

**Revenue and Forest, Relief
And
Rehabilitation Department**

**DISTRICT DISASTER MANAGEMENT PLAN
DISTRICT- SATARA
2020-21**

**District Disaster Management Authority
Collector Office, Satara – 415001**

**Toll Free No: 1077
Website : www.satara.nic.in**



सत्यमेव जयते

GOVERNMENT OF MAHARASHTRA

**REVENUE AND FOREST, RELIEF AND REHABILITATION
DEPARTMENT**

**DISTRICT DISASTER MANAGEMENT PLAN
DISTRICT - SATARA
2020-21**



**DISTRICT DISASTER MANAGEMENT AUTHORITY
COLLECTOR OFFICE, SATARA**

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DISTRICT COLLECTOR
SATARA DISTRICT**

FOREWORD

India is country which is prone to disasters, and each year there is a disastrous situation in some part or the other of our diverse country. Satara district is also prone to disasters, so hence, we can categorize Satara as a multi-hazard prone zone or district. It has been affected by almost every kind of hazards, like earthquakes, floods, drought, landslides, lightening, road accidents, crowd incidents and so on. In order to be prepared and resilient from all these disasters, a Disaster Management Plan for the district is a necessity. The District Disaster Management Plan (DDMP) plays a major role in emergency management. It has been part of a multi-level development promoted by the Maharashtra Disaster Risk Reduction Programme, which is a good initiative taken by the Government of Maharashtra.

The Satara District Disaster Management Plan has been prepared to facilitate the district administration for an effectual response at the time of disaster occurrence, including positive pre-disaster prevention, mitigation and preparedness measures. The plan has been prepared as per the model framework for DDMP, set by the National Disaster Management Authority (NDMA). The plan includes important information and the function of various departments in field of disaster management. The plan is an inclusive document, and each chapters presented in the plan has its own value.

For the preparation of the plan, every stakeholders like Revenue Department, Police Department, Health Department etc, has collectively supported and made provisions for delivering their inputs to build the plan. I hope this document will serve its purpose and prove useful to all the departments, industrial firms and even the people within the district of Satara.

I, therefore express my special gratitude and thanks to everyone who worked, in preparing this plan.

**Shekhar Singh (IAS)
Collector / Chairperson, DDMA
Satara District**

TABLE OF CONTENTS

LIST OF ABBREVIATIONS	14
Chapter 1 – INTRODUCTION	18
1.1 Background.....	18
1.2 Need For Disaster Management.....	18
1.3 Vision Of District Disaster Management Plan (DDMP)	19
1.4 Mission Of Disaster Management Plan.....	20
1.5 Objectives Of The Plan	20
1.6 Important Definitions	21
1.6.1 Hazard.....	21
1.6.2 Disaster	21
1.6.3 Floods.....	23
1.6.4 Drought.....	23
1.6.5 Landslide	23
1.6.7 Earthquake.....	24
1.6.9 Road Accident.....	24
1.6.10 Rail Accident	24
1.6.11 Fire Accident	24
1.7 District Profile	25
1.7.1 Historical Background	29
1.7.2 Socio-Economic Fabric.....	30
1.7.3 Demographics	31
1.7.4 Religion And Culture	32
1.7.5 Topography.....	33
1.7.6 Geology.....	33
1.7.7 Climatic Condition.....	34
1.7.8 Rainfall.....	34
1.7.9 River System And Dams.....	36
1.7.10 State Transport.....	40
1.7.11 Land Specifications	42
1.7.12 Available Health Infrastructure	44

1.7.13 Industrial Profile	49
1.7.14 Education	52
1.7.15 Heritage Site And Major Religious Spots	52
1.7.17 List Of Mass Gathering	54
Chapter 2 - HAZARD RISK VULNERABILITY ANALYSIS	56
2.1 Identification Of Hazards In The District	56
2.2 Hazard History.....	57
2.2 Damage And Lossess.....	60
2.3 Vulnerability Assessment.....	61
2.3.1 Social Vulnerability Profile.....	61
2.3.2 Economic Vulnerability Profile.....	62
2.3.3 Physical Vulnerability Profile	62
2.4 Risk Profiling Of The District	62
2.5 Capacity Assessment.....	65
2.6 List Of Hotspots.....	70
Chapter 3 - INSTITUTIONAL ARRANGEMENT FOR DISASTER MANAGEMENT	71
3.1 District Disaster Management Authority	72
3.2 Powers And Functions Of District Authority	72
3.3 District Disaster Management Advisory Committee.....	73
3.3.1 District Disaster Management Committee	73
3.3.2 District Crisis Group (DGC).....	74
3.3.3 Sub-Divisional Disaster Management Committee.....	77
3.3.4 Taluka Level Disaster Management Committee	77
3.3.5 Village Disaster Management Committee	78
3.4 Incident Response System (IRS).....	79
3.4.1 Incident Response Team (IRT).....	79
3.5 Eoc Setup And Facilities Available At The District	79
3.6 Early Warning Action Plan	82
3.7 Forecasting And Warning Agencies.....	83
Chapter 4 - PREVENTION AND MITIGATION MEASURES.....	84
4.1 Prevention Measures.....	85
4.2 Mitigation Measures (Hazard Specific).....	86

4.2.1 Earthquake.....	86
4.2.2 Flood.....	88
4.2.3 Drought.....	91
4.2.4 Landslides	95
4.2.4 Epidemics	96
4.2.5 Industrial And Chemical Accidents	97
4.2.6 Road Accidents.....	99
Chapter 5 – PREPAREDNESS MEASURES.....	101
5.1 Identification Of Stakeholders Involved In Disaster Response	101
5.2 Formation Of Teams.....	101
5.2.1 Forecasting And Early Warning	101
5.2.2 Search And Rescue	103
5.2.3 Evacuation.....	103
5.2.4 Damage And Loss Assessment.....	104
5.3 Activation Of IRS In The District.....	105
5.4 Protocol For Seeking Help From Other Agencies	106
5.4.1 Army, Air Force & Central Paramilitary Forces.....	106
5.4.2 National Disaster Response Force.....	106
5.4.3 State Disaster Response Force	107
5.5 Mechanisms For Checking And Certification Of Logistics, Equipments And Stores.	107
5.6 Operational Check-Up Of Warning Systems And Eoc	107
5.7 Seasonal Inspection Of Facilities And Critical Infrastructure	107
5.8 Command And Coordination.....	108
5.9 NGO And Other Stakeholders Coordination	108
5.10 Seasonal Preparedness	108
5.12 Community Preparedness.....	109
5.12.1 Sensitization Of Community About The Needs Of Persons With Disability.....	109
5.13 Knowledge Management, Networking And Sharing.....	110
5.13.1 Uploading Of Information On Resources On IDRN	111
5.14 Media Management/ Information Dissemination	111
5.15 Medical Preparedness And Mass Casualty Management.....	112
Chapter 6 – CAPACITY BUILDING AND TRAINING MEASURES	114

6.1 Approach	114
6.2 Capacity Building Plan	114
6.2.1 Training Of Trainers.....	115
6.2.2 Community Capacity Building And Community Based Disaster Management..	115
7. 1 Response Planning, Preparedness And Assessment	116
7.1.1 Warning And Alert.....	116
7.2 Operational Direction And Coordination	116
7.2.1 Various Response Levels	116
7.2.2 Operational – Coordination Structure.....	117
7.2.3 Trigger Mechanism.....	117
7.2.4 Activation Of Incident Response System	118
7.2.5 Incident Response System	118
7.3 Responsibilities Of IRS.....	119
7.4 Activation Of EOC.....	123
7.5 Emergency Support Functions	123
7.6 Relief Measures	126
7.8 Responsibility Matrix For Emergency Response Functions (Hazard-Wise)	128
7.8.1 Earthquake.....	128
7.8.2 Floods.....	133
Chapter 8 – RECONSTRUCTION, REHABILITATION AND RECOVERY MEASURES.....	136
8.1 Detailed Damage And Loss Assessment.....	136
8.2 Administrative Relief.....	139
8.3 Reconstruction Of Houses Units And Basic Infrastructure Rehabilitation.....	139
8.4 Economic Rehabilitation	140
8.5 Social Rehabilitation	140
8.6 Long Term Recovery Program.....	140
Chapter 9: FINANCIAL RESOURCES FOR IMPLEMENTATION OF DDMP	142
9.1 State Allocation	142
9.2 State Disaster Response Fund(SDRF).....	142
9.4 District Disaster Response Fund(DDRF).....	142
9.5 District Disaster Mitigation Fund (DDMF)	143
9.6 District Calamity Relief Fund (DCRF)	143

9.6 Departmental Fund.....	143
9.7 Recommendation Of The 13 th Finance Commission.....	143
Chapter10 - PROCEDURE AND METHODOLOGY FOR MONITORING EVALUATION, UPDATION MAINTENANCE AND DISSEMINATION OF DDMP.....	145
10.1 Authority For Maintaining And Reviewing The Ddmp.....	145
10.2 Monitoring And Evaluation	146
10.3 Plan Update	146
Chapter 11 - COODINATION MECHANISM FOR IMPLEMENTATION OF DDMP.....	148
11.1 Preparation And Updation Of DDMP.....	148
11.2 Regular Updation Of DDMP.....	149
11.2 Post Disaster Evaluation Mechanism	149
11.3 Media Management.....	149
Chapter 12 - STANDARD OPERATING PROCEDURES (Sops) AND CHECKLISTS.....	151
12.1 Standard Operating Procedures (SOP's).....	151
12.2 Objectives Of SOP.....	151
12.3 Roles And Responsibilities Of Various Departments	151
12.3.1 Revenue Department.....	152
12.3.2 Police Department.....	156
12.3.3 Health Department	158
12.3.4 Water Supply Department.....	160
12.3.5 Irrigation Department.....	162
12.3.6 Agriculture Department.....	164
12.3.7 MSEB (Maharashtra State Electricity Board) Or Energy Department.....	167
12.3.8 Public Works Department.....	169
12.3.9 Telecommunication Department (BSNL).....	171
12.3.10 Animal Husbandry	173
12.3.11 Transportation Department.....	176
12.3.12 Forest Department.....	180
ANNEXURE - I.....	Error! Bookmark not defined.
ANNEXURE - II	213
ANNEXURE - III.....	224

ANNEXURE - IV.....238
ANNEXURE - V.....240
ANNEXURE - VI.....241

LIST OF TABLES

<i>Table 1: Table showing types of Disasters</i>	<i>22</i>
<i>Table 2:Sub-division, Talukas, Gram-Panchayats and Revenue Villages in Satara</i>	<i>26</i>
<i>Table 3: Talukas prone to various hazards</i>	<i>27</i>
<i>Table 4: Demographics of Satara District.....</i>	<i>31</i>
<i>Table 5: Population indicators of the talukas of Satara</i>	<i>32</i>
<i>Table 6: Table showing Actual Rainfall (mm) data of Talukas in Satara District in last fifteen years</i>	<i>34</i>
<i>Table 7: Table showing total and average rainfall (mm) data of Satara district in last fifteen years</i>	<i>35</i>
<i>Table 8: Dams present in the district and its specifications.....</i>	<i>39</i>
<i>Table 9: Dams of the district and its purpose</i>	<i>40</i>
<i>Table 10 : List of transportation network in the district.....</i>	<i>41</i>
<i>Table 11: Classification of Land-use in the district</i>	<i>43</i>
<i>Table 12: List of public and private Hospitals in the district.....</i>	<i>44</i>
<i>Table 13: List of PHC's and Sub-centres.....</i>	<i>46</i>
<i>Table 14: Health infrastructure available in the district</i>	<i>48</i>
<i>Table 15: Map showing Hospitals scattered around the district of Satara</i>	<i>49</i>
<i>Table 16: List of MIDCs in the district.....</i>	<i>50</i>
<i>Table 17: Types of factories in the district.....</i>	<i>51</i>
<i>Table 18: List showing factories in the talukas of Satara</i>	<i>51</i>
<i>Table 19: Education profile of the district</i>	<i>52</i>
<i>Table 20: Heritage sites and religious spots in the district.....</i>	<i>52</i>
<i>Table 21: List of mass-gatherings held every year in the district</i>	<i>55</i>
<i>Table 22: History of natural hazards that has occurred in the district</i>	<i>57</i>
<i>Table 23: List of man-made hazards in the district.....</i>	<i>59</i>
<i>Table 24: List showing damages and losses of some specific disasters</i>	<i>60</i>
<i>Table 25: Vulnerable areas and infrastructures of the district</i>	<i>61</i>
<i>Table 26 : Table showing community resources available in the district</i>	<i>65</i>

<i>Table 27: Table showing equipments, used during time of emergency.....</i>	<i>66</i>
<i>Table 28: List of hotspots of the district.....</i>	<i>70</i>
<i>Table 29: Members of DDMA</i>	<i>72</i>
<i>Table 30: List of District Crisis Group members</i>	<i>75</i>
<i>Table 31: Agencies for forecasting and warning</i>	<i>83</i>
<i>Table 32: Tasks and responsibilities of various departments during earthquake mitigation</i>	<i>87</i>
<i>Table 33: Tasks and responsibilities of various departments for flood mitigation.....</i>	<i>90</i>
<i>Table 34: Tasks and responsibilities of various departments for drought mitigation</i>	<i>94</i>
<i>Table 35: Tasks and responsibilities of different departments engaged in landslide mitigation.....</i>	<i>95</i>
<i>Table 36: Tasks and responsibilities of departments in order to mitigate epidemics.....</i>	<i>97</i>
<i>Table 37: Roles and responsibilities for industrial accident mitigation</i>	<i>98</i>
<i>Table 38: Roles and responsibilities of departments to mitigate road accidents</i>	<i>99</i>
<i>Table 39: List of nodal agencies for forecasting and warning of various hazards.....</i>	<i>102</i>
<i>Table 40: List of time period for early warning of various hazards</i>	<i>102</i>
<i>Table 41: Template to analyse damage and loss assessment</i>	<i>105</i>
<i>Table 42: Core activities to involve community people for community preparedness</i>	<i>109</i>
<i>Table 43: Measures to be taken for differently abled people during community preparedness.....</i>	<i>110</i>
<i>Table 44: Tasks and activities of departments for knowledge management</i>	<i>110</i>
<i>Table 45: Dissemination of information</i>	<i>112</i>
<i>Table 46: IRT and its roles</i>	<i>120</i>
<i>Table 47: Table showing ESF's and agencies engaged.....</i>	<i>124</i>
<i>Table 48: Roles and responsibilities during earthquake emergency response</i>	<i>128</i>
<i>Table 49: Roles and responsibilities during flood emergency response.....</i>	<i>133</i>
<i>Table 50: Damage and Loss Assessment.....</i>	<i>137</i>
<i>Table 56: Revenue Department</i>	<i>152</i>
<i>Table 57: Police Department</i>	<i>156</i>
<i>Table 58: Health Department.....</i>	<i>158</i>
<i>Table 59: Water Supply Department</i>	<i>160</i>
<i>Table 60: Irrigation Department</i>	<i>162</i>
<i>Table 61: Agriculture Department.....</i>	<i>164</i>

<i>Table 62: MSEB.....</i>	<i>167</i>
<i>Table 63: P.W.D.....</i>	<i>169</i>
<i>Table 64: Telecommunications Department.....</i>	<i>171</i>
<i>Table 65: Animal Husbandry Department.....</i>	<i>173</i>
<i>Table 66: Transportation Department.....</i>	<i>176</i>
<i>Table 67: Forest Department.....</i>	<i>180</i>

LIST OF FIGURES

<i>Figure 1: Satara District and its neighbouring districts</i>	25
<i>Figure 2: Taluka map of Satara District</i>	26
<i>Figure 3: Drainage pattern of the district</i>	Error! Bookmark not defined.
<i>Figure 4: Physical map of Satara showing the rivers of the district</i>	37
<i>Figure 5: Dams and water bodies spread across the district</i>	38
<i>Figure 6: Koyana Dam, one of the biggest hydro-project in the district</i>	39
<i>Figure 7: Image showing transportation system present in the district</i>	41
<i>Figure 8: Landuse map of Satara district</i>	43
<i>Figure 9: Image of Kaas Pathar, UNESCO World Heritage Site</i>	53
<i>Figure 10: Shikhar Singnapur, Man</i>	54
<i>Figure 11: Hazards identified in the district</i>	56
<i>Figure 12: Diagram showing risks perceived in the district</i>	63
<i>Figure 13: Risk matrix of the district</i>	64
<i>Figure 14: Hierarchical representation of the EOC</i>	80
<i>Figure 15: Figure showing early warning and evacuation at hierarchical level at the district</i>	104
<i>Figure 16: Chart showing hierarchical representation of the Responsible Officer in the IRS</i>	106
<i>Figure 17 : IRS operating in the distict</i>	118

LIST OF ABBREVIATIONS

A.D.: Anno Domini
A.I.R: All India Radio
ADC: Additional District Commissioner
AH: Animal Husbandry
AH: Asian Highways
B.C.: Before Christ
BCG: Bacillus Calmette - Guérin
BPCL: Bharat Petroleum Corporation Limited
BSNL: Bharat Sanchar Nigam Limited
CBOs: Community Based Organizations
CD: Compact Disk
CEO: Chief- Executive Officer
CRIDA: Central Research Institute for Dry land Agriculture
CWC: Central Water Commission
D.M: Disaster Management
DAO: Department Accounts Officer
DC: District Collector
DCR: District Control Room
DCRF: District Calamity Relief Fund
DDMA: District Disaster Management Authority
DDMAP: District Disaster Management Action Plan
DDMC: District Disaster Management Centre
DDMF: District Disaster Mitigation Fund
DDMO: District Disaster Management Authority
DDO: District Development Officer
DDRF: District Disaster Response Fund
DEOC: District Emergency Operations Centre
DEPT.: Department
DG Sets: Diesel Generator Sets
DGC: District Crisis Group
DGP: Director General of Police

DHO: District Health Officer
DIC: District Industries Centre
DISH: Directorate of Industrial Safety Health
DMHO: District Medical and Health Office
DMT: Disaster Management Team
DMTs: Disease Modifying Therapies
DMU: Disaster Management Unit
DOS: Disk Operating System
DRR: Disaster risk reduction
DSO: District Supply Officer
DSPY:Deputy Superintendent of Police
DTO: District Transport Officer
EB: Electricity Board
EOC: Emergency Operation Centre
ERS: Emergency Response System
ESF: Emergency Support Functions
FRT: First Response Team
GB: Giga Byte
GIS: Geo Informatics System
GOI: Government of India
GSI: Geological Survey India
HDMI: High-Definition Multimedia Interface
HF: High Frequency
HRVA: Hazard Risk and Vulnerability Analysis
HRVC: Hazard Risk Vulnerability and Capacity
IAG: Inter Agency Group
IAP: Incident Action Plan
IC: Incident Commander
ICAR: Indian Council for Agricultural Research
ICP: Incident Commandant Post
IDRI: Indian Disaster Resource Inventory
IDRN: India Disaster Resource Network
IFRC: International Federation of Red Cross and Red Crescent Societies
IMD: Indian Meteorological Department
IPH: Irrigation and Public Health
IRS: Incident Response System

IRT: Incident Response Team
ISR: Institute of Seismological Research
LPG: Liquefied Petroleum Gas
LSC: Logistics Section Chief
MARG: Mutual Aid Response Group
MERI: Maharashtra Engineering Research Institute
MIDC: Maharashtra Industrial Development Corporation
MLA: Member of Legislative Assembly
MP: Members of Parliament
MSED: Maharashtra State Electricity Distribution Company Limited
MSEDC: Maharashtra State Electricity Distribution Co. Ltd
MSRTC: Maharashtra State Road Transport Corporation
MW: Mega Watt
N.A: Not Applicable
NCC: National Cadet Corps
NDA: National Defence Academy
NDMA: National Disaster Management Authority
NDRF: National Disaster Response Force
NGO: Non-Governmental Organisation
NH: National Highway
NIC: National Informatics System
NRSC: National Remote Sensing Centre
NSS: National Service Scheme
NT: National Trade
OPF: Optical Fibre Network
P.W.D: Public Works Department
PHC: Primary Health Centres
PHD: Public Health Department
PPPP: Public Private Partnership Program
QRT: Quick Response Team
R & R: Relief and Rehabilitation
R&B: Roads and Buildings
R.F Module: Radio Frequency Module
RAM: Random Access Memory
RCC: Reinforced Cement Concrete
RDC: Resident Deputy Collector

RTO: Regional Transport Office
RWA: resident welfare association
SDO: Sub-Divisional Officer
S.T Depot: State Transport Depot
SAR: Search and Rescue
SC: Scheduled Castes
SCRF: State Calamity Relief Fund
SDMA: State Disaster Management Authority
SDMF: State Disaster Mitigation Fund
SEOC: State Emergency Operations Centre
SMS: Short Message Service
SOP: Standard Operating Procedures
SP: Superintendent of Police
ST: Scheduled Tribes
ST: State Transport
TB: Tera Byte
TDMA: Taluka Disaster Management Authority
TMC: Thousand Million Cubic
UD Dept: Urban Development Department
UNESCO: The United Nations Educational, Scientific and Cultural Organization
USB: Universal Serial Bus
USHA: The University of Safety and Health Association
V.C System: Video Conferencing System
VDMA: Village Disaster Management Authority
VDMP: Village Disaster Management Plan
VHF: Very High Frequency
VSAT: Very Small Aperture Terminal
VTF: Volunteer Task Force
Wi-Fi: Wireless Fidelity
Z.P: Zilla Parishad

Chapter 1 – INTRODUCTION

1.1 BACKGROUND

India, a developing country, has been a victim to various disastrous events in the past. India as a country is very vulnerable due to its geo-climatic conditions and also due to its socio-economic factors. Our country has witnessed both natural and man-made disasters and hence is the one of the most disaster prone countries in the world. Most of the natural disasters that have occurred are due to climatic changes and has led to massive fatalities to both life and possessions. Floods, earthquakes, landslides, droughts, cyclones, tsunami have caused great threat to the Indian population. Conflict situations and civil violence are other types of threats in a multi-ethnic country like India. Maharashtra, India's third largest state by area has seen a couple of events in the past which did prove disastrous for the state. The 1967 Koynanagar earthquake (Satara District) and the 1993 Latur earthquake are the two major earthquakes that took place in Maharashtra. The 2005 Maharashtra Floods affected places like Raigad, Kalyan, Ratnagiri, Satara and the city of Mumbai to a great extent. Droughts, accidents and terror attacks in Mumbai (capital of Maharashtra) are also frequent tragedies in the state of Maharashtra.

