags and tarpaulin sheets to cover shelter during extreme weather	Head of GVH of affected area	Within 48 hrs
	6. Make arrangements for sprinklers, fans at the shelter during heat waves	Head of GVH of affected area	Within 72 hrs
	7. Coordinate with Volunteer Organizations/Institution/agency related to animal health care.	Head of GVH of affected area	Within 24 hrs
	8. Monitor outbreak of animal diseases	Head of GVH of affected area	Ongoing

	9. Develop a network of animal care voluntary available during emergency. 10. Ensure timely immunization.	Head of GVH of affected area	ongoing
	11. Ensure proper carcass management	VS as DS	Ongoing
Police	1. Restrictions on the movement of livestock, meat, and related products in and out of affected area.	SHO of affected	Within 3 hrs.
	2. Identify of lost, strayed or otherwise displaced animals.	SHO of affected	Ongoing
Health	1. Awareness campaign among public regarding animal disease	CMO/CS	Ongoing
	2. Take necessary action for livestock diseases affecting humans	CMO/CS	Ongoing
Revenue	1. Provide compensation to owner of dead livestock	DRO	Ongoing
Development & Panchayat	1. Maintain a list of local transportation resources.	BDPO	Within 24
Dist. Public & Relation	1. Coordinate with media and inform public regularly on dos and don'ts and related awareness measures	DPRO	Ongoing
Red cross	1. Old blanket and tarpaulin sheets for animal	Secretary	Within 72 hrs.
Forest	1. Ensure protection of cattle and poultry from wild animal	DFO	Ongoing
DFSC & HAFED	1 provide concentrated grain feed for animals wherever needed		
RTA	Provide facilities for transport of animal wherever required		

Annexure III

Rapid Damage and Need Assessment

Date and time of report:

1. Initial identification

1.1. Type of disaster	
1.2. Level of Disaster (L0, L1, L2, L3)	
1.3. Date and time of event	
1.4. Affected area	

1.5. Possibility of after effects

2. Estimate Of Effects

(Very Approximate Numbers)

- 2.1. Dead
- 2.2. Injured
- 2.3. Missing
- 2.4. In need of shelter and/or clothing
- 2.5. In need of food
- 2.6. In need of water
- 2.7. In need of sanitation
- 2.8. Damage to lifeline systems

3. Initial Need for external assistance

- 3.1 Search and Rescue Yes/No
- 3.2 Evacuation Yes/No
- 3.3 Protection Yes/No
- 3.4 Medical and Health Yes/No
- 3.5 Shelter and clothing Yes/No
- 3.6 Food Yes/No
- 3.7 Water Yes/No
- 3.8 Sanitation Yes/No
- 3.9 Repair of lifeline systems Yes/No

The next report, with more details, will be sent at (date/time).

**Annexure IV
Preliminary Damage and Need Assessment**

Date and time of report: _____

After effects to disaster	
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ESTIMATE OF EFFECTS

Details	Numbers
2.1. Dead	

2.2. Injured	
2.3. Missing	
2.4. In need of shelter and/or clothing	
2.5. In need of food	
2.6. In need of water	
2.7. In need of sanitation	
2.8. Damage to lifeline systems	

Initial Need for external assistance

	Number Of Affected Population Who Require Assistance	Response Status	Requirement (Equipments + Human Resource)	Priority
Search & Rescue				
Evacuation				
Safety And Security				
Medical And Health				
Shelter And Clothing				
Public Works				
Food				
Water, Sanitation And Hygiene				
Other Needs				

The next report, with more details, will be sent at (date/time).

**Annexure V
Detailed Damage and Need Assessment**

Disaster Type		Ongoing	Completed	Date			
District							
Area		Pt. of Contact					
1. Affected Population							
	Male	Female	Children	Orphan	Infants	Destitute women	Old age (above 55)

District Disaster Management Plan, Sirsa

Evacuated							
Injured							
Sheltered							
Dead							
Displaced							
Missing							

2. Affected livestock

	He Camel/She Camel	Horse/mare	Buffalo	Bullock	Cow	Poultry	He Donkey/She Donkey	Mule	Buffalo (Calf upto 3 years of
Evacuated									
Injured									
Sheltered									
Dead									
Displaced									
Missing									