1.2 NEED FOR DISASTER MANAGEMENT

As defined by the *International Federation of Red Cross and Red Crescent Societies¹ (IFRC)*, Disaster Management is basically a system of management of resources and responsibilities while dealing with all humanitarian aspects of emergencies, in relation to preparedness, response and recovery in order to lessen the impact of disasters. In today's scenarios 'Disaster Management' is a necessity, as disasters are events that have a great impact on humans and the environment and disaster management aims to reduce the occurrence of such disasters. Disaster Management includes both pre-

¹ It is an organization founded in 1919 in Paris after the consequences of World War II. It's so far the world's largest humanitarian network which reaches around 150 million people and around 190 national societies through lot of volunteering work.

disaster and post disaster activities.

India has been historically, at risk of natural disasters because of its precise geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been recurrent phenomena. Approximately 60 percent of the landmass is prone to earthquakes of numerous intensities; over 40 million hectares is liable to floods; approximately 8 percent of the total location is vulnerable to cyclones and 68 percent of the vicinity is at risk of drought. Within the decade 1990-2000, a mean of about 4344 people have misplaced their lives and about 30 million humans had been stricken by disasters every year. The loss in phrases of personal, network and public belongings has been astronomical.

Over the past couple of years, the authorities of India have introduced about a paradigm shift within the method of disaster management. The new method proceeds from the conviction that development cannot be sustainable unless disaster mitigation is constructed into the improvement system. Some other corner stone of the method is that mitigation needs to be multi-disciplinary spanning system throughout all sectors of development. The upcoming policies additionally emanates from the notion that investments in mitigation are a great deal of cost effective than expenditure on alleviation and rehabilitation. Disaster management occupies an important place in the India's policy framework as it's the low income people and the below-privileged who are worst affected on account of calamities/failures.

1.3 VISION OF DISTRICT DISASTER MANAGEMENT PLAN (DDMP)

The vision of the DDMP is very similar to the national vision derived from the DM Act, 2005. The DDMP's vision is also to build a safe and disaster resilient environment. The DDMP is developed in such a method that it is comprehensive in nature. It is constructed to accomplish measures related to prevention, mitigation and preparedness in a particular district, and hence helping in the reduction of the impact of disasters on the community. The DDMP is multi-disaster and technology determined plan or guide of disaster management. The main focus or stake holder of DDMP will be the communities of the district.

1.4 MISSION OF DISASTER MANAGEMENT PLAN

The mission of the District Disaster Management Plan (DDMP) is to set up a structurally and an efficient organizational unit at the District and Taluka levels, which highlights and professionalizes itself in DM activities and procedures. The DDMP is prepared to decrease the destructive impact of a disaster, whether natural or manmade, and is proficient enough in bringing about various services and facilities on a timely manner, during an emergency situation.

1.5 OBJECTIVES OF THE PLAN

The main objective of a District Disaster Management plan is to prevent casualties and damage to the property in a particular district. Following are the additional objectives of the District Disaster Management plan:

1. To recognize, learn, examine and evaluate the various disasters existing and likely to exist in the district.
2. To make use of computer based applications of technology (Geographic Information System) for various purposes which are as follows:
 - Pre-disaster planning and preparedness,
 - Prediction and early warning,
 - Damage evaluation and relief management.
3. To identify various location with vulnerabilities and risks in the district, and to generate maps indicating them with the help of GIS.
4. To conduct a Hazard Vulnerability Risk Assessment, for an improved understanding.
5. To determine the condition of existing resources and facilities accessible in the district.
6. To develop or improve forecasting and early warning systems if existing in the district, with the support of Information Technology (IT).
7. To create awareness with the help of media and also to contribute towards capacity building in the district.
8. To promote prevention and preparedness tactics in a district, by making sure that Disaster Management receives the highest precedence at all the levels.

9. To implement and improve already existing mitigation measures at the district level.
10. To ensure better response and relief system, and to implement reconstruction and recovery to protect the community and to build a disaster resilient environment.

1.6 IMPORTANT DEFINITIONS

1.6.1 Hazard

Hazard can be a natural or a man-made phenomenon, which can be a threat to life, property and environment. When a hazard strikes an uninhabited area, it causes no harm to the lives of humans and their properties. A hazard can be divided into two types:

- **Natural Hazard:** This type of hazard usually occurs naturally, caused either by sudden or slow onset of events.
- **Man-made Hazard:** Man-made hazards are caused due to the interference of humans and their activities. It's also known as technological hazards.

Earthquake, floods, droughts are examples of a natural hazard and hence these turn into a disaster, if human lives and property are involved.

1.6.2 Disaster

The IFRC has defined a disaster as an abrupt, calamitous event that disrupts the functioning of a community or a society and causes human, material, and economic or environmental losses that exceeds the community or the society's ability to cope using its own resources. But according to a lay man, a disaster is just a sudden event, which causes damage to their property and even leads to loss of lives. The following table shows different categories of disasters:

Table 1: Table showing types of Disasters

<i>Various Types Of Disasters</i>	
<i>Water and climate related disasters</i>	<ul style="list-style-type: none"> a) <i>Floods and drainage management</i> b) <i>Cyclones</i> c) <i>Tornadoes and hurricanes</i> d) <i>Hailstorm</i> e) <i>Cloud burst</i> f) <i>Heat wave and cold wave</i> g) <i>Snow avalanches</i> h) <i>Droughts</i> i) <i>Sea erosion</i> j) <i>Thunder and lightening</i> k) <i>Tsunami</i>
<i>Geological related disasters</i>	<ul style="list-style-type: none"> a) <i>Landslides and mudflows</i> b) <i>Earthquakes</i> c) <i>Dam failures/ Dam bursts</i> d) <i>Minor fires</i>
<i>Chemical, industrial and nuclear related disasters</i>	<ul style="list-style-type: none"> a) <i>Nuclear disasters</i> b) <i>Chemical and industrial disasters</i>
<i>Accident related disasters</i>	<ul style="list-style-type: none"> a) <i>Forest Fires</i> b) <i>Urban Fires</i> c) <i>Mine flooding</i> d) <i>Oil spills</i> e) <i>Major building collapse</i> f) <i>Serial bomb blasts</i> g) <i>Festival related disasters</i> h) <i>Electrical disasters and fires</i> i) <i>Air, road and rail accidents</i> j) <i>Boat capsizing</i> k) <i>Village fire</i>
<i>Biological related disasters</i>	<ul style="list-style-type: none"> a) <i>Biological disaster and epidemics</i> b) <i>Pest attacks</i> c) <i>Cattle epidemics</i> d) <i>Food poisoning</i>

Source: High Powered Committee Report-1999

As we can see from above, disasters can be of many varieties, and hence its duration can last on hourly basis to days, weeks and sometimes even months.

1.6.3 Floods

A flood is usually an overflow of water that inundates land which is dry. The **Floods Directive** defines a flood as a covering by water of land not normally covered by water. **Geo-science Australia** has defined flood as a general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters from the unusual and rapid accumulation or runoff of surface waters from any source. **Example** – Bihar Floods (2008), Jammu and Kashmir Floods (2014). Floods 2019

1.6.4 Drought

According to **University of Florida**, drought is a normal, recurrent feature of climate, although many incorrectly consider it as a rare and random event. It occurs virtually in all areas, with any kind of normal climatic conditions, and the characteristics of a drought may be very different from one region to another. Technically, drought is a 'temporary' condition, even though it may last for longer periods of time. **Example** – 2013 Drought in Maharashtra, Bundelkhand Droughts, Uttar Pradesh (2007).

1.6.5 Landslide

A landslide is the movement of rock, debris or earth down a slope. They result from the failure of the materials which make up the hill slope and are driven by the force of gravity. Landslides are known also as landslips, slumps or slope failure. Some of the most common types of landslides are earth slides, rock falls and debris flows. **Example** – Malin Landslide, Maharashtra (2014), Darjeeling Landslide, West Bengal (1968).

1.6.6 Forest Fire

A wildfire or wild land fire is a fire in an area with combustible vegetation which usually occurs in the countryside or rural area. Depending on the type of vegetation where it occurs, a wildfire can also be classified more specifically as a brush fire, bush fire, desert

fire, forest fire, grass fire, hill fire, peat fire, vegetation fire. **Example** – Uttarkhand Forest Fires (2016).

1.6.7 Earthquake

An earthquake (also known as a quake, tremor) is the shaking of the surface of the earth in a vigorous resulting from the sudden release of energy in the Earth's lithosphere that creates seismic waves. Earthquakes can range in size from those that are weak, and which cannot be felt to those violent enough to toss people around and destroy the whole settlements. The seismicity or seismic activity of an area refers to the frequency, type and size of earthquakes experienced over a period of time. **Example** – Haiti Earthquake (2010), Nepal Earthquake (2015).

1.6.9 Road Accident

Road Accidents usually refer to any kind of accident involving at least one vehicle, occurring on a road, and injuring and killing at least one or more people.

1.6.10 Rail Accident

A train wreck or rail accident is a type of disaster involving one or more trains. Train wrecks often occur as a result of miscommunication, as when a moving train meets another train on the same track; or an accident, such as when a train wheel jumps off a track in a derailment; or when a boiler explosion occurs. **Example** – Bihar Train Derailment (1981), Gaisal Train Collision, West Bengal (1999).

1.6.11 Fire Accident

The University of Safety & Health Association (USHA) has defined fire as an undesirable event which emits heat, smoke and/or flame, which has the potential to cause damage, may require intervention either mechanical or human or has a cost implication. **Example**–AMRI Hospital Fire Incident, Kolkata (2011), Dabwali Fire Incident, Haryana (1995).

1.7 DISTRICT PROFILE

As the entire state of Maharashtra is divided into six revenue divisions (Pune, Konkan, Nasik, Aurangabad, Amravati and Nagpur), hence Satara as a district falls under Pune division along with Pune, Sangli, Kolhapur and Solapur. Satara lying in the south-western part of the state of Maharashtra lies between 17° 5' to 18° 11' N latitudes and 73° 33' to 74° 54' E longitudes. The district covers a total area of 10480 km². It has a total of seven sub-divisions and eleven administrative sub-units.

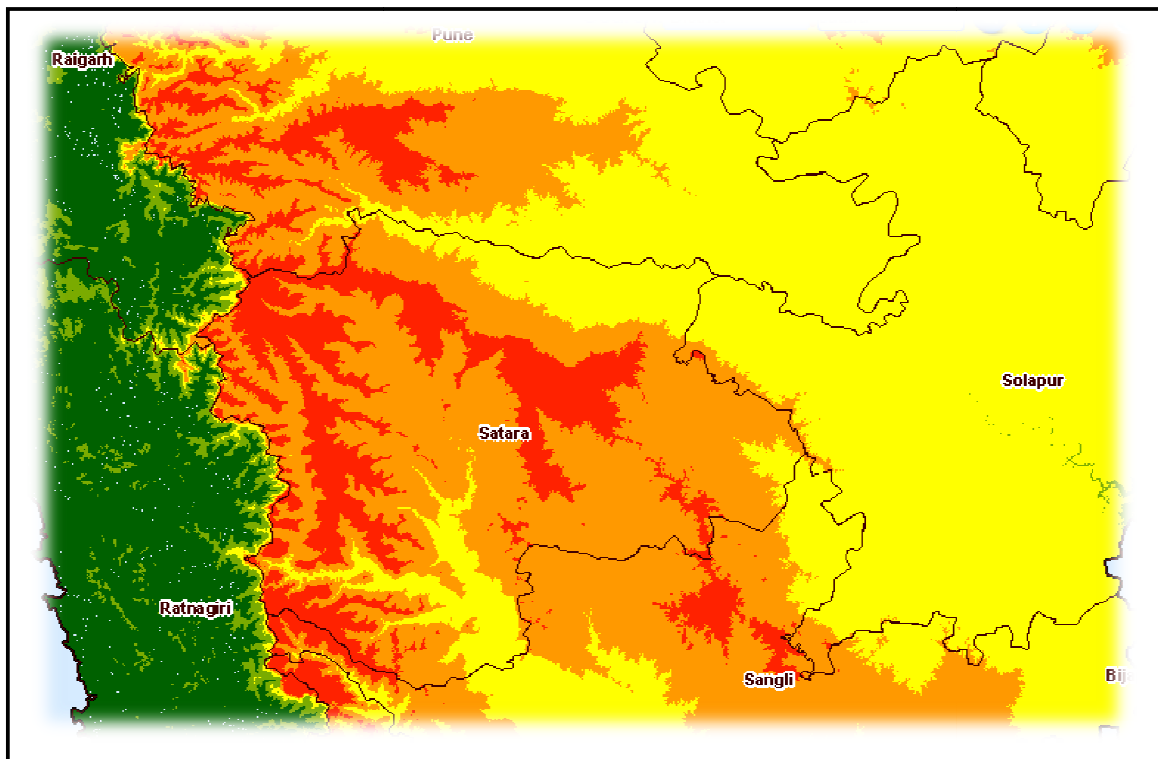


Figure 1: Satara District and its neighbouring districts

Satara is a land-locked district and to its north is Pune, on the west are Ratnagiri and Raigad, towards its south falls Sangli and east lays Solapur district of Maharashtra. The district has a total of 1719 villages divided into 11 Panchayat Samittees and 1501 Gram Panchayats and 16 municipal councils, which has been divided into 8 Nagar Palika's and 8 Nagar Panchayats. The following table 2 shows the talukas and number of Gram-Panchayats and revenue villages in the district:

Table 2: Sub-division, Talukas, Gram-Panchayats and Revenue Villages in Satara

Sr. No.	Name Sub-Division	Taluka	Gram-Panchayats	Revenue Villages
1.	Karad	Karad	199	217
2.	Koregaon	Koregaon	141	40
3.	Man	Man	95	105
		Khatav	133	141
4.	Patan	Patan	238	323
5.	Phaltan	Phaltan	128	125
6.	Satara	Jaoli	125	251
		Satara	194	216
7.	Wai	Wai	99	121
		Khandala	63	67
		Mahabaleshwar	79	113

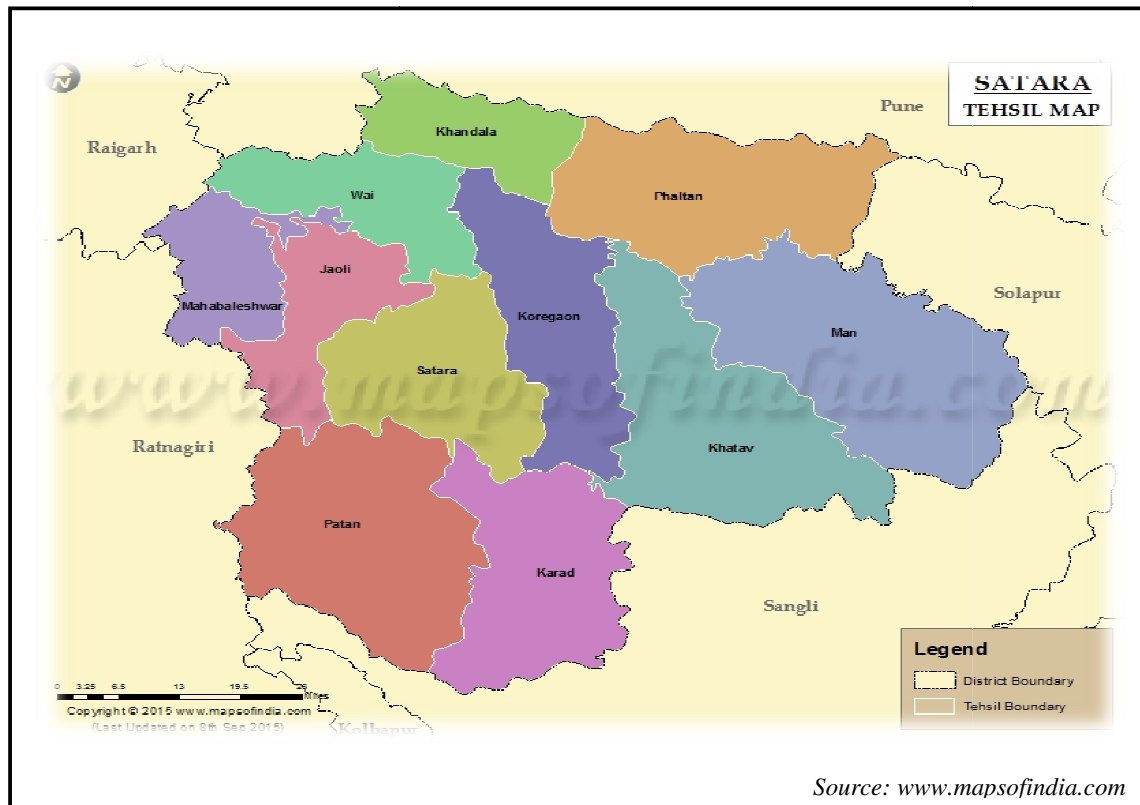


Figure 2: Taluka map of Satara District

The following table below shows the all the talukas of Satara district which are prone to various hazards present in the district:

Table 3: Talukas prone to various hazards

<i>Sr. No.</i>	<i>Talukas</i>	<i>Hazards</i>
1.	Karad	<ul style="list-style-type: none"> • Floods, • Lightning, • Earthquake, • Road Accidents, • Rail Accident, • Fire Accident, • Industrial Accidents, • Crowd Accident
2.	Koregaon	<ul style="list-style-type: none"> • Floods, • Drought, • Lightning, • Rail Accident, • Fire Accident, • Road Accident
3.	Man	<ul style="list-style-type: none"> • Drought, • Landslide, • Lightning, • Earthquake, • Fire Accident, • Crowd Accident, • Road Accident
4.	Khatav	<ul style="list-style-type: none"> • Drought, • Lightning, • Fire Accident, • Road Accident
5.	Patan	<ul style="list-style-type: none"> • Floods, • Heavy Rains, • Landslide, • Lightning, • Hailstorm, • Earthquake,

		<ul style="list-style-type: none"> • Fire Accident, • Road Accident, • Crowd Accident
6.	<i>Phaltan</i>	<ul style="list-style-type: none"> • Floods (partially), • Drought, • Lightening, • Forest Fire, • Rail Accident, • Fire Accident, • Road Accident
7.	<i>Jaoli</i>	<ul style="list-style-type: none"> • Landslide, • Lightening, • Earthquake, • Fire Accident, • Road Accident
8.	<i>Satara</i>	<ul style="list-style-type: none"> • Floods, • Earthquake, • Road Accidents, • Rail Accident, • Fire Accident, • Industrial Accidents
9.	<i>Wai</i>	<ul style="list-style-type: none"> • Floods, • Heavy Rains, • Landslide, • Forest Fire, • Lightening, • Hailstorm, • Earthquake, • Road Accidents • Fire Accident, • Industrial Accidents, • Crowd Accident
10.	<i>Khandala</i>	<ul style="list-style-type: none"> • Drought, • Lightening,

		<ul style="list-style-type: none"> • <i>Road Accidents,</i> • <i>Rail Accident,</i> • <i>Fire Accident,</i> • <i>Industrial Accidents</i>
11.	<i>Mahabaleshwar</i>	<ul style="list-style-type: none"> • <i>Heavy Rains,</i> • <i>Landslides,</i> • <i>Lightening,</i> • <i>Fire Accident,</i> • <i>Forest Fire,</i> • <i>Road Accident</i>

The district headquarters for Satara is Satara city, whereas Karad as a city is the most urbanised area in the entire district. Satara as a district is well-connected with National Highway 4 and Mumbai Kolhapur Railway Track (124 kilometres) is the only track present in the entire district.

1.7.1 Historical Background

It has been mentioned in inscriptions dating back to 200 B.C. that the oldest known places in Satara is Karad mentioned as Karhakada, and Wai is believed to be the Viratanagari where the Pandavas were exiled for 13 years. During the Mauryan Empire period (550 A.D – 750 A.D), Satara was ruled by famous Maratha rulers like Shivaji, Pratap Singh and so on. The princely state of Satara came into existence under British rule on 1818, but the district came into being in 1848 on the death of Chhatrapati Shahu Raje. The First Commissioner was Mr. Frere.

There has been a great controversy relating to the name of the district, as some sources claim Satara means seven walls that guard the fortress, whereas contradictorily other sources claim, Satara has been derived from the word, *Saptarishi*, who is a god. Around 1848, Satara Province had 11 sub-divisions namely Bijapur which is part of Karnataka now, Jaoli, Karad, Khatav, Koregaon, Pandharpur, Satara, Targaon, Walwa and Wai. Later around 1862, Bijapur sub-division was transferred to be a part of Belgaum district in Karnataka and in 1864, Pandharpur became a part of Solapur. Changes in the sub-divisions kept on taking place in the following years. By 1949, the district was

bifurcated into two sections, North and South Satara. The South Satara headquarters was setup at Sangli and included for talukas. Around 1956, there was rearrangement of the states, and both the districts were included in the Bombay state, but in 1960, the name of North Satara district changed into Satara district and South Satara became Sangli district. By 1961, Satara district had 9 talukas and 1960 villages and ten towns.

The 2001 Census stated that the district composed of 15 towns, 1739 villages and 11 talukas. In 2016, the Taluka Headquarters got transformed into Nagar Panchayats. At present there are 7 sub-divisions, 11 talukas, 1719 villages and 16 municipal councils.

1.7.2 Socio-Economic Fabric

Satara is a district where most of the population lives in rural areas. It's one of the least urbanized districts in the entire state of Maharashtra. According to the 2011 Census, 81 percent of the population lives in the rural areas. The literacy rate of the district is just 82.87 percent while the remaining 17.13 percent are illiterates. Almost 53.19 percent of the population lives below poverty line. Wai and Jaoli tehsils have the largest percentage of households among their population, which is below the poverty line. Also Scheduled Castes and Scheduled Tribes account for about only 10 percent of the total population, but the SC's (10.76 %) dominate the ST's (0.99%) in the district. Out of all the talukas, Karad is the most populated tehsils, while with 470 persons/sq. km, while Man being the least populated with 127 persons per sq.km. Satara and Karad are the two urban centres in the entire district. According to the 2011 Census, the livelihood pattern of the population living in the district can be divided into two major groups: 1) Workers and 2) Non-Workers. The total number of workers are 1, 184,407 (39.43 %) which can be further subdivided into main workers (39.43 %) and marginal workers (5.68 %). The total non-workers in the district are 54.89%. The workers can be categorized as follows:

- Cultivators - 585876 (43.24 %)
- Agricultural Labourers - 297241 (21.94 %)
- Workers in Household Industries - 39772 (2.94 %)
- Other workers - 432058 (31.89 %)

Satara district's main economic activity is agricultural activities where 63.5 percent of total land is under agricultural activities, but agricultural activities is lesser in the western talukas of the district due to its hilly topography with Mahabaleshwar taluka having only 1 percent of its land under agriculture. Most of the area of Mahabaleshwar is categorized as forest land. The eastern portion of the district widely engages in agriculture and Khatav and Karad have 75 % of its land under cultivation. The major food crops grown in the district are sugarcane, jowar, bajra, rice and some cereals and pulses like gram, *matki*, *urad* and *tur* and some fruits and vegetables are widely grown in the district. Other non-food crops like groundnut, safflower, chillies and cotton are amongst non-food crops. Kharif, Rabi and summer seasons are major time of the year for cultivating and harvesting crops. The economic growth of the district is mainly due to agriculture activities. Most of the agricultural activities in the district have taken place in areas from where the rivers are flowing.