3. Damage details

	Destroyed	Majorly Affected	Majorly Affected	Unaffected	Estimated Total Loss	Number of units insured

Single Family Homes					Rs	
Building					Rs	
Business					Rs	
Industrial Units					Rs	
Total Damage					Rs	
Unemployment Number due to disaster						

	Number of affected population who	Response status	Requirement (Equipments + Human Resource)	Priority

District Disaster Management Plan, Sirsa

	require assistance			
SEARCH & RESCUE				
EVACUATION				
SAFETY and SECURITY				
MEDICAL and HEALTH				
SHELTER AND CLOTHING				
PUBLIC WORKS				
FOOD				
Water, Sanitation and Hygiene				
Other needs				

Crop affected										Any other loss
Name of the Crop(s)	Extent of damaged area (*in Acres)									
<ul style="list-style-type: none"> • Wheat • Paddy • Sugar cane • Cotton • & Other Crops 	26% to 50%			51% to 75%			76% to 100%			
	No. of Small Farmers affected	No. of Marginal Farmers affected	No. of other than small & Marginal Farmers affected	No. of Small Farmers affected	No. of Marginal Farmers affected	No. of other than small & Marginal Farmers affected	No. of Small Farmers affected	No. of Marginal Farmers affected	No. of other than small & Marginal Farmers affected	

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Remark:

Signature: _____

Annexure VI Extent of Damages and teams for Damage and Need Assessment

Damage %	
100	Structure is unusable. Cannot be repaired.
> 75	Major structural damage. Unsafe for use. Repairable within 1 month.
> 50	Significant structural damage. Unsafe for use. Repairs will take more than 1 week.
> 25	Some structural damage but safe for limited use. Repairable within 1 week.
< 25	Minor structural damage. Usable.

(WHO damage assessment)

Tentative Team member for Damage and Need Assessment

TEAM	
Damage And Need Assessment	PWD(B&R)
	Revenue and DM
	Police
	Fire
	Irrigation
	Health
	IS&H
	HSIIDC
	CD and Home Guards
	PHED
	MC
	ZP
	Food
	Development and Panchayat

Annexure VII

Details of Fire Fighting Agents and Antidotes

Sr No	Name Of Chemical	Hazard Characteristics	Fire Fighting Agent	Antidote / First Aid / Medical Treatment
1	Acetic Acid	Corrosive	Carbon Dioxide, Dry Chemical Powder, Water Spray and Alcohol Resistant Foam	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. If heartbeats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
2	Ammonia	Flammable , Toxic	Stop flow of gas, use water spray to cool fire exposed containers. Exposed fire fighter must wear positive pressure self-contained breathing-apparatus and full protective clothing.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Inhalation of steam or vinegar vapour is recommended. If substance has gone in eyes, wash with plenty of water for 15 minutes To relieve restlessness, ingestion morphine 15mg to relieve Dypspnoea, Oxygen inhalation.
3	Ammoniam Carbonate	Corrosive	Non-flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open.
4	Ammonia Nitrate (Melt)	-	Use plenty of water to cool fire exposed containers. Exposed fire fighter must wear positive pressure self-contained breathing apparatus and full protective clothing. Container may explode in fire.	In case of burns due to hot Ammonium Nitrate solution, part should be flushed with large quantity of water and treated according to usual burns.
5.	Carbon Dioxide	Asphyxiant	Non-flammable	It is simple asphyxiant and can cause oxygen deficiency in confined space / non ventilated areas. Respiratory protection is required.
6.	Carbon Monoxide	Flammable , Toxic	Carbon monoxide, dry chemical powder, wear self contained breathing apparatus. Let fire burn, shut off gas while using the chemicals.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Administer 100% oxygen till carboxyhemoglobin level is measured. Cerebral edema and convulsions must be controlled. Methylene blue must not be injected.