1.7.3 Demographics

According to the census of 2011, the demographic characteristics of Satara district are as follows:

Table 4: Demographics of Satara District

<i>Sr. No</i>	<i>Demographic Characteristics</i>	<i>Value</i>
1.	<i>Total Population</i>	3,003,741
2.	<i>Total Female</i>	1,510,842
3.	<i>Total Male</i>	1,492,899
4.	<i>Children (0-6)</i>	3,17,885
5.	<i>ST Population</i>	29,635
6.	<i>SC Population</i>	3,23,236
7.	<i>Population living Below Poverty Line (BPL)</i>	53.19%
8.	<i>Literacy Rate</i>	82.9 %
9.	<i>Male Literacy Rate</i>	89.42%
10.	<i>Female Literacy Rate</i>	76.31%
11.	<i>SC Literacy Rate</i>	70.63%
12.	<i>ST Literacy Rate</i>	65.4%

The following table shows the demographic details taluka-wise:

Table 5: Population indicators of the talukas of Satara

<i>Sr. No</i>	<i>Name of Taluka</i>	<i>Total Population (2011)</i>	<i>Male</i>	<i>Female</i>	<i>Urban Population</i>
<i>1.</i>	<i>Mahabaleshwar</i>	<i>72840</i>	<i>22354</i>	<i>22187</i>	<i>28299</i>
<i>2.</i>	<i>Wai</i>	<i>200741</i>	<i>81631</i>	<i>82266</i>	<i>36844</i>
<i>3.</i>	<i>Khandala</i>	<i>137450</i>	<i>61047</i>	<i>57646</i>	<i>18757</i>
<i>4.</i>	<i>Phaltan</i>	<i>342696</i>	<i>145881</i>	<i>136699</i>	<i>60116</i>
<i>5.</i>	<i>Man</i>	<i>225193</i>	<i>101719</i>	<i>99338</i>	<i>24136</i>
<i>6.</i>	<i>Khatav</i>	<i>275099</i>	<i>136899</i>	<i>138200</i>	<i>0</i>
<i>7.</i>	<i>Koregaon</i>	<i>257327</i>	<i>107596</i>	<i>107413</i>	<i>42318</i>
<i>8.</i>	<i>Satara</i>	<i>501670</i>	<i>145145</i>	<i>144536</i>	<i>211989</i>
<i>9.</i>	<i>Jaoli</i>	<i>107890</i>	<i>50473</i>	<i>52737</i>	<i>4680</i>
<i>10.</i>	<i>Patan</i>	<i>299634</i>	<i>138102</i>	<i>147759</i>	<i>13773</i>
<i>11.</i>	<i>Karad</i>	<i>583360</i>	<i>230035</i>	<i>224012</i>	<i>129313</i>

1.7.4 Religion and Culture

The principal language spoken in the district is Marathi, while the Muslim population living in the district speaks a mixed Urdu-Marathi. Most of the population also speaks in Hindi, but the most of the women population living in the rural areas, lacks in Hindi speaking skills. English is taught in schools and colleges, here at Satara. The district is predominated by Hindus and the only minority groups here at Satara are Muslims and Jains. The Kunbis and the Marathas constitute the biggest caste group in the district. The culture here at Satara is not very different from that of the rest of Maharashtra. Ganesh Chathurthi is one of the major festivals here at Satara. Nagpanchami, Gauripuja, Ekadasi, Janmastami are some of the festivals celebrated in the district. The Muslims celebrate Eid and various other festivities. The food habits of the people in the district are almost the same in all the talukas. The population in the drier parts consumes jowar based bread as their staple food, while the hilly western parts consume bread made out

of 'nagli' and rice. As Marathas dominate the district, hence most of the population is vegetarian.

1.7.5 Topography

The main landscape feature of Satara district are the outstanding hill ranges and intermediate valleys all developed on a flat tableland surface. To the western frontier of the district lies the Sahayadri's or the hilly portion of the district, the central part comprises of the plains of Krishna River and its tributaries and to the east lies the plateau region. The top of Mahabaleshwar, the highest point in the district is about 4710 feet above the sea level.

1.7.6 Geology

Satara district is covered with basaltic and amygdule lava (spreads in the form of horizontal sheets or beds), which was basically spread over the vast parts of the Central India during the Tertiary or Cenozoic Era which was almost 60 to 100 million years ago. The Deccan traps covers almost the whole of the district and represents the rocky and bold, flat topped hills creating an extensive plateau like structure. The predominant soil type in the district (central part of the district) is the black cotton soil. Lateritic soil which is usually reddish in colour and clayey in texture also covers many parts of the western tehsils of Mahabaleshwar, Jaoli, Wai and Patan. The fertility of the soil is found to be high in the river valleys of Krishna, Venna, Kudali, Koyna and Kole. The soil fertility is found to be low in Khandala and Phaltan.

The some parts of the district are also rich in Bauxite, which is the chief ore of aluminium. Bauxite is usually associated with lateritic soil and it's prominent at Yeruli plateau, north of Panchgani. The following areas yield deposits of bauxite:

- The Plateau north of Krishna river (west of Wai)
- The ridges to the south of Krishna (west of Wai)
- The strip of land along the scarp from Mahabaleshwar to Helvak, west of Koyna River.
- The group of spurs and flat-topped hills between the Koyna and Vena rivers, from Mahabaleshwar to Patan.

- The plateau extending from the Koyna Valley below Helvak up to the boundary of Kolhapur district.

The small hillock near Wakhri village, Phaltan has been recognized as an area with deposit of limestone in the district. Manganese ore is found in the district as concretionary nodules, especially in locations near Mahabaleshwar, Chikili, Awakali, Shindole and Takwali. The remaining district constituents of trap, namely iron, aluminium and titanium oxides.

1.7.7 Climatic Condition

The climate in Satara district is moderate with temperatures reaching a maximum of 39°C during the summers (March to mid June) and dropping down to 10°C during the winter months (November to March). The western part of the district has a very pleasant climate during the summers, but turns out very cold during the winters. The plains experiences moderate temperature throughout the year. The atmosphere in Satara is slightly humid during the months of south-west monsoons. The summers and winters are usually dry and the plains mostly experience dryness to a great extent than the hilly regions. The hills are usually windy during the monsoons, while the plains are light to moderately windy throughout the year. Due to various changes in the climatic conditions these days, the maximum temperature of Satara district has risen by 3°C in the past one year, reaching up to 42°C.

1.7.8 Rainfall

The monsoon starts during the month of June, where the district experiences the maximum precipitation in the months of July and August.

Table 6: Table showing Actual Rainfall (mm) data of Talukas in Satara District in last fifteen years

Year	Satara	Jaoli	Koregaon	Karad	Patan	Phaltan	Man	Mahabaleshwar	Wai	Khandal	Khata
2002	7621.5	1325.4	507.4	441.0	1233.6	317.3	442.8	5005.4	515.0	224.8	342.6
2003	553.4	1147.4	318.6	404.8	972.9	89.7	336.0	4395.6	468.4	217.1	181.4
2004	1032.4	1058	879.8	704.3	1554.6	631.4	98.0	6374.6	1042	971.8	824.7

		.6							.5		
2005	1821.5	2720 .1	1395.6	1184.5	3289.7	449.5	436.5	8639.5	1537 .1	778.4	605.8
2006	1530.4	2676 .2	1258.6	997.3	2902.6	588.6	542.8	8403.1	1334 .7	664.1	632.1
2007	1196.7	1675 .9	855.8	1007.4	2208.2	695.0	472.6	6245.1	987 1	648.5	549.1
2008	722.5	1502 .0	537.4	807.9	1251.0	339.0	549.2	5660.4	797 0	439.8	374.2
2009	909.1	1448 .1	761.1	131.0	1179.1	835.0	787.0	4203.0	905 2	562.8	779.7
2010	1011.2	1530 .1	904.2	872.8	1511.2	1028.4	761.5	4244.0	1029 .0	562.3	814.6
2011	777.6	1737 .2	497.4	593.6	1804.0	342.2	225.8	6456.8	873 2	433.8	373.1
2012	686.0	1258 .8	360.6	550.6	1574.4	267.1	269.0	3908.7	650 1	451.0	272.4
2013	1182.8	1787 .0	596.0	569.5	1510.3	469.0	407.2	3812.0	881 4	633.2	574.9
2014	1034.2	1638 .2	470.1	663.1	1525.5	300.7	383.2	5650.9	674 0	485.7	552.2
2015	582.1	1175 .4	360.7	317.4	826.1	317.9	302.6	3449.7	402 7	418.0	376.0
2016	981.4	1661 .7	564.9	688.5	1493.0	395.6	396.4	5583.7	812 4	540.1	499.1

Table 7: Table showing total and average rainfall (mm) data of Satara district in last fifteen years

Sr. No.	Year	Average Rainfall (mm)	Total Rainfall (mm)
1.	2002	987.3	10860.0
2.	2003	804.3	8847.5
3.	2004	1410.1	15511.3
4.	2005	2087.7	22964.5
5.	2006	1950.9	21459.7
6.	2007	1510.7	16618.0
7.	2008	1169.5	12864.3
8.	2009	1136.5	12501.1

9.	2010	1297.2	14269.3
10.	2011	1283.2	14114.7
11.	2012	931.8	10249.7
12.	2013	1129.4	12423.3
13.	2014	1216.2	13377.3
14.	2015	775.3	8528.6
15.	2016	1237.9	13616.8
16.	2017	1182.1	13003.1
17.	2018	1132.0	12452.1
18.	2019	1761.2	22265.9

The district has an average rainfall of 918.8 mm, but the pattern of precipitation varies over various parts of the district. The Western Ghats of the district (Mahabaleshwar region) in the west receives the highest rainfall, more than 6000 mm. Patan and Jaoli also receives rainfall of 2000 mm, whereas the rainfall gradually decreases to 900 mm on moving eastwards in the tehsils of Koregaon, Karad, Satara and to less than 600 mm in the tehsils of Man, Khatav, Phaltan and Khandala

1.7.9 River System and Dams

1.7.9.1 Rivers

The main landscape feature of Satara district are the outstanding hill ranges and intermediate valleys all developed on a flat tableland surface.

To the western frontier of the district lies the Sahayadri's or the hilly portion of the district, the central part comprises of the plains of Krishna River and its tributaries and to the east lies the plateau region. Some of the major rivers in Satara district are the Krishna, Venna, Kudali, Koyna and Kole. In the district, the drainage network has been divided into four areas and these are as follows:

- The Nira Drainage System in the northern zone,
- The Krishna Drainage in the western and southern part,
- The Manganga Drainage System in the eastern zone,
- The Yerla Drainage System in the south-eastern.

A. The Krishna River

Krishna River is considered a very important river in Southern India. This river rises in the eastern part of Mahabaleshwar plateau, and its source is at the altitude of 1371 metres above mean sea level. The drainage system of the Krishna river includes seven feeders or tributaries namely, Kudali, the Venna, the Urmodi, the Tarali and the Koyna on the right bank and Vasna and Yerala to the left. Krishna flows for nearly 160 kilometres in the entire district, and therefore enters Sangli District.

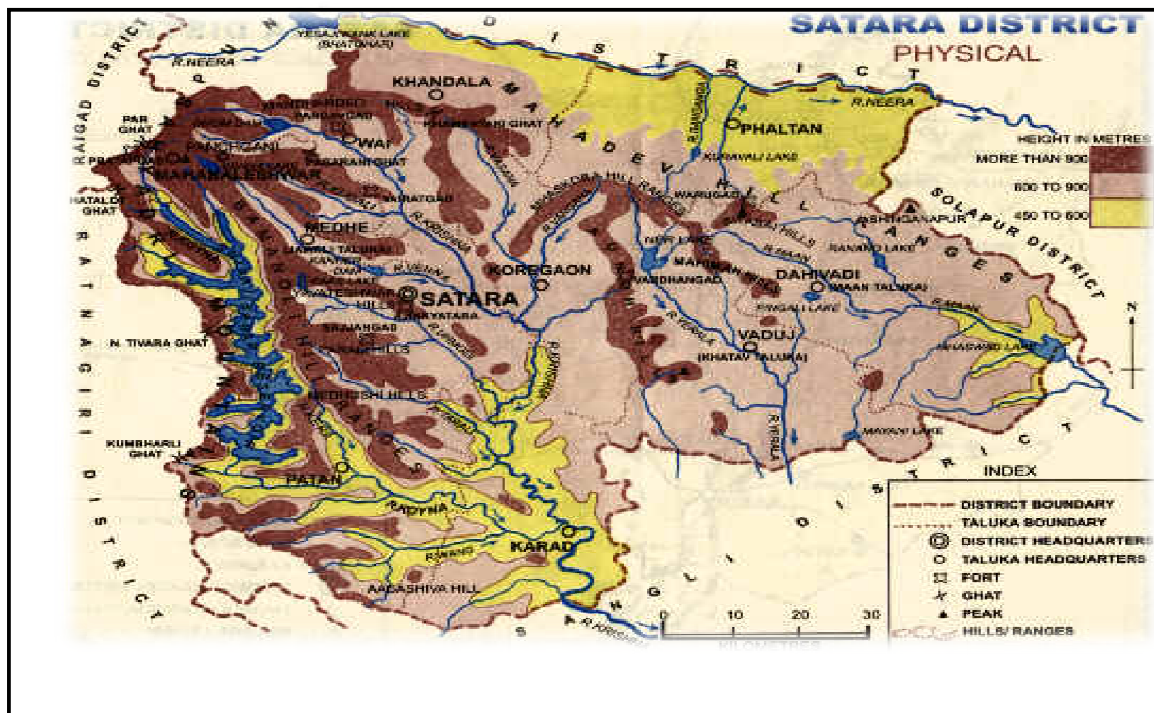


Figure 3: Physical map of Satara showing the rivers of the district

B. The Koyna River

Koyna River is one of the major tributaries to Krishna River. It also rises in Mahabaleshwar hills, and runs towards Helwak located in Patan taluka. From this point, the river changes its course and flows eastwards and then meets Krishna at Karad taluka. Koyna is very important river to the district, as it's the major source of hydroelectricity in the state of Maharashtra. Koyna dam with the capacity of 105 TMC, is built on river Koyna itself, and is considered as lifeline of the entire district and the state.

1.7.9.2 Dams

Satara has many dams constructed and built up in the entire district. Some of the dams are usually built for the purpose of irrigation, while the others have also been built for the purpose of hydroelectricity.

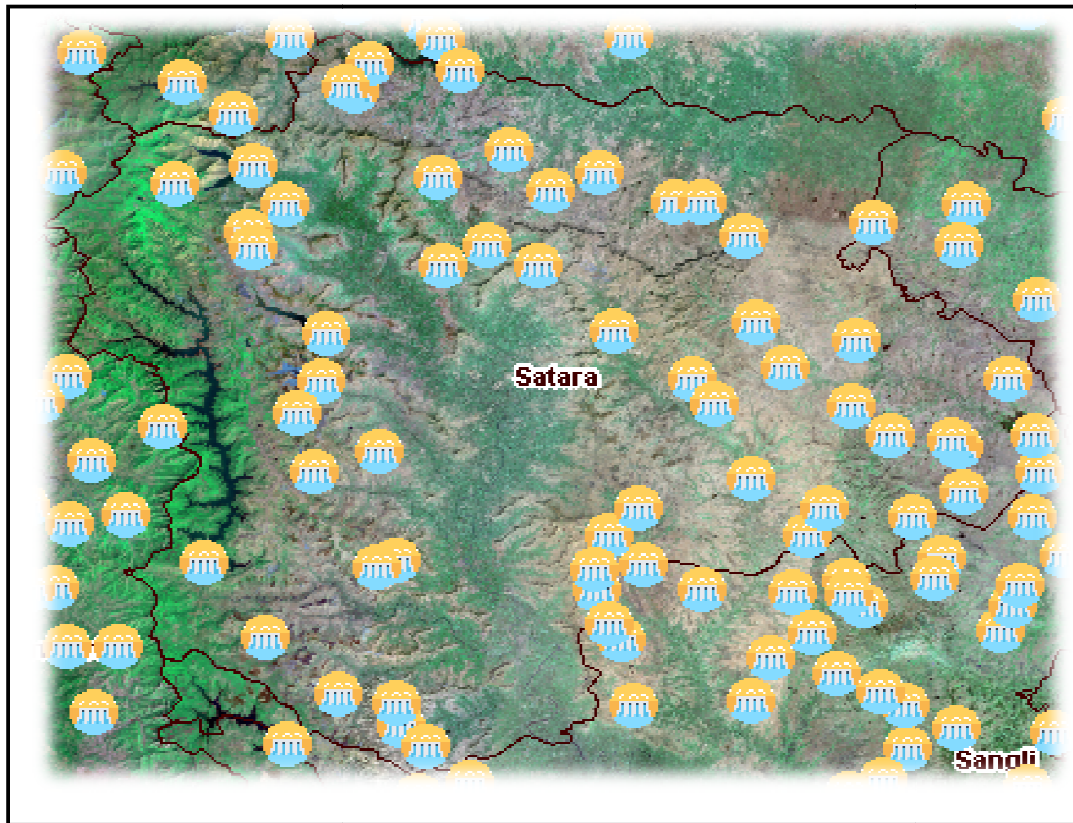


Figure 4: Dams and water bodies spread across the district

Koyna Dam located in Koynanagar, Patan Taluka has been considered as the lifeline of the state of Maharashtra and the entire district of Satara. The major irrigation projects in the district are Dhom Daam, Koyna Dam, Kanher Dam and Veer Dam. Krishna river has two irrigation projects with two dams built, one at Dhom across the river Krishna and the other being Kanher over Venna River, which is tributary of Krishna.



Source: www.google.com

Figure 5: Koyna Dam, one of the biggest hydro-project in the district

The following table shows the dams existing in the district:

Table 8: Dams present in the district and its specifications

<i>Sr. No</i>	<i>Name of Dams</i>	<i>Name of River</i>	<i>Capacity (in TMC)</i>	<i>Located in which Irrigation Office (Sub-division)</i>	<i>Status (Complete/Ongoing)</i>
1.	<i>Dhom</i>	<i>Krishna River</i>	<i>13.80</i>	<i>Wai</i>	<i>Completed</i>
2.	<i>Dhom Balkawadi</i>	<i>Krishna River</i>	<i>4.08</i>	<i>Wai</i>	<i>Completed</i>
3.	<i>Hateghar</i>	<i>Hateghar Nala</i>	<i>0.26</i>	<i>Jaoli</i>	<i>Completed</i>
4.	<i>Kanher</i>	<i>Venna River</i>	<i>10.10</i>	<i>Satara</i>	<i>Completed</i>
5.	<i>Koyna</i>	<i>Koyna River</i>	<i>105.25</i>	<i>Patan</i>	<i>Completed</i>
6.	<i>Mahu</i>	<i>Kudali River</i>	<i>1.10</i>	<i>Jaoli</i>	<i>Completed</i>
7.	<i>Mhaswad/ Rajewadi</i>	<i>Man River</i>	<i>4.78</i>	<i>Man</i>	<i>Completed</i>
8.	<i>Morna Gureghar</i>	<i>Morna River</i>	<i>1.83</i>	<i>Patan</i>	<i>Completed</i>

9.	Nagewadi	Local Nala (unnamed)	0.23	Wai	Completed
10.	Tarali	Tarali River	5.85	Karad	Completed
11.	Urmodi	Urmodi River	9.80	Satara	Completed
12.	Uttarmand	Uttarmand River	1.03	Patan	Completed
13.	Veer	Nira River	9.83	Khandala	Completed

Table 7 below shows the types of dams available in the district and its main functions.

Table 9: Dams of the district and its purpose

Sr. No	Name of the Dam	Type of Dam	Purpose of the Dam
1.	Dhom	Earthen / Gravity / Masonry	Hydroelectricity, Irrigation
2.	Dhom Balkawadi	Earthen	Hydroelectricity, Irrigation
3.	Hateghar	Earthen	Hydroelectricity, Irrigation
4.	Kanher	Earth-fill / Gravity	Hydroelectricity, Irrigation
5.	Koyna	Rubble-concrete dam	Hydroelectricity
6.	Mahu	Earth-fill	Hydroelectricity, Irrigation
7.	Mhaswad/ Rajewadi	Earth-fill	Irrigation
8.	Morna Gureghar	Earth-fill	Irrigation
9.	Nagewadi	Earth-fill	Irrigation
10.	Tarali	Gravity / Masonry	Hydroelectricity, Irrigation
11.	Urmodi	Earth-fill	Hydroelectricity, Irrigation
12.	Uttarmand	Earthen	Hydroelectricity, Irrigation
13.	Veer	Earth-fill	Irrigation

1.7.10 State Transport

The pace of economic development depends considerably on adequate provisions of transport facilities particularly by rail and road for transport of essential requirements, for various projects of agricultural and industrial produce.