7.	Chlorine	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give external cardiac compression. In case of eye exposure, wash with copious amount of water for 15 minutes, keeping eyelids apart
8.	Coal	Flammable	Dry chemical powder, water supply	Incomplete combustion may produce CO ₁ , sulphur dioxide, hence respiratory protection may be required to fight the fire.
9.	Formic Acid	Flammable, Corrosive	Carbon dioxide, dry chemical powder, water spray and alcohol resistant, foam all purpose foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
10.	Fuel Oil	Flammable	Carbon dioxide, dry chemical powder, foam	Remove the contaminated clothes. Wash the affected parts of skin with plenty of soap and water and seek medical advice immediately for inhalation of vapours / fumes.
11.	High Speed Diesel	Flammable	Dry chemical powder, foam	- do -
12.	Hydrochloric Acid	Corrosive	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give artificial respiration. Do not give alkaline substances or carbonate preparation. Skin should be treated with 5% Triethanol amine. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
13.	Hydrogen	Flammable, Explosive	Dry chemical powder, halon. Let fire burn under control. Stop flow of gas.	It is simple asphyxiant and can cause oxygen deficiency in confined space / non ventilated areas. Move victim to the fresh air and apply resuscitation methods.
14.	Hydrogen Iodide	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. In case of eye exposure, wash with copious amount of water for 15 minutes, keeping eyelids apart.
15	Hydrogen Sulphide	Flammable, Toxic	Carbon dioxide, dry chemical powder. Wear self-contained breathing apparatus. Alcohol resistant foam is also advisable to be used to stop fire.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Patient with significant exposure, should be hospitalized for 72 hours of medical observation for delayed pulmonary edema. The respiratory centre may be stimulated by injection of LOBGIN and nite thamide. Vitamin C may be injected intravenously. In case of eye exposure, it

				should be treated with boric acid solution.
16	Iodine	Toxic	Use water spray or carbon dioxide. Do not use foam or dry chemical. Wear full protective clothing and self contained breathing apparatus for fire fighting.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats abosent, give external cardiac compression. Patient with significant exposure, should be hospitalized for 72 hours of medical observation. Consider administration of multiple metered doses of topical steroid hormon or 30 mg/kg of methyl prednisolone IV.
17.	LPG	Flamm-able, Explosive	Carbon dioxide, dry chemical powder, water spray	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open.
18.	Methane	Flamm-able, Explosive	Carbon dioxide, dry chemical powder. Shut off gas.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes wash with plenty of water.
19.	Methanol	Flamma-ble, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Never administer anything by mouth if a victim is losing conciousness. Do not induce vomiting. Do not use mouth to mouth respiration. Massive alkalization in life saving and eye saving measures. Give small quantity of Ethyl alcohol every 4 hourly. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open.
20.	Methyl Acetate	Flamma-ble, Toxic	Carbon dioxide, dry chemical powder and alcohol resistant foam. Water may be ineffective.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently.
21	Methyl Formate	Flamma-ble, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently.
22	Methyl Iodide	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heartbeats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Keep under medical surveillace for 48 hours.

				Consider administration of multiple metered doses of topical steroid by inhalation and or upto 30 mg / kg of methyl prednisolone. In case of eye, contact immediately, refer to ophthalmologist.
19.	Methanol	Flammable, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Never administer anything by mouth if a victim is losing consciousness. Do not induce vomiting. Do not use mouth to mouth respiration. Massive alkalization in life saving and eye saving measures. Give small quantity of Ethyl alcohol every 4 hourly. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open.
20.	Methyl Acetate	Flammable, Toxic	Carbon dioxide, dry chemical powder and alcohol resistant foam. Water may be ineffective.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently.
21	Methyl Formate	Flammable, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently.
22	Methyl Iodide	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heartbeats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Keep under medical surveillance for 48 hours. Consider administration of multiple metered doses of topical steroid by inhalation and or upto 30 mg / kg of methyl prednisolone. In case of eye, contact immediately, refer to ophthalmologist.
23	Mono Ethylene Glycol	Flammable, Toxic	Carbon dioxide, dry chemical powder and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heartbeats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water.
24	Naphtha	Flammable	Foam dry chemical powder, carbon dioxide. Apply water fog from as	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. The decision of whether to induce vomiting or not should be made by an attending