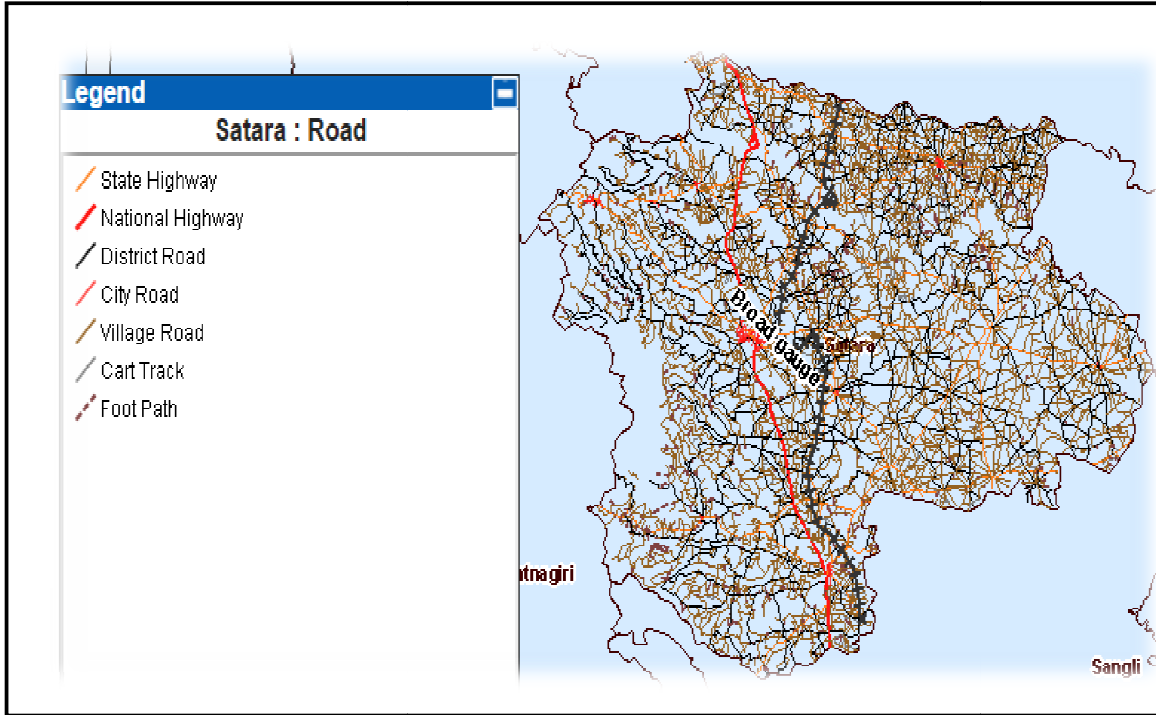


Figure 6: Image showing transportation system present in the district

There is just railway connection that is the Mumbai – Kolhapur Railway Track which is about 125 kilometers in the entire district, and passes through Karad, Koregaon, Satara, Khandala and Phaltan tehsils. The table below shows the information on the transportation system available at Satara district, along with contact of the authority.

Table 10 : List of transportation network in the district

<i>Sr. No</i>	<i>Particular</i>	<i>Numbers</i>	<i>Contact of the Authority</i>
<i>1.</i>	Railway <i>(Number of stations)</i>	<i>7</i>	<ol style="list-style-type: none"> <i>1. Satara – 02162270050</i> <i>2. Karad – 02164271034</i> <i>3. Koregaon – 02163220261</i> <i>4. Rahimatpur – 02163230900</i> <i>5. Shenoli – 02164269398</i> <i>6. Lonand – 02169225050</i> <i>7. Wathar – 02163252228</i>
	Roadways <i>(National Highways)</i>	<i>1</i>	<i>National Highway Authorities India (NHAI) (Pune) – 02025231745</i>

2.	<i>(State Highways)</i>		<i>Maharashtra State Road Development Corporation (MSRDC) – 8007999321</i>
3.	<i>Ports</i>	0	-
4.	<i>Air Ports or Air Strips</i>	1 <i>(Proposed in Karad Taluka)</i>	-
5.	<i>Helipad</i>	2 Proposed in <i>Karad Taluka and Phaltan Taluka</i>	-
6.	<i>Major State Transport Bus Depots</i>	11	<ol style="list-style-type: none"> 1. Satara – 02162-230064 2. Karad – 02164-222563 3. Koregaon – 02163-220221 4. Phaltan – 02166-222379 5. Patan – 02372-283036 6. Wai – 02167-220680 7. Dahiwadi – 02165-220248 8. Mashwar – 02168-260485 9. Medha – 02378-285259 10. Khandala – 02169-252245 11. Waduj – 02161-231070

1.7.11 Land Specifications

The total area of the district is 10480 sq. km, out of which 234 km² is inhabited area, 7203 sq.km is agricultural area. Agriculture is the mainly seen as a land use pattern in the entire district, with more than 75 percent of the total area being used for agricultural activities. The forest area is more in the western part of the district and covers an area of 1589 sq.km of the district. The forest types generally found in this district are:

- A) Evergreen forest,
- B) Dry mixed deciduous forest and
- C) Wet mixed deciduous forest.

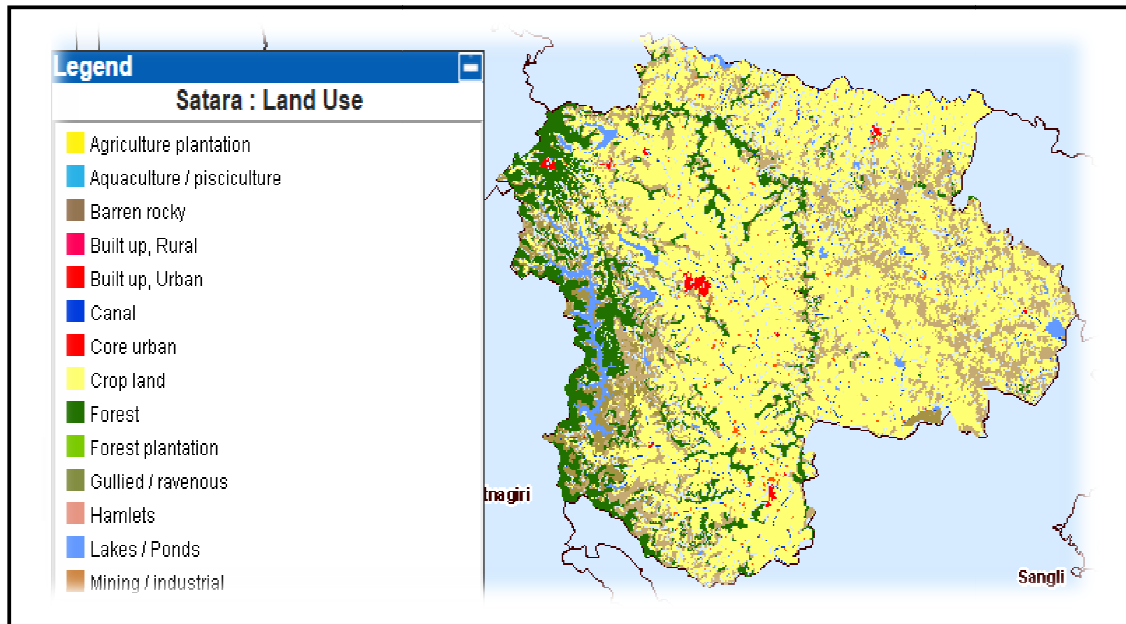


Figure 7: Landuse map of Satara district

The following table shows the classification of land-use techniques in the district of Satara:

Table 11: Classification of Land-use in the district

Sr. No	Standard Land Use Classification	Sub Category	No./Ac/Ha
1.	Urban or Built-up Land (Total Area: 435.17 km ² or 43517 ha) (Total No. of Cities: 22)	Residential Houses	Not Available
		Commercial Buildings	Not Available
		Schools	Primary Schools: 3073 Secondary and Higher-Secondary Schools: 874
		Hospitals	Hospitals: 17 Rural Hospital: 18
		Government Buildings	6008
		Industries/ Factories	333
2.	Rural Land (Total No. of Villages: 1745 Inhabited: 1719 Uninhabited: 26)		10,044.83 km ² or 1004483 ha
3.	Agricultural Land (Total Area: 7203 km ² or	Cropland	720300 ha
		Net Area Sown	6960 km ² or 696000 ha as of 2010

	720300 ha)	Grassland (Grazing/Non Grazing)	74000 ha
4.	Forest Land		1320 km ² or 132000 ha
5.	Water (32.54% of area under irrigation)	River	6
		Lakes, Ponds and Tanks	1207
		Dam / Reservoir	8
		Canals	47595 ha
		Well	150142 ha
		Other Water resources	21187 ha
6.	Wetland		N.A
7.	Barren and Wasteland (Total Area: 738km ² or 78300 ha)	Uncultivable Waste Land	783 km ² or 78300 ha
		Beaches	N.A

1.7.12 Available Health Infrastructure

There is one civil Hospital in the district and it is the biggest Hospital in the entire district. It provides medical facilities to the people and it also gives training to nurses, midwives and x-ray laboratory technicians with the help of special branches. There are 18 rural Hospitals, 72 Public health centers and 400 sub-center's stretched in the district. The following table's shows the list of government and private Hospitals, PHC's and blood banks available in the entire district:

Table 12: List of public and private Hospitals in the district

Sr. No.	List of Hospitals	Location	Contact Number
1.	Civil Hospital	Satara	02162-237852
2.	Swargiya S. Venutai Chavan Sub-District Hospital	Karad	02164-222459
3.	Sanjeevani Hospital	Satara	02162-238324
4.	Lawand Hospital	Satara	02162-237526
5.	Samarth Hospital	Satara	02162-282068
6.	Gramin Rugnalaya	Koregaon	02163-220447
7.	Indira Hospital	Koregaon	02163-220281
8.	Dhananjay Hospital	Koregaon	02163-220605

9.	<i>Krishna Hospital</i>	<i>Karad</i>	<i>02164-241555</i>
10.	<i>City Medical Centre</i>	<i>Karad</i>	<i>02164-224344</i>
11.	<i>Shiddhivinayak Hospital</i>	<i>Karad</i>	<i>02164-227327</i>
12.	<i>Bhagyashri Hospital</i>	<i>Karad</i>	<i>02164-223517</i>
13.	<i>Krishna Hospital</i>	<i>Karad</i>	<i>02164-266333</i>
14.	<i>Sahayadri Hospital</i>	<i>Karad</i>	<i>02164-271171</i>
15.	<i>Kutir Rugnalaya</i>	<i>Vaduj</i>	<i>02161-244240</i>
16.	<i>Gramin Rugnalaya</i>	<i>Vaduj</i>	<i>02161-231218</i>
17.	<i>Gramin Rugnalaya</i>	<i>Dahiwadi</i>	<i>02165-230374</i>
18.	<i>Gramin Rugnalaya</i>	<i>Gondawale Kh.</i>	<i>02165-282255</i>
19.	<i>Dr. Arun Patil Hospital</i>	<i>Dahiwadi</i>	<i>02165-203011</i>
20.	<i>Cottage Hospital</i>	<i>Patan</i>	<i>02372-283268</i>
21.	<i>Patankar Hospital</i>	<i>Patan</i>	<i>02372-283142</i>
22.	<i>Koyna Project Davakhana</i>	<i>Koynanagar</i>	<i>02372-284499</i>
23.	<i>Shivanjali Accident Hospital</i>	<i>Phalatan</i>	<i>02166-220871</i>
24.	<i>Gandhi Hospital</i>	<i>Phaltan</i>	<i>02166-221292</i>
25.	<i>Life Hospital</i>	<i>Phaltan</i>	<i>02166-225630</i>
26.	<i>Gramin Rugnalaya</i>	<i>Phaltan</i>	<i>02166-254135</i>
27.	<i>Gramin Rugnalaya</i>	<i>Khandala</i>	<i>02169-252136</i>
28.	<i>Shree Medical Foundation</i>	<i>Khandala</i>	<i>02169-244110</i>
29.	<i>Shree Datta Hospital</i>	<i>Lonand</i>	<i>02169-225132</i>
30.	<i>Navjeevan Hospital</i>	<i>Lonand</i>	<i>02169-225419</i>
31.	<i>Gramin Rugnalaya</i>	<i>Wai</i>	<i>02167-220044</i>
32.	<i>Geetanjali Hospital</i>	<i>Wai</i>	<i>02167-220340</i>
33.	<i>Mission Hospital</i>	<i>Wai</i>	<i>02167-220002</i>
34.	<i>Dr. Jaju Hospital</i>	<i>Bhuinj</i>	<i>02167-285323</i>
35.	<i>Belair Hospital</i>	<i>Panchgani</i>	<i>02168-240709</i>
36.	<i>Gramin Rugnalaya</i>	<i>Medha</i>	<i>02367-285264</i>
37.	<i>Gramin Rugnalaya</i>	<i>Somardi</i>	<i>02367-230442</i>
38.	<i>Sadanand Hospital</i>	<i>Kudal</i>	<i>02367-235343</i>
39.	<i>Gramin Rugnalaya</i>	<i>Mahabaleshwar</i>	<i>02168-260247</i>
40.	<i>Dr. Thoke Clinic</i>	<i>Mahabaleshwar</i>	<i>02168-260330</i>
41.	<i>Dr. Reddy Clinic</i>	<i>Mahabaleshwar</i>	<i>02168-260359</i>

Table 13: List of PHC's and Sub-centres

<i>PHC (ZP DHO)</i>	<i>Sub Centres</i>	<i>Location</i>	<i>Phone number</i>
<i>Kanher</i>	45	<i>Satara</i> (02162)	265239
<i>Nandgaon</i>			263116
<i>Thoseghar</i>			227265
<i>Limbh</i>			276303
<i>Parali</i>			278228
<i>Nagthane</i>			268301
<i>Chichaner Vandan</i>			274251
<i>Kumthe</i>			279546
<i>Kudal</i>	24	<i>Jaoli</i> (02378)	235392
<i>Saigaon</i>			240508
<i>Kelghar</i>			245454
<i>Bamnoli</i>			202616
<i>Kusumbi</i>			242041
<i>Tapola</i>	17	<i>Mahabaleshwar</i> (02168)	247256
<i>Taldev</i>			274070
<i>Panchgani</i>			240257
<i>Kavthe</i>	28	<i>Wai</i> (02167)	274227
<i>Bhuinj</i>			285213
<i>Bawdhan</i>			276176
<i>Malatpur</i>			282140
<i>Ahire</i>	20	<i>Khandala</i> (02169)	275344
<i>Lonand</i>			225373
<i>Shirwal</i>			244213
<i>Barad</i>	35	<i>Phaltan</i> (02166)	242246
<i>Taradgaon</i>			243683
<i>Bibi</i>			255235
<i>Girvi</i>			256016
<i>Sakhadwadi</i>			254135
<i>Rajale</i>			248135
<i>Palashi</i>			284211
<i>Mardi</i>	31	<i>Man</i>	286350
<i>Pulkoti</i>			230221

<i>Malwadi</i>		<i>(02165)</i>	<i>250274</i>		
<i>Mhaswad</i>			<i>270536</i>		
<i>Pusegaon</i>	<i>40</i>	<i>Khatav (02161)</i>	<i>260236</i>		
<i>Diskal</i>			<i>264306</i>		
<i>Aundh</i>			<i>248744</i>		
<i>Katar Khaav</i>			<i>242307</i>		
<i>Nimsod</i>			<i>240227</i>		
<i>Khaav</i>			<i>266297</i>		
<i>Mayani</i>			<i>270253</i>		
<i>Wathar Station</i>			<i>32</i>	<i>Koregaon (02163)</i>	<i>252395</i>
<i>Kinhai</i>	<i>232234</i>				
<i>Wathar Kiroli</i>	<i>235235</i>				
<i>Tadwale</i>	<i>233539</i>				
<i>Palashi</i>	<i>256174</i>				
<i>Rahimatpur</i>	<i>230282</i>				
<i>Wadgaon Haveli</i>	<i>64</i>	<i>Karad (02164)</i>			<i>268128</i>
<i>Sadashiv Gar</i>					<i>271900</i>
<i>Supane</i>			<i>255746</i>		
<i>Rethare Bk</i>			<i>281038</i>		
<i>Kale</i>			<i>254330</i>		
<i>Indoli</i>			<i>264706</i>		
<i>Umbraj</i>			<i>264332</i>		
<i>Masur</i>			<i>252060</i>		
<i>Undale</i>			<i>250093</i>		
<i>Kole</i>			<i>256233</i>		
<i>Helgaon</i>			<i>253738</i>		
<i>Talmaule</i>			<i>63</i>	<i>Patan (02372)</i>	<i>272087</i>
<i>Dhebewadi</i>	<i>258229</i>				
<i>Marli</i>	<i>268008</i>				
<i>Morgiri</i>	<i>271029</i>				
<i>Malhaperth</i>	<i>285440</i>				
<i>Keral</i>	<i>283373</i>				
<i>Murud</i>	<i>267617</i>				
<i>Salve</i>	<i>264147</i>				

<i>Helwak</i>			285593
<i>Tarle</i>			266749
<i>Chaphai</i>			287561
<i>Kalgaon</i>			261029
<i>Sonawade</i>			249491

Table 14: Health infrastructure available in the district

<i>Sr. No.</i>	<i>Infrastructure</i>	<i>Quantity</i>
<i>1.</i>	<i>Public Hospitals with surgery and ambulance facility</i>	<i>11</i>
<i>2.</i>	<i>Private Hospitals with surgery facilities</i>	<i>42</i>
<i>3.</i>	<i>Number of ambulance with private Hospitals</i>	<i>33</i>
<i>4.</i>	<i>Number of ambulances with public institutions</i>	<i>18</i>
<i>5.</i>	<i>Number of X-ray facilities with private institutions</i>	<i>92</i>
<i>6.</i>	<i>Number of X-ray facilities with public institutions</i>	<i>32</i>
<i>7.</i>	<i>Number of Blood banks with private institutions</i>	<i>6</i>
<i>8.</i>	<i>Number of Blood banks with public institutions</i>	<i>2</i>
<i>9.</i>	<i>Number of beds with private institutions</i>	<i>1930</i>
<i>10.</i>	<i>Number of beds with public institutions</i>	<i>1400</i>
<i>11.</i>	<i>Number of trauma centres with private institutions</i>	<i>3</i>
<i>12.</i>	<i>Number of trauma centres with public institutions</i>	<i>1</i>
<i>13.</i>	<i>Number of pathological labs with private institutions</i>	<i>96</i>
<i>14.</i>	<i>Number of pathological labs with public institutions</i>	<i>25</i>

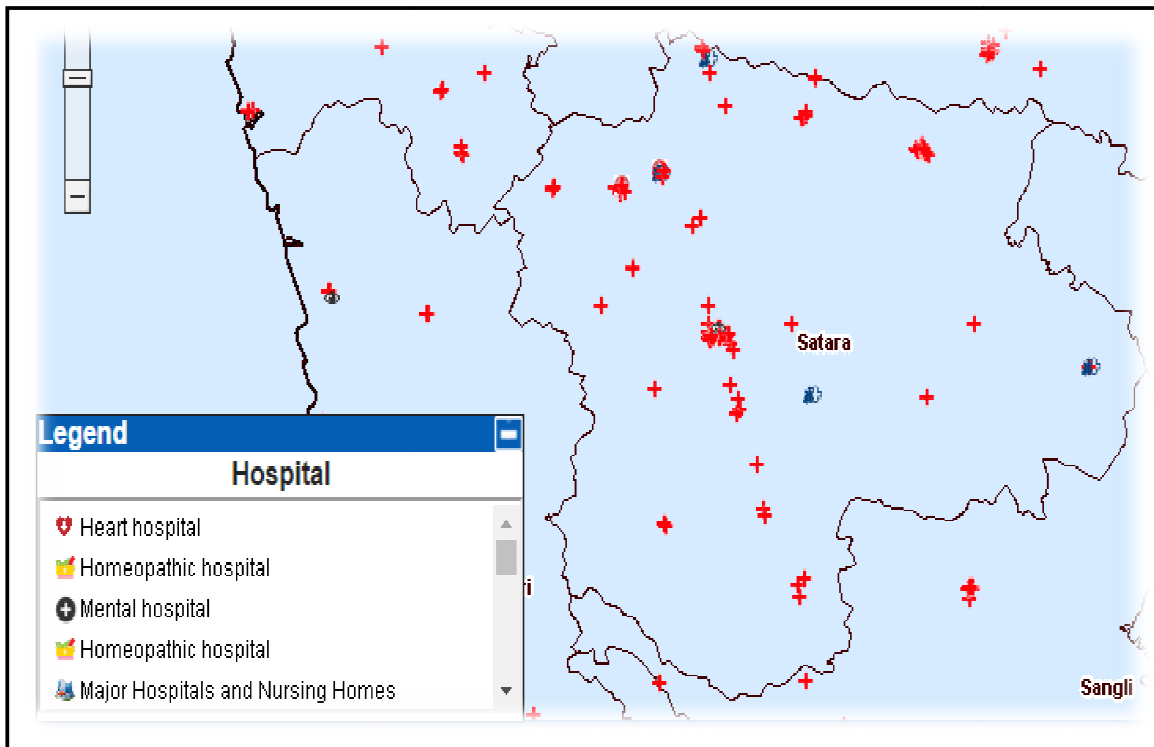


Table 15: Map showing Hospitals scattered around the district of Satara

The primary health centers play a vital role in the rural health. Each primary health centre is attached to various sub-centers. In the year 2009 there were 400 sub-centers working in the Satara district. Every primary health centre is a unit providing medical care both curative and preventive to the rural people. The Family Welfare and Child Welfare Centers and sub-centers are in the district. There is also one Leprosy Unit and one District BCG² centre in the Satara district. The community health worker scheme is also introduced in this district. The vaccination is also carried on for various diseases and epidemics such as malaria, cholera, small pox etc. in the district.