			far distance as possible.	physician. If heartbeats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water.
25	Natural Gas	Flammable	Stop flow of gas. Dry chemical powder, carbon dioxide.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open.
26	Nitric Acid	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Do not induce vomiting. If heartbeats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
27	Nitric Oxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Do not allow to walk. Fatal symptoms may be delayed upto 48 hours even though victim may seem normal after exposure. If hearts beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently. Methemoglobinemia due to no resolve in hours with oxygen therapy.
28	Nitrogen	Asphyxiant	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. Treat for frostbite with lukewarm water.
29	Oxygen	-	Non flammable	Inhalation of 100 % oxygen can cause nausea, dizziness, irritation of lungs, pulmonary edema, pneumonia and collapse. Liquid oxygen will cause frostbite.
30	Nitrogen Dioxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Enforce complete rest for 24 to 48 hours. Incase of high exposure keep patient under medical observation for atleast 72 hours. Some individuals who had symptoms of acute exposure with or without edema, develop in immune reaction 10 days or 6 weeks after exposure. Symptoms include severe cough, cyanbosis (tuning blue) fever hypoxemia and X ray may show fire scattered nodes in the lungs are vulnerable to virus.
31	Pottasium	Corrosive	Non flammable	Remove the victim to fresh air. If there is

	Hydroxide	Toxic		a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. In case of eye contact immediately refer for ophthalmological opinion. Treat skin burns conventionally.
32	Potassium Methoxide	Flammable, Toxic	Only dry chemical powder is allowed to be used. It reacts with water and CO ₂ .	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Never administer anything by mouth if a victim is losing consciousness. Do not induce vomiting. Do not use mouth to mouth respiration. Baking soda in glass of water should be given.
33	Propionic Acide	Flammable, Toxic, Corrosive	Foam, dry chemical powder, carbon dioxide. Apply waster fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with water & soap.
34	Rhodium Triiodide	-	Non flammable	Remove the victim to fresh air. Material cause irritation of nose, throat and respiratory tract. Repeated exposure to skin can cause allergic sensitization. In case of eye contact, flush with plenty of water for 15 minutes.
35	Sodium Hydroxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with water & soap.
36	Sulphur Dioxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. Atrophic rhinitis and pharyngitis may be treated by inhalation of 5% solution of sodium chloride, followed by inhalation of 5% solution of sodium chloride, followed by inhalation of vitamin A. In case of eye contact, flush with 2% sodium bicarbonate solution, drops of 2 to 3 % phedrine should be instilled in the nose.
37	Sulphuric Acid	Corrosive, Toxic	Non flammable, react with water to form large amount of heat and corrosive fumes. Do not use water to existing fire in the nearby area.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. In case eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.

38	Trichloro Ethylene	Flamm-able, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Do not induce vomiting. If heart beats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
39	Ortho Dichloro Benzene	Flamm-able, Toxic	Foam dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
40	Trichloro Acetyl Chloride	Corrosive, Toxic	Foam dry chemical powder, carbon dioxide.	It is very corrosive liquid. Exposure will produce tears in the eyes and severe chemical burns. Move the person to fresh air. If not breathing, perform artificial respiration. If required, give oxygen. Wash the affected skin thoroughly with soap and water. Flush and irrigate eyes with copious quantity of water for at least 15 minutes. Do not induce vomiting.
41	Acrylo-nitrile	Flamm-able, Toxic	Carbon dioxide, dry chemical powder	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If the unconscious, crush an amyl nitrile ampule in a cloth and hold it under the nose for 15 seconds in every minute. Do not interrupt artificial respiration during this process.
42	Copper Comp-ounds	-	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. If substance has gone in eyes wash with plenty of water for about 15 minutes, holding eyes open and obtain medical treatment urgently.
43	Aniline	Flamm-able, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Aniline is very toxic, if splashed on skin. It passes through the skin, causing methemoglobinemia. Antidote is methylene blue. In case of eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.
44	Benzene	Flamm-able, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Benzene is very toxic or if splashed on skin. Chronic exposure may lead to leukemia. In case of eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with