1.7.13 Industrial Profile

Satara as a district hasn't industrialized than the rest of the districts of Maharashtra. There are seven industrial estates in the district. The estates are setup by MIDC or Maharashtra Industrial Development Corporation in Satara, Old Satara, Wai, Shirwal – Khandala, Tasawde, Phaltan and Lonand. These Industries are usually based in production of plastic, chemicals, rubber and so on. Around 31,500 people are engaged as a workforce in the industries. With the rise of these industries, employment has

²It is a type of vaccine primarily used against Tuberculosis.

increased and migration has taken place as well. There are a total of 35 chemical units or industries in the entire district, out of which 5 units are potentially hazardous. These industries have been setup in areas with 1 kilometre of no habitation in and around the industry outlet. There is also a LPG bottling plant setup by Bharat Petroleum Corporation Ltd. (BPCL) at Wai. The total capacity of the bottling plant is to refill around 5000 cylinders for domestic (14.2 kg) and commercial (19.kg) purpose. The movement of LPG and other chemicals used in these industries are usually done through NH4. The following tables show the Industrial profile of Satara District:

Table 16: List of MIDCs in the district

<i>Sr. No</i>	<i>List of MIDC's</i>	<i>Location</i>	<i>Chemical Industries</i>	<i>Total Work Force</i>	<i>Number of Fire Brigades in the area</i>
1.	MIDC Satara	Satara	1. Laxminarayan Paint Industries	31,500	2
2.	MIDC Old Satara	Satara	-		2
3.	MIDC Wai	Wai	1. Precious Alco & Petro India Pvt. Ltd., 2. Carotino (India) Pvt. Ltd.		1
4.	MIDC Shirwal	Khandala	1. Cipy Polyurethanes Pvt. Ltd.,		0
5.	MIDC Taswade	Karad	1. Khandoba Prasanna Sarkhar Karkhana Ltd., 2. Minar Chemicals Pvt. Ltd., 3. Oasis Alcohol India Pvt. Ltd., 4. Paramount Alcohol		2
6.	MIDC Suravadi	Phaltan	-		2
7.	MIDC Lonand	Khandala	1. Privilege Industries Ltd.		0

Table 17: Types of factories in the district

<i>Sr. No.</i>	<i>Type of Factories</i>	<i>Numbers</i>
1.	Textile Factories	3
2.	Factories using Chlorine	4
3.	Factories using Ammonia	40
4.	Chemical Factories	13
5.	Factories using LPG	18
6.	Others (Distilleries, Cosmetics)	44

Table 18: List showing factories in the talukas of Satara

<i>Sr. No.</i>	<i>Talukas</i>	<i>Total Number of Factories</i>
1.	Karad	<ul style="list-style-type: none"> • Textile Factories: 1 • Factories using Chlorine: 2 • Factories using Ammonia: 5 • Chemical Factories: 4 • Factories using LPG: 4 • Others: 2
2.	Satara	<ul style="list-style-type: none"> • Factories using Chlorine: 2 • Factories using Ammonia: 10 • Chemical Factories: 1 • Factories using LPG: 6 • Others: 23
3.	Wai	<ul style="list-style-type: none"> • Textile Factories: 1 • Factories using Ammonia: 2 • Chemical Factories: 2 • Factories using LPG: 2 • Others: 3
4.	Khatav	<ul style="list-style-type: none"> • Textile Factories: 1 • Factories using Ammonia: 2 • Chemical Factories: 1
5.	Patan	<ul style="list-style-type: none"> • Factories using Ammonia: 3 • Others: 1
6.	Khandala	<ul style="list-style-type: none"> • Factories using Ammonia: 2 • Chemical Factories: 4 • Factories using LPG: 6 • Others: 12
7.	Phaltan	<ul style="list-style-type: none"> • Factories using Ammonia: 10 • Chemical Factories: 1
8.	Koregaon	<ul style="list-style-type: none"> • Others: 2 (Distilleries)
9.	Mahabaleshwar	<ul style="list-style-type: none"> • Factories using Ammonia: 1
10.	Jaoli	<ul style="list-style-type: none"> • Factories using Ammonia: 2
11.	Man	<ul style="list-style-type: none"> • Factories using Ammonia: 5

1.7.14 Education

The educational facility in the district of Satara ranges from Aganwadis to various colleges and institutes. One of the oldest residential schools in Satara is the *Sainik School*, which trains young boy for getting into military services and institutes like National Defence Academy (NDA), Indian Naval Forces, and Indian Air force and so on. There are numerous polytechnic colleges and two engineering colleges in the district, with *Karmaveer Bhaurao Patil College of Engineering and Polytechnic* being one of the oldest and reputed engineering colleges in the entire district. The following table below shows the educational profile of the district:

Table 19: Education profile of the district

<i>Primary Schools</i>	<i>Secondary Schools</i>	<i>Colleges</i>	<i>Universities</i>	<i>ITIs</i>
3055	892	7	0	6

1.7.15 Heritage Site and Major Religious spots

Satara as a district is famous for its hill resorts like Mahabaleshwar and Panchgani and these are the most famous tourist attractions in the entire district. There are many fairs also organised in the district, namely *Yemai Fair* at Aundh (Khatav), *Mahadeo Fair* at Shikhar Shingnapur (Man), *Shri Ram Navami Fair* held at Chafal (Patan) and many more. Aundh Museum (Khatav) and Satara archeological Museum have a significant importance in the portraying the district's history. In 2012, Kaas Plateau also known as Kas Sadas, a biodiversity hotspot famous for its seasonal wild flowers and widespread varieties of butterflies, became a part of UNESCO World Heritage Site. The following table shows the list of heritage sites and major religious spots in the district.

Table 20: Heritage sites and religious spots in the district

<i>Particulars</i>	<i>Name</i>	<i>Location</i>
<i>Heritage Sites</i>	<i>Kaas Plateau (Kaas Pathar)</i>	<i>Satara</i>
	<i>Yamai Devi Temple</i>	<i>Khatav</i>
	<i>Naikba Temple</i>	<i>Patan</i>

<i>Places of worship</i>	<i>Samarth Ramdas Chafal temple</i>	<i>Patan</i>
	<i>Lord Siddhanath Temple</i>	<i>Dahiwadi, Man</i>
	<i>Sevagiri Temple</i>	<i>Khatav</i>
	<i>Khandoba Temple</i>	<i>Karad</i>
	<i>Panchganga Temple</i>	<i>Mahabaleshwar</i>
	<i>Mandhardevi Temple</i>	<i>Mahabaleshwar</i>
	<i>Shri Bhamha Chaitanya Maharaj Samadhi</i>	<i>Gondavale, Dahiwadi</i>
	<i>Samarth Ramdas Samadhi</i>	<i>Sajjangad, Satara</i>
	<i>Temple of Shri Ram</i>	<i>Phaltan</i>
	<i>Ghatai Devi</i>	<i>Satara</i>
	<i>Shikhar Singnapur Temple</i>	<i>Dahiwadi, Man</i>



Figure 8: Image of Kaas Pathar, UNESCO World Heritage Site



Source: google.com

Figure 9: Shikhar Singnapur, Man

Some of the other famous tourist spots in Satara district are as follows:

- Koynanagar (Patan)
- Museum at Aundh (Khatav)
- Ajinkyatara Fort (Satara)
- Sajjangad Fort (Satara)
- Baramotichi Vihir or Stepwell (Satara)
- Vajrai Waterfalls (Satara)
- Thoseghar Waterfalls (Satara).

1.7.17 List of Mass Gathering

There are many mass-gatherings or yatra's held in the district of Satara. During *Shri Kalubai Yatra*, held in Mandhardevi, Wai on 25th January, 2005 huge stampede had occurred due to improper management of the crowd in yatra killing around 293 people and leaving many injured.

Hence the following table shows various Yatra's held in the district along with the number of people expected to be a part of it every year.

Table 21: List of mass-gatherings held every year in the district

<i>Sr. No.</i>	<i>Name of the Yatra / Mass Gathering</i>	<i>Time of the year</i>	<i>Location</i>	<i>Expected People</i>
1.	<i>Aundh (Yamai Devi)</i>	<i>January / February</i>	<i>Khatav</i>	<i>25000</i>
2.	<i>Banpuri (Naikba)</i>	<i>March / April</i>	<i>Patan</i>	<i>50000</i>
3.	<i>Bavdhan (Bagad)</i>	<i>February / March</i>	<i>Wai</i>	<i>25000</i>
4.	<i>Chafal (Ram Yatra)</i>	<i>March / April</i>	<i>Patan</i>	<i>30000</i>
5.	<i>Mhaswad (Siddhanath)</i>	<i>November / December</i>	<i>Dahiwadi</i>	<i>300000</i>
6.	<i>Pusegaon (Sevagiri)</i>	<i>December / January</i>	<i>Khatav</i>	<i>400000</i>
7.	<i>Pal (Khandoba)</i>	<i>December / January</i>	<i>Karad</i>	<i>400000</i>
8.	<i>Kshetra (Mahabaleshwar)</i>	<i>February / March</i>	<i>Mahabaleshwar</i>	<i>30000</i>
9.	<i>Mandhardevi (Kaleshwari)</i>	<i>December / January</i>	<i>Wai</i>	<i>450000</i>
10.	<i>Gondavale</i>	<i>November / December</i>	<i>Dahiwadi</i>	<i>250000</i>
11.	<i>Sant Dnyaneshwar Palkhi Sohala</i>	<i>June / July</i>	<i>Khandala and Phaltan</i>	<i>500000</i>
12.	<i>Sajjangad (Ram Navami)</i>	<i>February</i>	<i>Satara</i>	<i>25000</i>
13.	<i>Phaltan (Sri Ram)</i>	<i>November / December</i>	<i>Phaltan</i>	<i>40000</i>
14.	<i>Ghataidevi</i>	<i>January / February</i>	<i>Satara</i>	<i>20000</i>
15.	<i>Shikhar Singnapur (Shambhu Mahadev)</i>	<i>March / April</i>	<i>Dahiwadi</i>	<i>350000</i>

Chapter 2 - HAZARD RISK VULNERABILITY ANALYSIS

To project the idea for the development there needs to be an assessment to identify the risk, to calculate the risk factor and also to find out the hazards and the vulnerabilities are need to be identified. HRVC is the process through which we can find out the capacities which are available in the village and can be utilized as a mitigating and preventing factors during disasters. Further it contributes into the development plan with the perception of villagers.

2.1 IDENTIFICATION OF HAZARDS IN THE DISTRICT

The following chart shows the major hazards identified in the district of Satara:

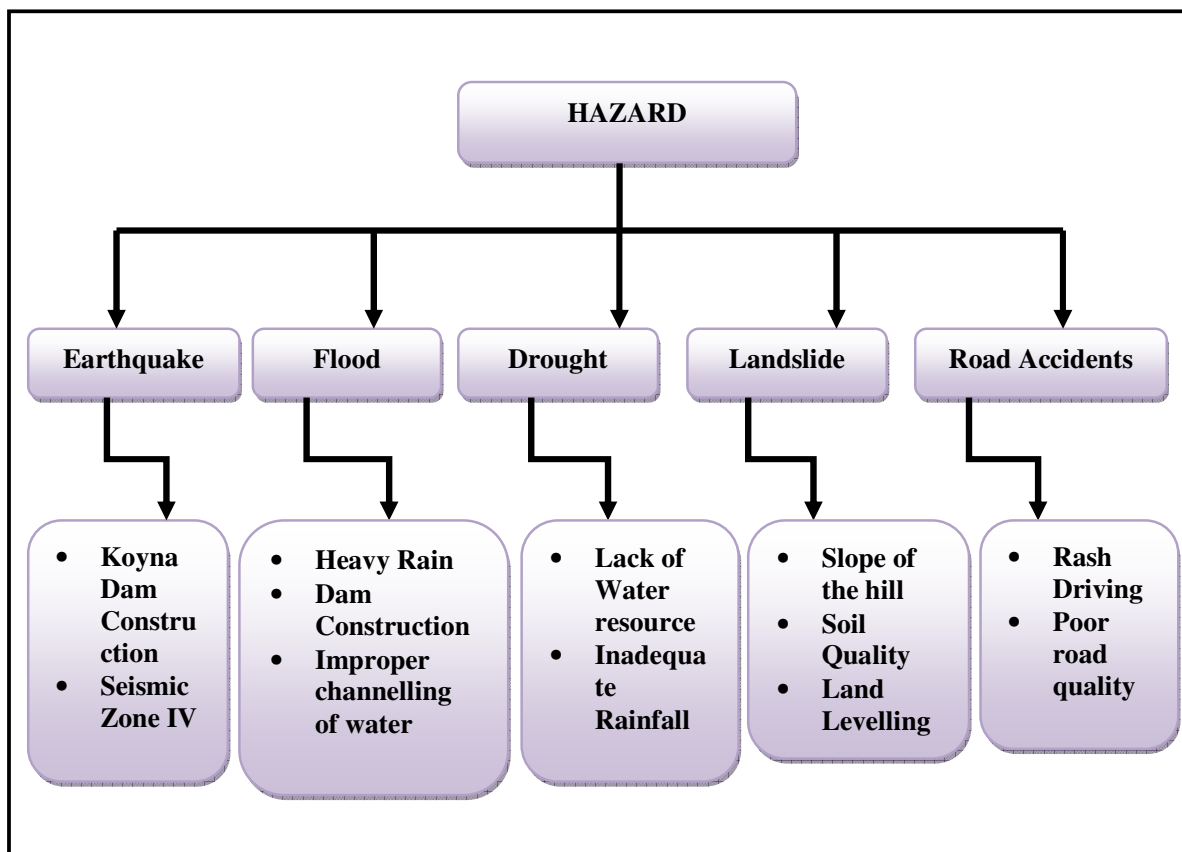


Figure 10: Hazards identified in the district

2.2 HAZARD HISTORY

Table 22: History of natural hazards that has occurred in the district

<i>Sr. No.</i>	<i>Hazard</i>	<i>Date / Year of Occurrence</i>	<i>Category³ / Intensity</i>	<i>Duration (No. of days)</i>	<i>Frequency</i>	<i>Area Affected (Location) (Ex. Village name, river basin etc.)</i>
1.	Floods	2005	High	5 to 6 days	Once or twice	Tehsils: <ul style="list-style-type: none"> • Patan, • Karad, • Wai, • Satara
		2006	High	4 to 5 days	1 or 2 times	Tehsils: <ul style="list-style-type: none"> • Patan, • Karad, • Wai, • Satara
2.	Cyclones	N.A	N.A	N.A	N.A	N.A
3.	Hailstorms	N.A	N.A	N.A	N.A	N.A
4.	Extreme Heavy Rainfall / Cloud Burst	N.A	N.A	N.A	N.A	N.A
5.	Heat Wave	N.A	N.A	N.A	N.A	N.A
6.	Drought	2012	Moderate	4 to 5 months	Once or twice	Tehsils: <ul style="list-style-type: none"> • Phaltan • Man • Khatav • Koregaon • Eastern parts of Khandala

³ Category – 1) High; 2) Moderate; 3) Low (according to national standards)

		2013	Moderate	5 to 6 months	Once or twice	<i>Tehsils:</i> <ul style="list-style-type: none"> • Phaltan • Man • Khatav • Koregaon
7.	Sea Erosion	N.A	N.A	N.A	N.A	N.A
8.	Earthquake	11 th December , 1967	High	5 to 10 seconds	More than 10 times in a year (above 3 Richter scale)	<ul style="list-style-type: none"> • Koynanagar Township, • Areas near Koyna Dam and Patan Taluka • Karad Taluka affected partially
9.	Landslides	1993	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	<ul style="list-style-type: none"> • Borgewadi, • Tolewadi, • Gheradatewadi
		1 st July, 2005	High	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> • Bhilar village, • Kaswand
		20 th July, 2005	Moderate	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> • Mahabaleshwar (Hotel Gautam), • Panchgani, • Metgulad village, • Gadalwadi, • Metalled Road to Tapola
		26 th July, 2005	Moderate	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> • Panchgani
		17 th Septembe	Moderate	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> • Dhebewadi-Salve, • Patan Taluka

		r, 2008				
		2015	Moderate	Few Minutes	1 to 2 times a year	<ul style="list-style-type: none"> Bhekawli Taluka, Mahabaleshwar (shifted 11 families for temporary shelter)
10.	Other, if any	N.A	N.A	N.A	N.A	N.A

Table 23: List of man-made hazards in the district

Sr. No.	Hazard	Date/ Year of Occurrence	Category ⁴ / Intensity	Duration (No. of days)	Frequency	Area Affected (Location) (Ex. Village name, river basin etc.)
1.	Terror Attack	N.A	N.A	N.A	N.A	N.A
2.	Road Accidents	13 th January, 2014	Moderate	-	High	Bengrutwadi (Khandala Taluka, NH4)
		3 rd February, 2014	High	-	High	Bengrutwadi (Khandala Taluka, NH4)
		16 th November, 2014	Moderate	-	High	State Transport Bus Stop (Khandala, NH4)
3.	Railway Accidents	22 nd April, 2015	Low	5:45 AM	Less	Pune-Satara-Kolhapur railway line
4.	Industrial Accidents	N.A	N.A	N.A	N.A	N.A
5.	Chemical Hazards	N.A	N.A	N.A	N.A	N.A

⁴ Category – 1) High; 2) Moderate; 3) Low (according to national standards)

6.	Fire Accidents	N.A	N.A	N.A	N.A	N.A
7.	Oil Spill	N.A	N.A	N.A	N.A	N.A
8.	Communal Violence	17 th November, 2003	Moderate	1 day	Less	Wai Taluka
9.	Stampede	25 th January, 2005	High	2 to 3 hours	Rare (Once)	Mandher Devi Temple (Wai)
10.	Other, if any	N.A	N.A	N.A	N.A	N.A

2.2 DAMAGE AND LOSSESS

Table 24: List showing damages and losses of some specific disasters

<i>Date/year of Occurrence</i>	<i>Human Life Loss</i>		<i>Cattle Loss</i>		<i>Land Affected</i>	
	<i>Dead</i>	<i>Injured</i>	<i>Dead</i>	<i>Injured</i>	<i>Land Specification⁵</i>	<i>Area (No./Acers/Hectares)</i>
<i>1967 (Koyna Earthquake)</i>	161	-	-	-	<ul style="list-style-type: none"> Damaged Houses -88,000 	-
<i>2005/2006 (Floods)</i>	26	-	675	-	<ul style="list-style-type: none"> Damaged Houses – 7857 No. of affected villages – 1419 No. of damaged shops – 581 No. of damaged property - 1880 	<ul style="list-style-type: none"> No. of damaged cropland – 117477.76
<i>25th January, 2005 (Mandher Devi Temple Stampede)</i>	291	20000	-	-	<ul style="list-style-type: none"> 50 shops got burnt 	-

⁵ Land Specification – Land specification Table in chapter 1

2.3 VULNERABILITY ASSESSMENT

The following table shows the vulnerable areas and the possible vulnerable infrastructures present in the district:

Table 25: Vulnerable areas and infrastructures of the district

<i>Hazard</i>	<i>Intensity of hazard</i>	<i>Possibility of population affected (area)</i>	<i>Possibility of Infrastructure that will be affected</i>
<i>1. Floods</i>	<i>High</i>	<i>Karad, Koregaon, Patan, Phaltan, Satara, Wai</i>	<ul style="list-style-type: none"> • <i>Road Network,</i> • <i>Rail Network, Power and Water Supply,</i> • <i>Hospitals,</i> • <i>Educational Infrastructure,</i> • <i>Food Stocks and Supplies,</i> • <i>Communication System.</i>
<i>2. Drought</i>	<i>Moderate</i>	<i>Khandala, Phaltan, Man, Khatav Koregaon</i>	<ul style="list-style-type: none"> • <i>Food Stock and Supplies,</i> • <i>Water Supply.</i>
<i>3. Earthquake</i>	<i>High</i>	<i>Karad, Man, Patan, Jaoli, Satara, Wai</i>	<ul style="list-style-type: none"> • <i>Transportation System (Roads and Railways)</i> • <i>Water and Power Supply</i> • <i>Hospitals</i> • <i>Educational Infrastructure,</i> • <i>Food Stocks and Supplies,</i> • <i>Communication System.</i>
<i>4. Landslide</i>	<i>Moderate</i>	<i>Mahabaleshwar, Wai, Jaoli, Patan, Man</i>	<ul style="list-style-type: none"> • <i>Road and Rail Network,</i> • <i>Communication System,</i> • <i>Sewage System,</i> • <i>Power and Water.</i>

The types of vulnerabilities observed in the district are classified below:

2.3.1 Social Vulnerability Profile

A socially vulnerable community has weak family structures, lack of leadership for decision making and conflict resolution, unequal participation in decision making, weak or no community organizations and the one in which people are discriminated on racial, ethnic, linguistic or religious basis. Disaster awareness among some of the rural people in the district is lacking. Some of the social factors such as culture, tradition, religion, local norms and values, economic standard, and political accountability also play a vital

role determining the social vulnerability of a community in Satara. Lack of governance, crime, illiteracy is few factors contributing towards social vulnerability in the district. Education profile also determines the social vulnerability of the district, as the rural part of the district lacks in educational facilities, the young generation move out from their villages and go to the urban area for higher education, and some move out of the district looking for better opportunities.

2.3.2 Economic Vulnerability Profile

Economic vulnerability of a community can be assessed by determining how varied its sources of income are, the ease of access and control over means of production (e.g. farmland, livestock, irrigation, capital etc), adequacy of economic fall back mechanisms and the availability of natural resources in the area. Poverty, unemployment, lack of insurance is some of the economic vulnerability existing in the district.

2.3.3 Physical Vulnerability Profile

The physical vulnerability of an area also depends on its geographic proximity to the source and origin of the disasters e.g. the Western Ghat section of the district is prone to landslides and rock fall. Physical structure of the area makes it more vulnerable to disasters as compared to an area that is far away from the origin of the disaster. Physical vulnerability operating in the district includes the difficulty in access to water resources i.e. in drought prone areas, means of communications in remote places, lack of Hospitals, police stations, fire brigades, roads, bridges and exits of a building or/an area, in case of disasters. Temporary housing, unplanned and illegal housing, location of the infrastructures are some of the factors leading towards physical vulnerability. For example the housing pattern in Koyna, Patan before was not according to the earthquake resistance standards; hence, this made the people vulnerable. Resource accessibility is also a contributing factor towards physical vulnerability

2.4 RISK PROFILING OF THE DISTRICT

Risk is nothing but the potential losses due to disaster in the form of life, health, assets, livelihood, economic and social status and it can be implemented to a particular

community or a society for some specific time or for future time period (UNISDR, Terminology). Risk assessment can be done by knowing the basic two terms which are in relationship with the analysis of:

- **Hazard** : It states the probability of the occurrence for a given threat or problem and,
- **Vulnerability**: It states the degree of susceptibility of the particular element exposed to that source or threat.

$$\text{Hazard} \times \text{Vulnerability} = \text{Risk}$$

If we apply the concept of risk analysis to Satara district, then some basic understanding about the risk emerges with local perception and observation. Some of the risks perceived in the vulnerable parts of the district are shown in the diagram below:

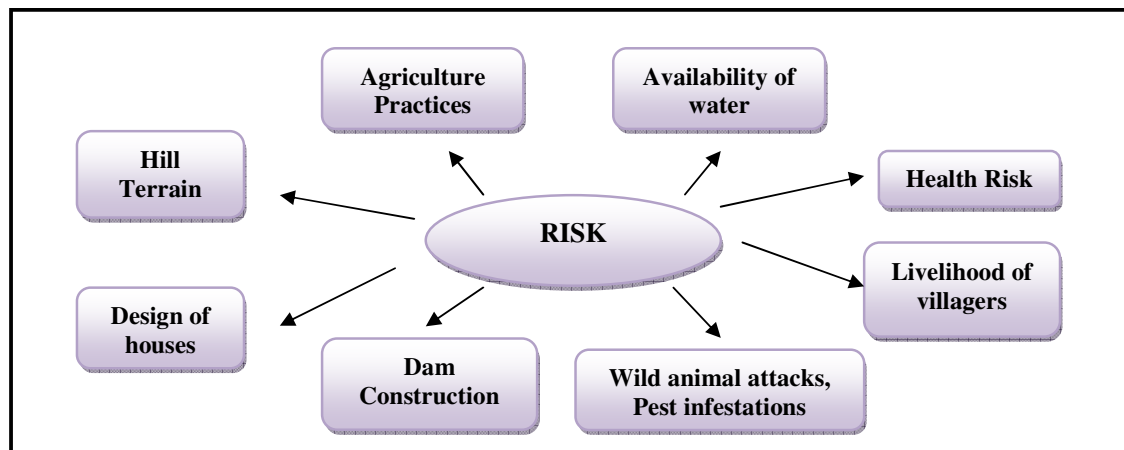


Figure 11: Diagram showing risks perceived in the district

The figure below points out at the hazards which Satara as a district is prone to. The chance of occurrence of road accidents is the highest out of other events. But in terms of severity Satara is also prone to earthquakes. The chance of other events like critical facility failure is quiet low, but the damage they can cause could be extreme and devastating. Events like Fire, Critical Facility Failure are very low; they fall in the rare category. The area is prone to various other hazards like industrial fire, landslides, drought and floods. The chance of an Earthquake cannot be ruled out, as the region comes in the Zone IV of Seismic Zonation.

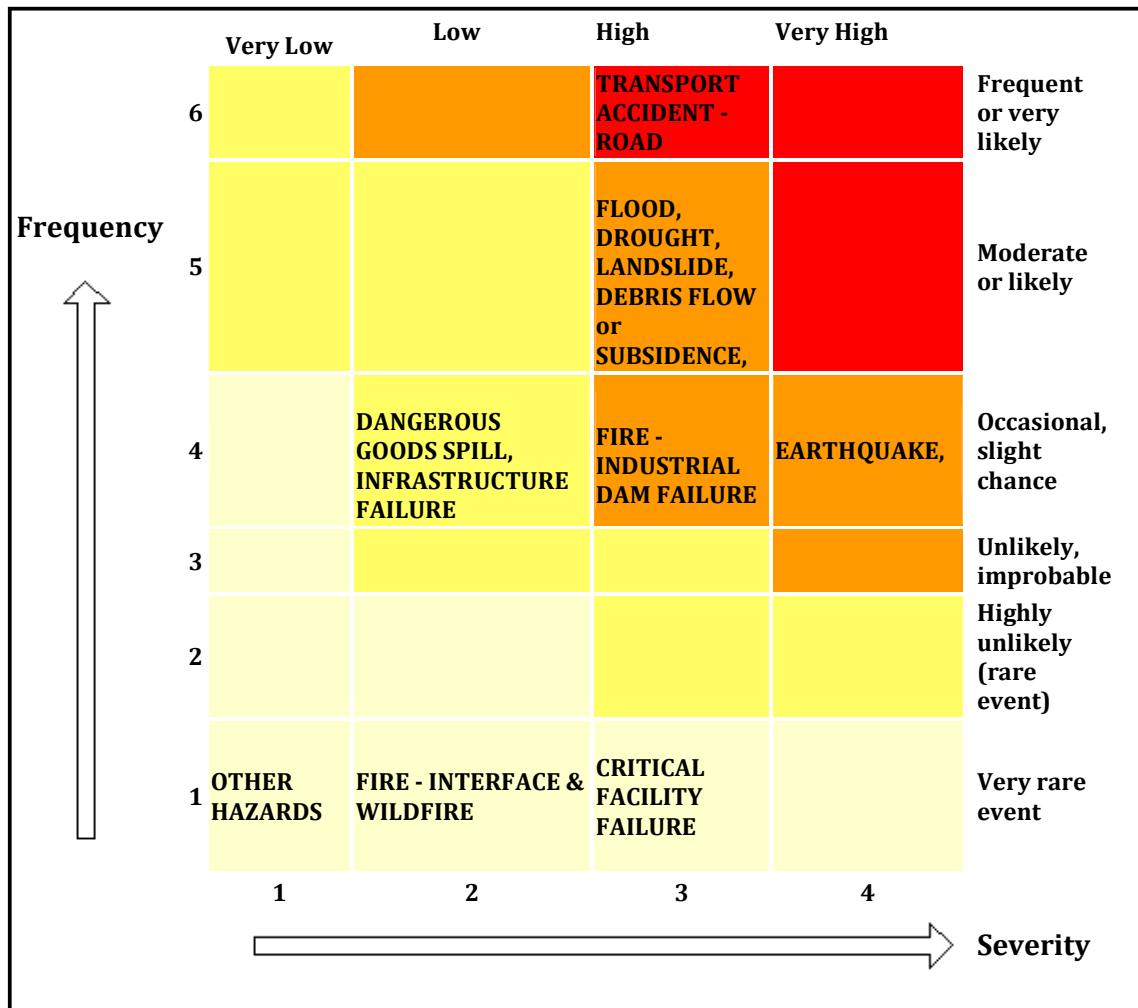


Figure 12: Risk matrix of the district

The reasons given below are the ones which aggravate the risk and leading to greater vulnerability:

- Lack of adequate measures,
- Lack of awareness,
- Illiteracy,
- Negligence,
- Uncontrolled population,
- Lack of hygiene,
- Poverty.

2.5 CAPACITY ASSESSMENT

Utilization of resources in the sense of reducing the impact of disaster requires capacity building. Along with HRVA, recognition of some capacities which are available on ground in the context of Satara district have been identified. We have distributed capacity along with available resources into five different types and they are as follows:

1. Community Resources
2. Search and Rescue Equipments.

These capacities have been identified and can be used for mitigating and providing response during disaster. Through this resources we can formulate the basic development plan which can lead to regulate the operations which is need to be performing for prevention and mitigation of any hazard. Community resources represent the resources which are made by keeping a view of community in mind. These resources are not restricted to particular community only but other communities living in that area can utilize it simultaneously. At the same time social resources represents the capacities of Satara as a socially constructed community. It includes basic sustainable resources which are available in the village and can contribute a lot during disaster like situation.

Table 26 : Table showing community resources available in the district

<i>Community Resources</i>		
<i>Sr. No.</i>	<i>Specification</i>	<i>Availability</i>
<i>1.</i>	<i>Primary Health Centre (PHC)</i>	<i>71</i>
<i>2.</i>	<i>Hospitals</i>	<i>Civil Hospital : 1 Rural Hospital : 18</i>
<i>3.</i>	<i>Schools</i>	<i>3947</i>
<i>4.</i>	<i>Colleges</i>	<i>7</i>
<i>5.</i>	<i>Municipal Units</i>	<i>Satara, Karad, Phaltan, Mhaswad, Rahimatpur, Mahabaleshwar, Panchgani, Wai, Malkapur, Medha,</i>

		<i>Khandala, Lonand, Koregaon, Dahiwadi, Waduj, Patan</i>
6.	<i>S.T Depots</i>	11
7.	<i>National Highway</i>	1 (NH4)
8.	<i>State Highways (in kms)</i>	939 kms.
9.	<i>Z.P Roads</i>	7721 kms
10.	<i>Bridges</i>	48
11.	<i>Kutcha Road</i>	<i>All roads in the village</i>

Table 27: Table showing equipments, used during time of emergency

<i>Equipments</i>				
<i>Sr. No.</i>	<i>Equipment Name</i>	<i>Description</i>	<i>Total No.</i>	<i>Location (Distributed by the EOC)</i>
1.	<i>Video Conference Studio</i>	<i>Polycom VC system</i>	1	<i>Satara City (Collectorate)</i>
2.	<i>Heavy Duty Printer cum Scanner</i>	<i>It's a full fledged laser printer with monthly duty cycle of 25,000 pages.</i>	1	<i>Satara City (Collectorate)</i>
3.	<i>Desktop (Computer System)</i>	<ul style="list-style-type: none"> • <i>Processor – Intel i7 or latest</i> • <i>4 GB RAM</i> • <i>1 TB Hard disk</i> • <i>DOS based system</i> • <i>Graphics Card</i> • <i>CD writer/reader</i> • <i>HDMI port and Multiple USB port</i> 	1	<i>Satara City (Collectorate)</i>
		<ul style="list-style-type: none"> • <i>Processor – Intel i5 or latest</i> 		

4.	Laptop	<ul style="list-style-type: none"> • 4 GB RAM • 1 TB Hard disk • DOS based system • Graphics Card • CD writer/reader • HDMI port and Multiple USB port 	1	Satara City (Collectorate)
5.	WAN	Including RF Modem (Wi-Fi)	1	Satara City (Collectorate)
6.	LAN Switches and cables	–	3	Satara City (Collectorate)
7.	Router	Router Bank to connect multiple devices in a parallel connection.	1	Satara City (Collectorate)
8.	Electronic Private Automatic Branch Exchange (EPABX)	<ul style="list-style-type: none"> • Intra and Inter Office connectivity • Value added services • 24 extensions 	-	Satara City (Collectorate)
9.	Optical Fibre Network	All systems should be connected with OPF	1	Satara City (Collectorate)
10.	Maps	District map	1	Satara City (Collectorate)
11.	Telephone Line (BSNL)	DGP	1	Satara City
		Municipal corporation	N.A	N.A
		Official Landline	1	Satara City
		Inter-Departmental connection	1	Satara City
		Nearest Municipal Corporation	2	–

12.	Rope Launcher	<i>This device enables a user to shoot a grapnel with a rope or carbon fibre ladder, tied behind the gun like device. It's usually ideal because of its low weight and short length characteristics make it useful for emergency operations.</i>	5	Satara, Karad, Wai, Phaltan, Mahabaleshwar
13.	Lifebuoys	<i>A life saving buoy which is basically designed to be thrown to a person in the water, to provide buoyancy and prevent that person from drowning during a flood situation.</i>	60	Satara, Karad, Wai, Patan, Jaoli, Mahabaleshwar
14.	Life Jackets	<i>It is a personal flotation device, which can be worn by an individual and it's designed to assist the wearer to stay afloat in the water.</i>	60	Satara, Karad, Wai, Patan, Jaoli, Mahabaleshwar
15.	Inflatable Emergency Lighting System	<i>This system is a temporary or emergency illumination requirement, which consists of an inbuilt generator, two blowers and a 400MW metal halide lamp. This device illuminates an area up to 10,000 square metres and is helpful in areas with no power supply. This is used by Police and Fire department (Nagar-Palika) in the district.</i>	24	All Nagarpalikas
16.	Breathing Apparatus Set	<i>Used usually during rescue operations, by rescue</i>	5	Nagarpalika - Satara, Karad,

		<i>workers, fire-fighters and others in order to provide breathable air in a toxic atmosphere.</i>		<i>Mahabaleshwar, Wai and Phaltan</i>
<i>17.</i>	<i>Rubber Boats</i>	<i>These are inflatable boat, which can be used in flood affected areas in order to rescue people.</i>	<i>2</i>	<i>Wai, Karad</i>
<i>18.</i>	<i>Megaphones</i>	<i>This is a portable, usually a hand-held, cone-shaped acoustic horn used to amplify an individual's voice in order to direct a community or to spread awareness through announcements during an emergency situation.</i>	<i>50</i>	<i>Line Departments</i>
<i>19.</i>	<i>Search Lights</i>	<i>It is an apparatus that merges an extremely incandescent source with a mirrored reflector to project a powerful beam of light of approximately parallel rays in a particular direction.</i>	<i>40</i>	<i>SDO, Tahsildar Office, Police Department, Nagarpalika</i>
<i>20.</i>	<i>Mini Fire Pumpers</i>	<i>Extremely light weight and portable to use, mini fire pumpers are used during flood situations to pump out excessive water or to extinguish fire.</i>	<i>1</i>	<i>Nagarpalika (Satara)</i>
<i>21.</i>	<i>Wood/Steel Cutter</i>	<i>Device useful in cutting trees, wooden objects or steel or metal objects that act as an obstruction.</i>	<i>1</i>	<i>Nagarpalika (Satara)</i>
<i>22.</i>	<i>Solar Torch</i>	<i>It is a portable device used in areas where power supply is</i>	<i>4</i>	<i>Nagarpalika</i>

		<i>unavailable or discontinued.</i>		(Satara)
23.	Oxygen Cylinder with Mask	Equipment which helps in supply of oxygen and helps in easy breathing.	1	Nagarpalika (Satara)
24.	Hydraulic Jack	Used to open shutters which are jammed due to various reasons	1	Nagarpalika (Satara)

2.6 LIST OF HOTSPOTS

The following table shows the list of hotspots identified in the district, hazard-wise:

Table 28: List of hotspots of the district

Sr. No.	Hazard	Specify the region	Nature of Vulnerability	Nature of Risk (Vulnerability x Hazard)
1.	Floods	Karad, Patan, Phaltan, Satara	<ul style="list-style-type: none"> • Social Vulnerability • Economic Vulnerability • Physical Vulnerability 	<ul style="list-style-type: none"> • River inundation • Heavy rainfall • Snake bites • Health risk • Infrastructural risk
2.	Landslides	Jaoli, Mahabaleshwar, Patan, Phaltan, Satara	<ul style="list-style-type: none"> • Social Vulnerability • Economic Vulnerability • Physical Vulnerability 	<ul style="list-style-type: none"> • Steep slopes • Slope stability • Settlements below steep slopes • Quality of the soil • Deforestation • Health risk
3.	Drought	Karad, Khatav, Phaltan, Man	<ul style="list-style-type: none"> • Social Vulnerability • Economic Vulnerability • Physical Vulnerability 	<ul style="list-style-type: none"> • Quality of soil • Human and cattle health risk • Crop failure • Farming practices
4.	Earthquake	Patan	<ul style="list-style-type: none"> • Social Vulnerability • Economic Vulnerability • Physical Vulnerability 	<ul style="list-style-type: none"> • Population density • Health risk • Construction codes

Chapter 3 - INSTITUTIONAL ARRANGEMENT FOR DISASTER MANAGEMENT

The Disaster Management Act, 2005 (DM Act, 2005) lays down institutional and coordination mechanisms for effective disaster management (DM) at the national, state, and district levels. As mandated by this Act, the Government of India (GOI) created a multi-tiered institutional system consisting of the National Disaster Management Authority (NDMA), headed by the Prime Minister, the State Disaster Management Authorities (SDMAs) by the Chief Ministers and the District Disaster Management Authorities (DDMAs) by the District Collectors and co-chaired by elected representatives of the local authorities of the respective districts. These bodies have been set up to facilitate the paradigm shift from the hitherto relief-centric approach to a more proactive, holistic and integrated approach of strengthening disaster preparedness, mitigation and emergency response.

The institutional mechanism for disaster management at the district level will be as follows:

1. District Disaster Management Authority,
2. District Disaster Management Advisory Committee,
3. District Disaster Management Committee,
4. Sub-Divisional Disaster Management Committee,
5. Village-level Disaster Management Committee,
6. Crisis Management Group/Incident Command System,
7. Setting up of Emergency Operation Centre and its operation,
8. Establishment of Site-Operation Center,
9. Modalities and procedures,
10. Linkages with the sub-plans.

3.1 DISTRICT DISASTER MANAGEMENT AUTHORITY

This authority has been constituted under section 25 (1) of the Disaster Management Act, 2005 under the chairmanship of District Collector that is the Deputy Commissioner, along with the following officers as its members:

Table 29: Members of DDMA

<i>Sr. No</i>	<i>Name of the Officer</i>	<i>Position</i>
<i>1.</i>	<i>District Collector</i>	<i>Chairperson</i>
<i>2.</i>	<i>Residential Deputy Collector</i>	<i>Chief Executive Officer</i>
<i>3.</i>	<i>President (Zilla Parishad)</i>	<i>Co-chairperson</i>
<i>4.</i>	<i>Additional District Magistrate</i>	<i>Member Secretary</i>
<i>5.</i>	<i>Chief Executive Officer (Zilla Parishad)</i>	<i>Member</i>
<i>6.</i>	<i>Superintendent of Police</i>	<i>Member</i>
<i>7.</i>	<i>Executive Engineer (PWD)</i>	<i>Member</i>
<i>8.</i>	<i>District Civil Surgeon</i>	<i>Member</i>
<i>9.</i>	<i>Executive Engineer Irrigation</i>	<i>Member</i>
<i>10.</i>	<i>Samadeshak (Home Guard Department)</i>	<i>Member</i>

3.2 POWERS AND FUNCTIONS OF DISTRICT AUTHORITY

As per section 30 of the Disaster Management Act 2005, this authority has been vested with the following powers and functions:

- It shall act as the planning, coordinating and implementing body in the district for disaster management and take all measures for disaster management in the district as per the guidelines in the National/state Disaster management plans
- To prepare the District Disaster Management Plan of the district and its periodic review and update.
- To identify the areas vulnerable to the different hazards in the district and measures for its prevention, mitigation thereof by the different departments and the local authorities at the district level.
- Give direction to the different departments and the local authorities to take measures for prevention and mitigation of the disasters in the district.

- Monitor the implementation of the disaster management plans prepared by the departments at the district level.
- Laying down guidelines at the district level to be followed by the departments for integration of measures in their developmental plans for prevention and mitigation of the disasters.
- Review the state of capabilities for responding to the disasters and give direction to the departments for their up gradation as may be necessary.
- Organize and coordinate the specialized training programs for different level officers, employees and voluntary rescue workers in the district along with the community training programs.
- Set up maintain and review the mechanism for early warnings and dissemination of the information to the general public.
- To ensure that departments prepare their response plans in accordance with the district response plan.
- Examine the construction in any area in the district and if it is of the opinion that the standards for prevention, mitigation are not being complied with may direct the concerned authority to take such actions being necessary to secure such compliances.
- Identify buildings and places which can be used as shelter/relief camps during an event of disaster and make arrangements for sanitation and water supply in such affected areas.
- Ensure the communication systems are in order and disaster management drills are carried out periodically.

3.3 DISTRICT DISASTER MANAGEMENT ADVISORY COMMITTEE

As per section 28 on the District Disaster Management Authority (DDMA) in Disaster Management Act 2005, an advisory committee may be constituted by DDMA for efficient discharge of the functions.

3.3.1 District Disaster Management Committee

In order to implement the District Disaster management Plan in the district the following committee has been constituted under the chairmanship of Deputy

Commissioner as below:

1. The District Collector
2. The District Superintendent of Police,
3. The Chief Executive Officer, Zilla Parishad,
4. The Chief Fire Officer,
5. The Additional District Collector,
6. The District Health Officer,
7. The District Agriculture Officer,
8. The District Animal Husbandry Officer,
9. The Civil Surgeon,
10. The Executive Engineer, P.W.D.,
11. The Executive Engineer, Irrigation Department,
12. The Executive Engineer, Minor Irrigation Division,
13. The Executive Engineer, M.S.E.D.C.,
14. The Executive Engineer, Water Supply Department,
15. The Deputy Director of Education,
16. The Divisional Manager, Railways,
17. The Regional Transport Officer,
18. The Regional Manager, M.S.R.T.C.,
19. The District Information Officer,
20. The District Supply Officer,
21. The Local Station Director, A.I.R.,
22. The Local Station Director, Doordarshan.

3.3.2 District Crisis Group (DGC)

As per the provision made under Disaster Management Act, also needs to constitute the District Crisis Group (Search and Rescue Team) to be an apex body in the district to deal with major emergency situations. The District Crisis group will include the following members:

1. Team Leaders

- Deputy Superintendent of Home Guard Department (Team Leader)
- Deputy Superintendent of Police Department (Deputy Team Leader)

2. Technical and Medical Assistance

- District Informatics Officer (NIC)
- District Information Officer
- Additional Chief Engineer/ Superintending Engineer/ Executive Engineer, PWD
- Medical Officer, Health Department
- District Health Officer

3. Administration

- District Disaster Management Officer

4. Police and Security

- Police Inspector
- Constable

5. Fire Department

- Fireman from all the talukas.

The above mentioned members will play a major role as the DCG, and personnel's like Life –guards, swimmers, some experts from NGO's are also included as members of the District Crisis Group. The following table shows the list of personnel's appointed as DCG in the district of Satara:

Table 30:List of District Crisis Group members

<i>Sr. No.</i>	<i>Name andOffice</i>	<i>Designation in SAR Team</i>	<i>ContactNumber</i>
TEAMLEADERS			
1.	<i>Shri. Fartare Deputy Superintendent of Police (Home)</i>	<i>TeamLeader</i>	<i>02162-234776 9765450333</i>
2.	<i>Shri. Shankar Gore C.O Satara NP</i>	<i>Dy. TeamLeader</i>	<i>02162239247 7350800999</i>
GROUP-A (TECHNICAL/MEDICALASSISTANCE)			
3.	<i>Mr. Sanjay Ghumaste District Informatics Officer, NIC,Satara</i>	<i>Member</i>	<i>02162-231103 9403166151</i>

4.	Shri. Prashant Satpute District Information Officer,Satara	Member	02382/243166 9403464101
5.	Shri. Shelar SectionalEngineer PWD,Satara	Member	02162-233792 9766769201
6.	Dr. R S Jadhav Resident MedicalOfficer	Member	02162-238494 9423207512
	Dr. Umesh Patil Medical Off. (Orth)	Member	9822276159
7.	Dr. Dilip Mane, DHO Satara	Member	9423054929
8.	Dr. D.D Kamble Medical Officer (Epidemics)	Member	9403772777
GROUP-B (ADMINISTRATION)			
9.	Shri. Devidas Tamahane DistrictDisaster ManagementOfficer,Satara	Member	9890719745
GROUP-C (POLICE/EXECUTION)			
10.	Shri. Ahir, RPI Satara	Police	9823264749
11.	Shri. Shaikh, Constable	Police	9604117200
GROUP-D (FIREMAN)			
12.	Shri. Saurabh Salunke	Fireman Satara	9427549615
13.	Shri. Anand Mane	Fireman Karad	9423015020
14.	Shri. Haridas Suryawanshi	Fireman Phaltan	9321728200
15.	Shri. Narayan Gosavi	Driver	9850070985
16.	Shri. Bone M.A.	Driver	9405041652
17.	Shri. Tushar Varande	PaltanNayak	9890081660
18.	Shri. Kadam K G	Homeguard	9422061094
19.	Shri. Attar Ibrahim	Homeguard	9420947895
20.	Shri. Varunkar Hashim	Homeguard	8087356350
21.	Shri. Nanavre B P	Homeguard	9423828517
22.	Shri. Gosavi A A	Homeguard	9850963500
23.	Shri. Giri R G	Homeguard	9604540146
24.	Shri. Yewle T R	Homeguard	9226633613
25.	Shri. Tarde L A	Homeguard	9823890145
26.	Shri. Bhagwan Chorge	Life Guard Swimmer	9850392174

27.	<i>Shri. Nitin Gujar</i>	<i>Life Guard Swimmer</i>	<i>8888498872</i>
28.	<i>Sanjay Parthe</i>	<i>Treckers (NGO)</i>	<i>9421208702</i>
29.	<i>Uday Yadav</i>	<i>Swimmer</i>	<i>9850938788</i>
30.	<i>Shri. Tushar Tarde</i>	<i>Rescue Operation</i>	<i>7385709931</i>
31.	<i>Shri. Kartik Gole</i>	<i>Home Guard</i>	<i>9765865287</i>

3.3.3 Sub-Divisional Disaster Management Committee

This committee shall be constituted at every sub-division under the Chairmanship of Sub-Divisional Officer and the following members:

1. Deputy Superintendent of Police,
2. Tehsildar,
3. Block Development Officer,
4. Block Medical Officer,
5. Executive Engineers PWD, IPH, Electricity,
6. Divisional Forest Officer,
7. Sub-Divisional Fire Officer,
8. All other Sub Divisional Officers.