				plenty of water
45	Nitro-benzene	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. NB is very toxic if splashed on skin. It passes through the skin causing methamoglobinemia. Antidote is methylene blue. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
46	Phosgene	Corrosive Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Phosgenen is very toxic incase of inhalation. It has very low TLV – 0.1 ppm. Keep the person under observation for 72 hours for possibility of delayed effect. Incase of eye contact, flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
47	Toluene	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Toluene is very toxic if splashed on skin. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
48	Di Nitro Toluene	Flammable, Explosive	Use plenty of water to cool fire exposed containers. Exposed fire fighter must wear positive self contained breathing apparatus. Foam and dry chemical powder and carbon dioxide can be used.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Di Nitro Toluene is very toxic if splashed on skin. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
49.	Metaoluene Di Amine	Flammable, Toxic	Foam dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Metaoluene Di Amine is toxic, if splashed on skin. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
50	Toluene Di Isocyanate	Corrosive, Toxic	Dry chemical powder, carbon dioxide. Do not apply water as it reacts violently with water at elevated temperature.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Toluene Di Isocyanate is very toxic if inhaled.. In cause pulmonary edema. TLV of TDI vapour is ver low i.e. 0.0005 ppm. If splashed on skin, incases sensitization of skin tissue. Incase of eye contact, flush with plenty of water for about 15 minutes. Remove wet clothes and wash

				affected area with plenty of water.
51	Methyl Iodine	Toxic	Non Flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Keep under medical surveillance for 48 hours. Consider administration of multiple metered doses of topical steroid aerosol by inhalation and or upto 30 mg / kg of methyl prednisolone. In case of eye, contact immediately, refer to ophthalmologist.
52	Chloro Sulphonic Acid	A poison to irritant, corrosive	Use DCP, foam if exposed to fire.	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
53	Carbon Di Sulphide	Flammable, Explosive	Use DCP, CO2	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
54	Ethylene Oxide	Flammable, Carcinogen	Use DCP	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
55	Acephate Anilophos Ethion Phorate Quinalphos	Non flammable	Use DCP, foam if exposed to fire.	Atropine sulphate in dose 2 - 4 mg for adult, 2 pam 1000 - 2000 mg / im.
56	Alachor Carbendazim Thiophanate - M	Non flammable	Use DCP, foam is exposed to fire	Inject 1 gm of Eralidioxime chloride IV. Do not induce vomiting if the injected poison is principally a hydrocarbon solvent.
57	Mancozeb Thiram	Non flammable	Use DCP, foam is exposed to fire	Low toxicity, no specific treatment.
58	Allethrin Cypermethrin Fevalrate	Toxic	Use DCP, foam is exposed to fire	The treatment is symptomatic.
59	Aluminium Phosphate	Non flammable	Use DCP, foam is exposed to fire	Injection copper sulphate 0.25 gm.
60	Isoproturon	Non flammable	Use DCP, foam is exposed to fire	Supportive treatment.
61	Hexaconazole Propiconazole	Non flammable	Use DCP, foam is exposed to fire	There is no specific antidotes and treats the victim symptomatically.

62	Propane	Flamm-able, Explosive	DCP, Water	First aid.
63	Butadine	Flamm-able, Explosive	DCP, Water	First aid.
64	Propylene	Flamm-able, Explosive	DCP, Water	First aid.
65	Styrene Monomer	Flamm-able	DCP, Foam compound	-
66	Phospho-ric Acid	Corrosive	-	<p>Skin Contact :- Wash with clean water. Apply dry sterile dressing.</p> <p>Eye Contact : Through wash with clean water, apply benoxinate (novesine) drop (0.4%) .</p> <p>Inhalation : Administer O2, Give him fresh drink water.</p> <p>Ingestion : Milk of magnesia, fresh</p>