The Non-Official Members will include the following:

1. Chairman /Vice chairman Panchayat Samiti,
2. All members of Panchayat Samiti,
3. Selected NGO/Volunteers /CBO in the sub division.

This Committee will prepare the Sub divisional disaster management Plans may be Sub-division wise if more than two sub-divisions are there and response plans in accordance with the District Disaster management plans and identify the hazards encountered by the people in past and send the data so collected to the District Disaster Management Authority for further updation in the disaster plan.

3.3.4 Taluka Level Disaster Management Committee

The Taluka level Disaster Management Committee will be constituted which will be headed by the Tehsildar of that Tehsil and Officers from other line departments,

representatives from local Panchayat body will be the members of this committee. The committee will look into all the aspects of disaster management including preparedness, mitigation, response and relief. Following will be the composite structure of the Committee:

1. Deputy Collector,
2. Tehsildar,
3. Taluka Development Officer,
4. Dy.⁶ Executive Engineer (Panchayat),
5. Dy. Executive Engineer (Irrigation),
6. Dy. Executive Engineer (PWD),
7. Dy. Executive Engineer (Water Supply),
8. Junior Engineer (Telecom),
9. Dy. Executive Engineer (MSED),
10. Medical Officer (PHC),
11. Police Inspector,
12. Tehsil Home Guard Commandant,
13. Depot Manager (State Transport),
14. Taluka Panchayat Representative,
15. MLA,
16. NGO Representative.

3.3.5 Village Disaster Management Committee

This committee will function at the village levels and will be headed by Sarpanch of the Gram Panchayat with all the villages or Panchayat Officers, its members and the secretary of Gram Panchayat who is the member Secretary. This will prepare the Panchayat-wise Disaster management plans in accordance with the District Disaster Management Plan.

The members of the Village Disaster Management Committee are as follows:

1. Sarpanch,
2. Talathi,

⁶ Abbreviation of Deputy

3. Primary School Principal or Head Master,
4. Health Worker,
5. Anganwadi Worker,
6. Community Representative,
7. Mahila Mandali Representative,
8. PDS Dealer.

3.4 INCIDENT RESPONSE SYSTEM (IRS)

An Incident Response System (IRS) needs to be set up in every district as it forms an efficient method for reducing the scope for unplanned measures for response. Responsibilities irrespective of their level of complexity, which needs to be performed during disaster management, will be included by the IRS. It visualizes a complex team with various sectors to attend to all the probable response needs. The IRS also plays a major role in designating and identifying the various roles and duties of the officers appointed in the IRS, and getting them trained for their respective roles.

3.4.1 Incident Response Team (IRT)

IRT's are formed by the District Disaster Management Authority for providing speedy and swift response to any kind of emergency situation. The team comprises of volunteers from Home-Guard department, Police department, Medical and Health department etc. These personals are trained for disaster response situations. For example, in Satara district, flood and earthquake are some of the major emergencies, thus the team is provided with training in swimming, search and rescue operations and mock drills for earthquakes.

3.5 EOC SETUP AND FACILITIES AVAILABLE AT THE DISTRICT

Satara District has an Emergency Operation Centre (EOC) at District Head Quarters besides the Revenue/ Collectors Chamber. This Centre functions round the clock and has been set up with sufficient manpower and with modern equipments. Considering the unique responsibility of the District Emergency Operation Centre (DEOC), the equipments provided shall be only used for the purpose of disaster management. This centre is intended to coordinate all disaster related activities in the district starting

from preparedness to response and recovery. Arrangements for permanent sitting place for each Emergency Support Functions (ESFs) in the EOC shall be made and sufficient telephonic and internet facilities are also provided. Only the District Disaster Management Officer and his subordinates are to sit in the EOC and coordinate the disaster management activities in the district with their supporting agencies. The following shows the hierarchical representation of district EOC:

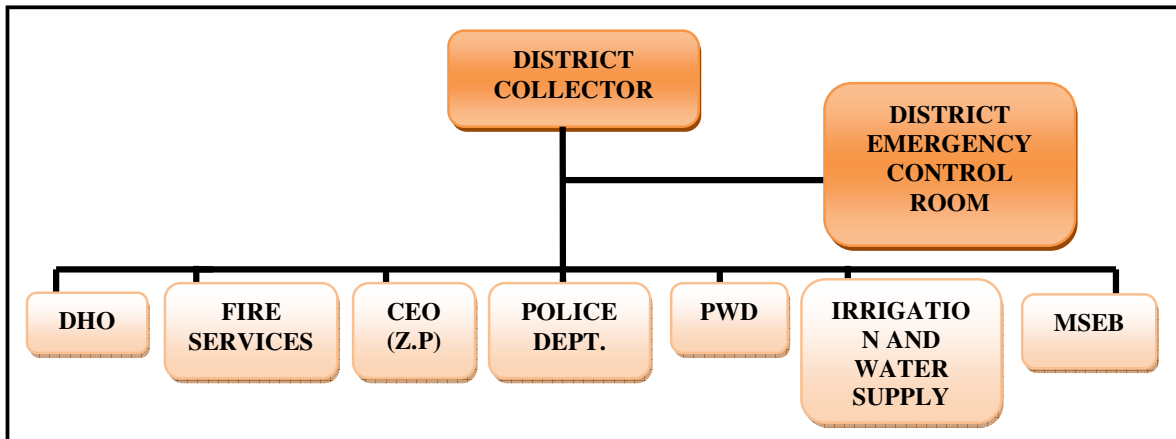


Figure 13: Hierarchical representation of the EOC

- **Role during normal time:** The Collector of District Satara is empowered to appoint all the administrative officers as Officer-in-charge of the EOC. He will also be responsible for the effective functioning of the EOC. Responsibilities of the EOC in charge in normal time includes the following:
 1. To ensure that all equipments in the EOC are in working condition,
 2. To collect data on vulnerability of the various blocks, talukas and villages on routine basis from line departments for the purpose of disaster management,
 3. Developing status reports on preparedness and mitigation activities in the district taken by relevant district level department and forwarding it to Government of Maharashtra,
 4. Ensuring appropriate implementation of District Disaster Management Plan,
 5. Updating list of resources and databank available in the district,
 6. Updating the District Disaster Management Plan according to the changing scenario in the district.

- **Role during a disaster:** On the basis of the message received from the competent agencies, warning has to be issued for the general public and the departments, which play a vital role during emergencies. Issuing correct and timely warning would be one of the prime responsibilities of EOC. For effective dissemination of warning, EOC should have a well- planned line of communication. The Collector shall be the competent authority to disseminate a disaster warning. The warning on occurrence of a disaster will also be communicated to:

1. Chief Secretary, Revenue, Government of Maharashtra,
2. All Emergency Support Functions,
3. Members of DDMC,
4. Hospitals particularly in the disaster prone areas and other Hospitals and medical facilities of the district,
5. Office of Divisional Commissioner,
6. Municipal Corporation of Satara,
7. Local unit of the Defence Services,
8. Emergency Operation Centre in the neighbouring districts (Pune, Kolhapur, Ratnagiri, Sangli),
9. National/State Emergency Operation Centre,
10. People appointed as representatives from the district.

Apart from this the EOC will make arrangement for setting up of Emergency Support Function (ESF) for better coordination and help. In the absence of Collector, Additional District Magistrate and Resident Deputy Collector will officiate and exercise all the powers and responsibilities as a Responsible Officer. On the receipt of warning all community preparedness measures and counter disaster measures would come into operation. Further, the occurrence of the disaster would essentially bring into force the following:

- The EOC will be expanded to include desk arrangements for the Head of the departments with responsibilities for specific tasks.
- All district level staff from various departments, as required by the Collector, will be under the direction and control of the Responsible Officer.

- Leave of all officer and staff working with the above organizations, as requisitioned by the Responsible Officer, will be automatically stand cancelled and the organisation would direct their staff to report on duty immediately.
- The Responsible Officer may in case of large-scale disasters get in touch with the local Army/Navy/NDRF Battalion (Talegaon, Dabhade and Pune) units for incidence response like rescue, evacuation and emergency relief measure.
- The Responsible Officer will have the authority to requisition resources, materials and equipments from private sector.
- The Responsible Officer will have power to direct the industry to activate their onsite plan and seek assistance, if required.
- The Responsible Officer will activate Response Plan with Operation Logistic and Planning Section desk arrangements.
- The Responsible Officer will authorize establishment of transit and/or relief camps, feeding centres and cattle camps through Operation and Logistic Section Officer.
- An on-going wireless, communication and contact from the EOC, to the Operation Section Chief, Site Operations Bases, Transit Camps, Feeding Centre, Relief Camps and Cattle Camps will be activated.
- The Responsible Officer will send the Preliminary Information Report and Action Taken Report, as per the available information, to the Chief Secretary/Director, DMU/ Principal Secretary, R & R and the Divisional Commissioner, Aurangabad.
- The Responsible Officer and his/her behalf will authorize immediate evacuation whenever necessary. In the event of possibilities of disaster in adjoining districts, including those beyond the state borders, the Responsible Officer will issue the alert warning to the concerned district authorities.

3.6 EARLY WARNING ACTION PLAN

The availability of early warning system is of utmost importance for proper dissemination of warnings to the people. Thus for various emergency situations like floods, earthquakes and heavy rainfall, which is the most prominent disaster in the district, there is an agency designated which formulates a plan stating the responsibilities of the agency, of keeping track of developmental activities in respect to specific hazards and informing the designated authorities at the district level about the impending disaster.

3.7 FORECASTING AND WARNING AGENCIES

The table below lists out the agencies skilled for issuing warning or alert in the entire district:

Table 31: Agencies for forecasting and warning

<i>Disaster</i>	<i>Agencies</i>
<i>Earthquakes</i>	<i>IMD, MERI</i>
<i>Floods</i>	<i>Meteorological Department, Irrigation Department</i>
<i>Cyclones</i>	<i>IMD</i>
<i>Epidemics</i>	<i>Public Health Department</i>
<i>Road accidents</i>	<i>Police</i>
<i>Industrial and Chemical Accidents</i>	<i>Industry, Police</i>
<i>Fires</i>	<i>Fire Brigade, Police</i>

The warning or occurrence of disaster will be communicated to the:

- Chief Secretary, Relief Commissioner, Emergency Operation Centre,
- Office of Divisional Commissioner
- All district level officials,
- Municipal Councils
- The Officials of Central Government located within the district,
- Non-officials i.e. the Guardian Minister of the district, Mayor, ZP President, MPs,
- Local units of the Defence Services.

Chapter 4 - PREVENTION AND MITIGATION MEASURES

The phrase 'Culture of Prevention' refers to the action that needs to be taken at all levels to save lives before a disaster strikes. Prevention refers to the activities and measures that are taken to avoid existing and new disaster risks. While certain disaster risks cannot really be completely eliminated, prevention measures aims at reducing vulnerability and exposure. The key elements to prevention and mitigation are preventive planning and integration of disaster risk reduction measures in developmental planning. Disaster Prevention and Mitigation measures are guards of hazard impact. They stand against the intensity of the hazard impact and reduce the risk involved. Recently, the Government has made advancement in dealing and managing disasters. This approach has undergone a change from relief-centric measures to planning, preventing, preparing and mitigating disasters.

A district therefore, needs to reduce the risks and vulnerabilities in order to be successful at mitigation and prevention measures. Without a through vulnerability assessment it is impossible to create a preparedness and mitigation plan. The following steps were stated as imperative for the same:

- Identification of hazard prone areas,
- Preparation of vulnerability profiles that map physical as well as socioeconomic hazards,
- Vulnerability and risk assessment of existing buildings and the initiation of retrofitting activities,
- The creation and implementation of technical guidelines for hazard resistant construction of buildings through techno-legal regimes.

This is an important aspect of prevention and mitigation activities as unplanned and inadequate developmental activity is one of the major causes of increased losses during disasters. Therefore, a district can be advantageous by following the following system in order to reduce risk and vulnerability:

- Making investments and long term planning towards preparedness, mitigation and prevention in the district,
- Making rules and regulations concerning construction processes and land use, according to the types of hazards present in the district,
- Assessment and updation of developmental plans, and scheduling out activities and exercises in order to discover risks and vulnerability,
- Making arrangements of capacity building processes, making requirements of warning systems, relief and recovery support,
- Giving importance to community-level recognition of risk and susceptibility.

The District Collector and the ADC appointed in the district are both responsible in developing plans and activities for an effective mitigation and prevention measures to exist in the district. Mitigation and prevention measures operating in the district mainly focuses on the following:

- Arrangement of better early warning methods for earthquake, floods, hailstorms and so on,
- Maintenance of systems, like water, power and communications,
- Reducing vulnerabilities to major disasters which are prevalent in the district like earthquake, floods, road accidents, drought and so on,
- Making a strong health and educational system and proper transportation and communication network.

4.1 PREVENTION MEASURES

As the major aim of prevention measures is to reduce exposure and vulnerability from disasters, hence some of the major prevention measures that can be used to reduce the impact in the district should be management of the environment, site-selection, urban planning and proper construction processes keeping in mind the safety of all the vulnerable communities. Enhancing capacity building activities and making arrangements for reducing the impact of disasters beforehand will be part of the preventive measures.

4.2 MITIGATION MEASURES (HAZARD SPECIFIC)

4.2.1 Earthquake

The typical impact of the tremor known as earthquake varies from its intensity to intensity and the distance of the area from its epicentre. It ranges from shaking of structures to the changing of very landscape. It's typical impact is in the form of physical damage, destruction of infrastructure and loss of property. Physical damages may be in terms of damages or destruction of structures or damages or destruction by fire or floods due to dam failures caused by earthquake. Casualties will be due to damage or destruction of structures etc. It will be much higher in areas nearer to the epicentre and densely populated area with weak buildings traditionally constructed with earth, rubble, bricks etc; urban settlements in poorly constructed apartments and in proximity of high rise buildings. In case of earthquake as a hazard no prevention measures are there to be taken. However, mitigation measures for earthquake impact reduction are there to be taken.

A. Structural Measures: The prime structural mitigation measures that are expected to considerably reduce the impact of earthquake are:

- Conduct micro-zonation study and create seismic map in earthquake prone location.
- Identify the vulnerable structure
- Adopt the building code and suggestion given by the micro-zonation study and properly designed, engineered and constructed structures - residential, service or infrastructure - built on well tested soil for adapting to suitable adjustments in design.
- Retrofitting in old structures so that short-comings in construction could be externally strengthened to a considerable extent to withstand the convulsions caused by Earthquake.

B. Non-Structural Measures: For getting the structural measures implemented with due earnestness, honesty of purpose and sense of compulsion host of non-structural measures in the form of policies guidelines and training have to be provided. Policy decisions about construction of structures with due approval from specified authorities

have to be taken. The building codes etc have to be suitably formulated or amended and appropriately detailed and legal implications properly stated. Guidelines both for earthquake-resistant constructions, as well as for retrofitting have to be formulated with specifications about site selection, foundation, construction, materials and workmanship making involvement of specialist architects, trained engineer and masons mandatory. The guidelines have to be formulated for the concerned authorities about land use planning, monitoring of construction work and controlling of settlements in hazard prone areas to avoid fatalities and loss of property.

C. Responsibilities: The table below shows the various tasks and the respective authorities that will take responsibilities to mitigate the problem related to earthquake hazard:

Table 32: Tasks and responsibilities of various departments during earthquake mitigation

<i>Task</i>	<i>Responsibilities to be taken</i>
<i>Zoning and Building codes</i>	<ul style="list-style-type: none"> • Revenue Dept. • DDMA • UD Dept. • PWD Dept. • Gram Panchayats • Local Urban Bodies • Housing Dept.
<i>Safe Sitting in Earthquake Areas</i>	<ul style="list-style-type: none"> • Revenue Dept. • UD Dept. • PWD Dept.
<i>Develop Earthquake Resistant Structures</i>	<ul style="list-style-type: none"> • Gram Panchayats • Local Urban Bodies • Housing Dept.
<i>Retrofitting the Weak Structures</i>	<ul style="list-style-type: none"> • Revenue Dept. • UD Dept. • PWD Dept. • Gram Panchayats • Local Urban bodies • Housing Dept.
<i>Avoiding Use of Very Weak/ Risk Structures</i>	<ul style="list-style-type: none"> • Revenue Dept. • UD Dept. • PWD Dept. • Gram Panchayats • Local Urban bodies • Housing Dept.
<i>Regular Monitoring of Seismic Activities</i>	<ul style="list-style-type: none"> • Science and technology Dept. • Local urban bodies
<i>Capacity Building</i>	<ul style="list-style-type: none"> • Education & technical Education Dept. • Revenue Dept. • DDMA • Line Dept.

4.2.2 Flood

In a land-locked district like Satara, floods are caused by either overflowing of rivers due to excessive rains in its catchment or excessive discharge released from reservoirs. The floods cause either breach in embankments or excessive erosions. As chance would have it, out of the four causes and consequences of flood - excessive rains, excessive discharge, excessive erosion, siltation and breach in embankments - only two of them can control and manage. The rest of the two are beyond the control of the administration. The district can however control excessive erosion, siltation and breach in embankments. The flood mitigation measures may again be structural or non-structural. Mapping of flood prone areas is a primary step involved in reducing the risk of the region. Historical records give the indication of flood inundation areas and the period of occurrence and the extent of the coverage. The basic map is combined with other maps and data to form a complete image of the flood-plain. Warning can be issued looking into the earlier marked heights of the water levels in case of potential threat. In the coastal areas, the tide levels and land characteristics will determine areas liable to inundation. Flood hazard mapping will give the proper indication of water flow during floods.

A. Structural Mitigation Measures: The revival and maintenance of traditional practices of dam, reservoir and ponds system for diverting and storing flood water and making use of the same for multipurpose activities including irrigation, restoration of water tables is a necessity. For this, larger involvement of senior citizens from the local areas will be required who have better understanding and knowledge about the system. The conversion of rivulets and tributaries into reservoirs for storing flood water for a desired period and for later use is also a mitigation measure. For this, major river-based GIS mapping would be required. Besides the bed of the rivulets and tributaries would have to be properly structured and meticulously maintained.

Using base flow and flood flows of the perennial rivers to generate hydroelectricity by putting generating units of 5 MW, 10 MW or even 20 MW may be planned. This will help

both better river management as well as water conservation for productive utilization. Attempt to modify dams and reservoirs, embankment, drainage improvements, channel improvements, diversion of flood waters and using natural detention basin can be part of flood mitigation programme. Storing Flood Water in reservoirs may help in reducing flood intensity, but the sedimentation caused by the stored flood water may subsequently reduce the capacity of the reservoir. Channel Alterations help in reducing the gushing of flood water and these should again be done with provisions for regular maintenance of the slopes in the channel, removing of debris and other obstructions, using natural vegetation for strengthening the sides of the channels and for using it as a source of promoting fisheries etc. Watershed Management measures reduce overland runoffs from agricultural lands to streams or other water bodies by improving infiltration of rainfall into the soil, minimizing run-off and reducing the sedimentation that can clog stream channel or storage reservoirs. The measures to avoid it include maintaining trees, shrubbery and vegetative cover, slope stabilization etc.

B. Non- Structural Measures: Attempts should be made to modify susceptibility of floods. Flood plain zoning is a major non-structural measure as it aims to regulate the developments in the flood plains, so that it is compatible with 'Flood Risk'. It recognises the basic fact that the flood plains are essentially the domain of the river, and as such all developmental activities must be compatible with the flood risk involved. Flood forecasting is another mitigation measure as it involves observing and collecting hydrological and meteorological data, transmission and then processing the data with a view to work out the likely level to be achieved at a particular site, i.e. to give advance warning. Stay in touch with IMD and CWC. Establish infrastructure for flood warning and dissemination.

C. Measures at District Level: Following measures should be taken at district level by the collector on whom the implementation of DDMP rests:

- Action plan of relevant line departments should be put into order.
- Convening a meeting of District Level Disaster Management Committee before the onset of monsoon in the month of April/early May is a major task. Arrangement for functioning of control room.

- Specific charge should be given at Taluka level to listen to weather bulletins from radio and television to monitor the warning relevant to the Taluka.
- A joint inspection team at Taluka level will inspect river embankments in the month of March and April. A summary report will be sent to the Sub-Division and District accordingly.
- When monsoon breaks, District will send the daily/ weekly report regularly from the report received from village and Gram Panchayat levels and to the Sub-Divisional Officer.
- Dissemination of weather report and flood bulletins to lower level.
- Installation of temporary police wireless stations and temporary telephones in flood prone areas. Identification of the owners of country mechanised boats with address and contact numbers.

D. Responsibilities: The following table shows the tasks and the respective authorities that will take responsibilities to mitigate the problem:

Table 33: Tasks and responsibilities of various departments for flood mitigation

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Development of Techno-legal Regimes/ Regulations</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • UD Dept. Panchayat and Rural Housing • Local Governments • PWD
<i>Arrangement of Safe Dwelling in Flood Hazard Areas</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • UD Dept. Panchayat and Rural housing • Local Governments • PWD
<i>Development and Redevelopment of Flood Preventive Policies</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • UD Dept. • Panchayat & Rural Housing • Local Governments • PWD
<i>Modifying Flood by Construction Works</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • UD Dept. Panchayat & Rural Housing • Local Governments • PWD
	<ul style="list-style-type: none"> • DDMA Authority

<i>Updating of Flood Forecasting and Warning System</i>	<ul style="list-style-type: none"> • <i>Irrigation Dept.</i> • <i>CWC</i> • <i>IMD</i>
<i>Capacity Building</i>	<ul style="list-style-type: none"> • <i>Revenue Dept.</i> • <i>DDMA Authority</i> • <i>Irrigation Dept.</i> • <i>Line Dept.</i>
<i>Awareness Generation</i>	<ul style="list-style-type: none"> • <i>Revenue Dept.</i> • <i>DDMA Authority</i> • <i>Irrigation Dept.</i> • <i>Information Dept.</i> • <i>Line Dept.</i>

4.2.3 Drought

Drought unlike other hazards does not cause any structural damages. The typical effects include loss of crop, livestock, timber, fishery production, food shortage, dehydration, loss of life, increased poverty etc. In fact, the impacts of drought are generally categorized as economic, environmental and social. Economic impacts denote loss of production in farm sector and also in nonfarm sectors like- forestry, fisheries, poultry, livestock because they depend upon surface and sub-surface water supplies. These losses result in loss of income and purchasing power among those rural people who depend on these for their livelihood. The processing industries based on agro- products suffer losses due to reduced supply of agro-products or supply at enormously increased prices. And losses both in primary and secondary sector result in unemployment, loss in revenue etc. Environmental impacts are seen in the depletion of flora and fauna due to reduced availability of water both for feeding and drinking the wild life habitats with the loss of forest cover, migration of wild life and their increased mortality due to preying by starving population. Continuance of drought for a longer period may result in the loss of biodiversity. Social impacts are seen in the large scale migration of the population from the drought affected areas to areas less affected, thereby causing dissensions. Children prefer doing some wage earning rather than going to school. People start selling their possessions to manage two times meal for the family. The social status and dignity get compromised. Inadequacy of food supply causes starvation. Inadequacy of water supply generates social conflict. Thus the social capital and moral economy, the woof and warp of social fabric, is tattered and reduced to pieces.