Annexure VIII Leak Detection, Neutralization and Disposal

Leak Detection	Neutralization and Disposal
<p>Chlorine To detect the chlorine leak an ammonia spray or swab is used. Chlorine gives white dense fumes of ammonium chlorine is greenish yellow gas with pungent and irritating odour.</p>	<p>Emergency disposal of chlorine is done by absorbing it in the solution of caustic soda, soda ash or hydrated lime slurry. Chlorine cannot be vented off as it is toxic gas. Cylinder of any part of cylinder should not be immersed in the tank holding caustic or other solutions. Don't use rubber hose or polyethylene pipe connecting for neutralizing chlorine gas. Do not pour water on the leak.</p>
<p>Ammonia Ammonia leak can be detected easily due to its specific pungent odour. The exact location of leak can be find out by hydrochloric acid swab in suspected region. This will give white vapours of ammonium chloride. Another method used in the detection of ammonium leak is by the use of sulphur dioxide gas, which also forms white fog or cloud in contact with ammonium.</p>	<p>At it is toxic gas it cannot be vented to atmosphere. Ammonia leakage can be absorbed in water in a suitably designed system, as its solubility in water is very high. Mild steel is used as material of construction.</p>
<p>Sulphur Dioxide Sulphur dioxide leak can be detected by odour as it has characteristic odour. But the exact location of the leak can be found out by ammonia vapours from a swab or squeeze bottle. Sulphur dioxide will produce dense white fumes with ammonia vapours. Leak may also be detected by applying soap solution. Soap solution in case of leakage will give bubbles.</p>	<p>Sulphur dioxide leak can be absorbed in caustic solution. For this purpose scrubber should be preferably fabricated of polypropylene backed by FRP. Do not use water on the leak.</p>
<p>Bromine Bromine spillage can be find out as it has intensely irritating odour. Bromine leak can be detected by using ammonia swab or spray. Bromine gives white dense fumes with ammonia solution.</p>	<p>As bromine is toxic and fuming liquid, it can't be vented to atmosphere. Water should not be directly poured over the spillage with mud or earth and mop up with plenty of water.</p>
<p>Carbon Monoxide As the gas inflammable, flame should not be used to detect the leak. Carbon monoxide leak can be detected with soap solution, which gives bubbles around leaking area. Palledour chloride paper gets darkened in contact with carbon monoxide.</p>	<p>Leaking gas can be vented slowly to air in a safe open area or should be burnt off in a suitable gas burner.</p>
<p>Ethylene Oxide Ethylene oxide leak can be detected by using soap solution. Leak will produce bubble with soap solution.</p>	<p>As the gas is extremely flammable, all the ignition sources should be shut off. Leaking gas can be slowly vented off in a safe and open area. Put water spray to cool down, if necessary. The gas can be burnt off in a suitably designed burner.</p>

<p>Vinyl Chloride Vinyl chloride leak can be detected due to its characteristic odour. Leak can be detected with soap solution, which will produce bubbles.</p>	<p>Leaking gas can be vented slowly to air in a safe open area or gas should be burnt off in a suitable burner.</p>
<p>Ethyl Alcohol Ethyl alcohol leak can be detected by its characteristic smell.</p>	<p>Shut off all possible sources of ignition. Mop up with plenty of water and run to waste diluting greatly with running water. Ventilate area well to evaporate remaining liquid and disposal vapours.</p>
<p>Caustic Soda Detect the leak of caustic soda with wet litmus paper caustic will change the colour of the paper from red to blue.</p>	<p>Caustic soda should be scrubbed in water scrubber made of MS or neutralize it with dilute HCl acid.</p>
<p>Sulphuric Acid Detect the leakage of oleum with its sharp penetrating odour. Leakage can also be detected by using wet blue litmus which when coming in contact turns red.</p>	<p>Sulphuric acid should be scrubbed in lime or caustic or water scrubber made up of MSRL or PVC / FRP. Do not put water directly on the leak. Content the leak by mixing it with earth / sand and lime sludge slowly. Neutralize by pouring water and dilute alkali.</p>
<p>Hydrochloric Acid Detect the leak with its sharp pungent odour. Leak can also be detected by using wet litmus paper. Hydrochloric acid will change the colour of the paper from blue to red.</p>	<p>Hydrochloric acid should be scrubbed in lime or caustic or water scrubber made of MSRL. Do not put water directly on the leak. Content the leak by mixing it with earth / sand and lime sludge. Slowly neutralize by pouring water and dilute alkali.</p>
<p>Nitric Acid Detect the leak of nitric acid with wet litmus paper. Nitric acid will change the colour of the paper from blue to red.</p>	<p>Nitric acid should be scrubbed in lime or caustic or water scrubber made of MS or SS. Do not put water on the leak. Content the leakage by mixing it with earth / sand and lime sludge. Slowly neutralize by pouring water or dilute alkali.</p>
<p>Phosphoric Acid Detect the leak of phosphoric acid with wet litmus paper, which will change the colour of litmus paper from blue to red.</p>	<p>Spread soda ash liberally over the spillage and mop up cautiously with plenty of water. Dilute the waste greatly with running water.</p>