A. Structural Measures: The structural measures for drought mitigation are as follows:

- Water Management is a major structural measure for floods. In the land of flooding rivers, if drought is a recurring feature then surely, it is a clear-cut case of poor water management. Keeping in view the drainage and irrigation as interdependent to maintain the quality of soil, following water conservation related measures are required to be taken in drought prone areas.
- Maximising efficient use of available surface and groundwater in drought prone areas i.e. to resort to drip and sprinkler practices wherever possible, particularly for commercial crops including fruit orchards,
- Construction of underground reservoirs to escape the impact of evaporation.
- Conservation of floodwater in the branches of mainstreams and the network of rivulets.
- Creation of anti-cuts or check dams to hold water in the river beds and make it flow through the canals for irrigation purposes.
- Revival of dam, reservoir and pond systems of the past and maintain the same.
- Digging of recharge wells and water harvesting structures to conserve water through rain water harvesting and by developing the culture of roof water harvesting in each household.
- Spring water harvesting by diverting hill streams through small excavated channels, called 'Kuls' for irrigation and domestic use.
- Soil Management is a mitigation measure, as in some places the nature of soil has lead to drought conditions.
- The use of organic fertilizers which not only enriches the soil with minerals but also slowly but surely enhances its water holding capacity. Besides, the use of organic fertilizer gets better values of the products in the market, specifically in the developed countries.
- Afforestation which helps in both water and soil conservation. Such plants that have shorter growing period should be preferred. It helps the soils in enhancing its capacity to hold water and prevents erosion. It is also said to be the best method to contain the spread of drought.
- Crop Management as the cropping patterns help in soil conservation as well as in getting better farm yield. Strip cultivation is a type of crop management that consist of cultivation of different crops in different strips simultaneously. Cover cropping and crop rotation are few crop management procedures.

- Introduction of modified crop insurance. To mitigate the drought and market risks, a farmer friendly crop insurance scheme through private insurance companies would be introduced for all major crops where the development cost of insurance product would be shared by the State Government. Scheme being an area insurance scheme amounts to a car insurance scheme when the owner would get compensation only when certain number of cars also meet accident before the owner gets the compensation.

B. Non- Structural Measure: Along with the structural measures, non- structural measures are necessary to implement. Sometimes implementation of the structural measures are not possible due to funding issues on that scenario a strong ground for non- structural measures can prevent the drought scenario on greater extent. The different kind of measures can be adopted by the states are:

- Working towards convergence of lessons learnt from studies carried out by multiple institutions working in related fields such as Central Research Institute for Dry land Agriculture (CRIDA), Agriculture Institute, India Meteorological Department (IMD), National Remote Sensing Centre (NRSC) and Indian Council for Agricultural Research (ICAR), etc.
- Impact of drought on agricultural economy should be assessed in terms of indicators like area sown, input use, livestock, crop yield, farm and overall income, employment and migration of families.
- Impact of drought on the poor in urban areas should also be assessed.
- Great stress needs be laid on preventing deterioration in quality of life during drought.
- Drought mitigation measures should be strengthened with the help of the on-going communication revolution. Remote sensing techniques should be used extensively for drought assessment and mitigation. Satellite data may be used to target potential ground water sites for taking up well digging programmes.
- There should be adequate accountability of drought management authorities' at all concerned levels of administration. There should be proper monitoring, assessment and evaluation of actors taken by the authorities.

- Agricultural extension agencies should be effectively involved in drought mitigation efforts; these agencies should remain very alert during the period of drought and should be strengthened in drought prone areas.
- Timely and adequate supply of inputs like drought resistant seeds by the concerned authorities should receive emphasis.
- There should be Water Availability and Outlook Committee and Impact Assessment Committee at local levels.
- Capacity Building program for different group of people at different level, like-arrange demos on drip and sprinkle irrigation and water harvesting for farmers at drought prone areas.
- Encourage farmers to adopt crop pattern development programs.
- Arrange awareness program regarding drought at different level.

C. Responsibilities: The following table shows the tasks and the respective authorities that will take responsibilities to mitigate the problem:

Table 34: Tasks and responsibilities of various departments for drought mitigation

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Water Management Construction Works</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • Agriculture Dept.
<i>Soil Management</i>	<ul style="list-style-type: none"> • Agriculture Dept.
<i>Crop Management</i>	
<i>Adaptation of New Technology</i>	<ul style="list-style-type: none"> • Revenue Dept. • Agriculture Dept. • Revenue Dept. • Agriculture Dept.
<i>Techno-legal Regime</i>	
<i>Forecasting and Warning</i>	<ul style="list-style-type: none"> • Revenue Dept. • Agriculture Dept.
<i>Capacity Building</i>	<ul style="list-style-type: none"> • Revenue Dept. • Irrigation Dept. • Agriculture Dept. • Forest and Environmental Dept. • Line Departments • Rural Development
	<ul style="list-style-type: none"> • DDMA • Revenue Dept. • Irrigation Dept.

Awareness

- *Agriculture Dept.*
- *Information Dept.*
- *All line Dept.*

4.2.4 Landslides

Landslides in the Sahayadri's are of major concern in the district of Satara. Mahabaleshwar, Patan are some of the talukas considered as the hotspots for landslides in Satara. The structural and non-structural measures for landslides are given below:

A. Structural Measure:

- Treating vulnerable slopes and existing hazardous landslide prone areas.
- Restricting development or protecting the existing developmental projects in landslide prone areas.
- Preparing codes for excavation, construction and grading.
- Monitoring and warning systems
- Putting in place arrangements for landslides insurance and compensation for losses.
- Selecting landslide hazard zonation methodologies for different scales and multi-hazard integration especially integrating seismic hazard.

B. Non-Structural Measures:

- Prioritization of areas for land slide hazard zonation mapping and conducting Landslide Risk Zonation.
- Land slide remediation practice, and conduction of research and developing, monitoring early warning.
- Public awareness and education.

C. Responsibilities:

Table 35: Tasks and responsibilities of different departments engaged in landslide mitigation

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Preventive and Protective Measures</i>	<ul style="list-style-type: none">• <i>PWD</i>• <i>Revenue</i>• <i>IMD</i>• <i>Police</i>• <i>GSI</i>

4.2.4 Epidemics

An epidemic is the rapid spread of infectious disease to a large number of people in a given population within a short period of time, usually two weeks or less. An epidemic can be the consequence of other disasters like storms, floods, droughts etc. Strengthening surveillance programmes and warning systems go a long way in controlling epidemics. Steps towards mitigating the risks from epidemic include the following:

- Identification of areas endemic to certain epidemics must be routinely updated to access field requirements
- Identification of appropriate locations for testing laboratories
- Ensuring continuous flow of field data from both government establishments and private medical personnel
- Collating and analysing the data at regular intervals to assess epidemiological monitoring requirements.
- Creating awareness among the general population to encourage preventive measures that can help in controlling epidemics.
- Quality monitoring of piped drinking water supply and water.
- Vector Control programmes as a part of overall community sanitation activities which include surveillance of water bodies and canal distribution network for control of diseases like malaria, chikunguniya.
- Promotion of personal and community latrines
- Introduction of sewage, drainage and solid waste management systems
- Promoting and strengthening community Hospitals with adequate network of professionals to improve the capacity of the Public Health Department (PHD) for surveillance and control of epidemics.
- Establishing testing laboratories at appropriate locations in different divisions within the districts to reduce the time taken for diagnosis and subsequent warning.

A. Responsibilities:

Table 36: Tasks and responsibilities of departments in order to mitigate epidemics

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Surveillance and Warning</i>	<ul style="list-style-type: none">• <i>Public health Dept.</i>• <i>Local Govt. Bodies</i>• <i>Municipal Authorities</i>
<i>Preventive Measures</i>	<ul style="list-style-type: none">• <i>Public health Dept.</i>• <i>Local Govt. Bodies</i>• <i>Municipal Authorities</i>
<i>Strengthening Institutional Infrastructure</i>	<ul style="list-style-type: none">• <i>Public Health Dept.</i>• <i>Local Govt. Bodies</i>• <i>Municipal Authorities</i>
<i>Capacity Building Activities</i>	<ul style="list-style-type: none">• <i>Health Dept.</i>
<i>Awareness Programme</i>	

4.2.5 Industrial and Chemical Accidents

Major accidents involving chemical substances have local effects, but in some circumstances they can affect whole regions because of factors like the weather conditions during the time of the accident. Prevention of such incidents must be the priority, but a positive result can only be assured if there are strict guidelines for using and handling of dangerous chemicals.

When an accident involving chemical substances that could endanger life or the environment occurs in a chemical works or installation, those in charge of it should implement the safety measures which will minimise its consequences. Following are some of the mitigation measures for industrial and chemical accidents management:

- Information to the relevant local authorities of the accident that will be responsible for informing the public and deciding upon the instructions to be followed by them.
- The co-ordinated use of the civil and military means required to deal with the disaster should be ensured.
- All industrial concentrations should be encouraged to establish MARG for management of industrial accidents.

- Industries involved in the production or transportation of inflammable, hazardous and toxic materials should have a mandatory responsibility for preparing an off-site plan and communicating the same to the District Collector. Simulation exercises should be commenced in the adjoining communities.
- Poison checking centers should be established in every civil Hospital and in the Hospitals near the industrial estates with facilities for detoxification.
- All transport of hazardous and toxic materials should be communicated to the RTO.
- All pipelines carrying hazardous and toxic materials should be equipped with devices to check any leakage or metal fatigue.
- Small-scale industries releasing toxic wastewater should be encouraged to set up common effluent treatment facility.
- A common format for chemical data sheets should be devised which should be used to collect information from all industries in the district and the same should be available with fire brigade and police.

A. Responsibilities:

Table 37: Roles and responsibilities for industrial accident mitigation

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Industrial Safety Measures</i>	<ul style="list-style-type: none"> • <i>Public health Dept.</i> • <i>Local Govt. Bodies</i> • <i>Municipal Authorities</i>
<i>Techno – legal Regime</i>	<ul style="list-style-type: none"> • <i>Industry Dept.</i> • <i>MIDC</i> • <i>Local Authority</i>
<i>Strengthening EOC and Warning Systems</i>	<ul style="list-style-type: none"> • <i>Nodal Authority</i> • <i>MIDC</i> • <i>Dist. Collector</i> • <i>Municipal Commissioner</i>
<i>Emergency Planning</i>	<ul style="list-style-type: none"> • <i>Nodal Authority:</i> • <i>MIDC</i> • <i>Dist. Collector</i> • <i>Municipal Commissioner</i>
<i>Organize Capacity Building</i>	<ul style="list-style-type: none"> • <i>Nodal Authority:</i> • <i>MIDC</i> • <i>Dist. Collector</i> • <i>Municipal Commissioner</i>
<i>Awareness Activities</i>	<ul style="list-style-type: none"> • <i>Nodal Authority: MIDC</i> • <i>Dist. Collector</i> • <i>Municipal Commissioner</i>

- *DDMA*

4.2.6 Road Accidents

Road accidents are one of the major emergency situations in the district of Satara. There are both technical and non-technical reasons for the occurrence of road accidents. Non-licensed and inexperienced driver, driving by minors, driving at high speeds during night time, drunken state of the drivers are some of the non-technical causes of road accidents. Technical causes majorly include improper maintenance of the vehicle, defective and old vehicles, and congested road networks, etc. Some of the preventive and mitigation measures that could be implemented are:

- Widening of narrow roads, both in highways and the city roads.
- Allocation of more funds for improvement and maintenance of roads.
- Construction of dividers, speeds-breakers and guard-stones on the accident prone spots, and installing signboards too in these spots i.e. Satara-Lonand, Mahabaleshwar - Medha - Satara and on Highway.
- Increase in the number of traffic personnel's.
- Traffic signals to be set up at various locations.
- Construction of subways or bridges in high traffic areas.
- The Civil Hospitals must be upgraded to include a well-equipped trauma care centre and first-aid kits should be kept handy.
- Ambulances must be provided to Police Control Room.
- The heavy vehicle which wants to enter in city, it should be passed through by a pass.
- Most of the tar roads in Satara district (approximately 500 kilometres) need resurfacing.

A. Responsibilities:

Table 38: Roles and responsibilities of departments to mitigate road accidents

<i>Tasks</i>	<i>Responsibilities to be taken</i>
<i>Strengthening Intuitional capability</i>	

<i>Strengthening Road Infrastructure</i>	<ul style="list-style-type: none"> • <i>Transport Dept.</i>
<i>Improving Regulations</i>	
<i>Capacity Building & Awareness Generation</i>	<ul style="list-style-type: none"> • <i>DDMA</i> • <i>Transport Dept. & Local Government</i>

Chapter 5 – PREPAREDNESS MEASURES

5.1 IDENTIFICATION OF STAKEHOLDERS INVOLVED IN DISASTER RESPONSE

Community is the first responders in case of most of the disasters. This shows the importance of VDMP as well as Village Task Force and their training. Local people who can do search and rescue operations should be identified and given training. But not every level of disasters can be managed by village task force. Highly trained professionals are needed for response. It includes swimmers, divers etc. They can be identified at Taluka level and given training at village level.

Response and evacuation of disabled population is very important as they are highly vulnerable. Training can be given for the rescue workers for rescuing them or evacuating them during emergency. Fire brigade are adequately trained in this and carry people using different cradle carry method, firemen carry method, blanket carry method etc. The Taluka level rescue workers should be trained in it.

5.2 FORMATION OF TEAMS

For different activities in Rescue and relief activities different teams should be formed so that the activities can be carried out easily during the time of disasters.

5.2.1 Forecasting and Early Warning

Early warning helps to plan the course of rescue and relief operations, helps to move the population to safe shelters and also helps to disseminate the knowledge to the public so that mortality rates can be reduced. Early warning system is not available for every hazard. But for most of the hazards early warning can be issued. It includes heavy rain, flood, landslides, tsunami etc. At district level DDMA can receive the early warning from

nodal agencies or from other sources and can plan the rescue and relief operations. There are nodal agencies that can give warning for different disasters.

Table 39: List of nodal agencies for forecasting and warning of various hazards

<i>Sr. No.</i>	<i>Hazards</i>	<i>Nodal agencies</i>
1.	<i>Cyclones, Floods, Drought</i>	<i>India Meteorological Department</i>
2.	<i>Floods</i>	<i>Central Water Commission of the Ministry of Water Resources</i>
3.	<i>Landslides</i>	<i>Geological Survey of India</i>

The following table below shows the time period before incident and early warning:

Table 40: List of time period for early warning of various hazards

<i>Sl. No.</i>	<i>Hazard</i>	<i>Time period</i>
1.	<i>Cyclones</i>	<i>Days</i>
2.	<i>Droughts</i>	<i>Months</i>
3.	<i>Landslides</i>	<i>Days</i>
4.	<i>Floods</i>	<i>Hours / Days</i>

After receiving early warning, the information should be disseminated to various departments for preparedness as well as to the public for safety. It is the responsibility of DDMA and TDMA. The information from nodal agencies or from SDMA should be disseminated to TDMA, VDMA, Panchayat office, line department officials and to public based on the ground situation. The warning can be disseminated through various means such as:

- Telephone,
- Fax,
- VHF,
- Police Wireless,
- Internet (e-mail),
- Websites,
- Radio/TV network,

- Mobile Phones (SMS).

5.2.2 Search and Rescue

Search and Rescue operations are an important part of relief activities to save the life of victims. Experts are needed for ding search and rescue operations. Search and Rescue operations are usually carried out by Fire and Safety brigade, Coast Guard, Police, NDRF etc. Also volunteers can also be used for rescue operations if sufficient experts are not available. Training should be given to SAR team and mock drills and exercises should be done regularly. Preparedness for Search and Rescue will be done based on the type of disaster in the region. In flood, swimmers and divers are more needed. While in building collapse debris removal and tracking the people trapped in the debris is more important.

As part of preparedness, the Search and Rescue teams should be formed in district and Taluka level and training should be given. The team comprises of:

1. Fire fighters
2. Police men
3. Coast Guard officers
4. Swimmers
5. Medical professionals.

5.2.3 Evacuation

Evacuation can be done for those disasters where early warning is available and the level and efficiency of the evacuation will be based on the time availability after forecasting the disaster. Evacuation needs proper planning and preparation or that it can become hazardous. Evacuation can be of two types. It can be after a hazard where the survivors in a hazardous situation can be evacuated or it can be after an early warning where time period for evacuation will be there.

For the process of evacuation, temporary shelters should be identified outside the vulnerable location, mostly in schools or barren land (in case of earthquakes). The safety and security of the temporary shelters should be monitored. In case of vulnerable people like physically disabled, special attention should be given to their needs.

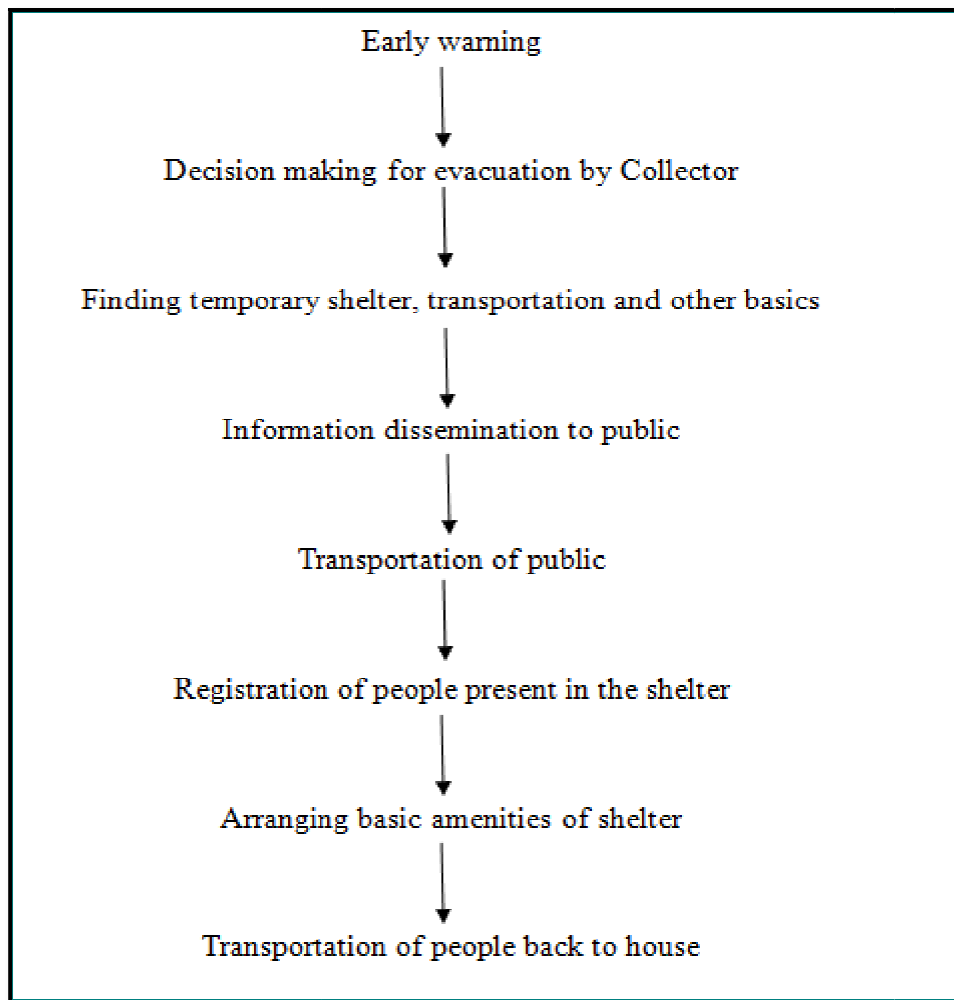


Figure 14: Figure showing early warning and evacuation at hierarchical level at the district

Basic amenities such as water, food, and sanitation, medical attention etc should be addressed. In case of winters special care should be given. Evacuation procedure will not be completed until relocating the people to safe permanent location or their own place. The figure above shows how early warning and evacuation processes are done in a hierarchical level at the district level.

5.2.4 Damage and Loss Assessment

Damage and loss assessment should be done immediately after rescue operations. It helps to understand the extent of damage in the region. Data regarding the following details should be collected, including the extent of damage such as partial or complete.

Table 41: Template to analyse damage and loss assessment

<i>Type</i>	<i>Number</i>	<i>Remarks</i>
<i>Number of affected population</i>		
<i>Number of affected families</i>		
<i>Loss of life</i>		
<i>Injured</i>		
<i>Missing</i>		
<i>No of house fully damaged</i>		
<i>No. of house partially damaged</i>		
<i>Crops fully damaged (acre)</i>		
<i>Crops partially damaged (acre)</i>		
<i>Fully damaged educational institutions</i>		
<i>Partially damaged educational institutions</i>		
<i>No of water sources damaged/not functioning</i>		
<i>No of latrine damaged</i>		
<i>Loss of livestock's (no.)</i>		
<i>Embankment Fully damaged(km)</i>		
<i>Embankment partially damaged (km)</i>		

5.3 ACTIVATION OF IRS IN THE DISTRICT

The District Collector automatically becomes the head or the Chairperson of the DDMA, and hence he is appointed as the Responsible Officer of the district. Some of the responsibilities may be passed on to the Additional District Collector for management and supervision of any incident that occurs in the district, as he is the Chief Executive Officer of the District. The District Emergency Operation Centre and the Incident Commander will make him aware of all the developments and progresses of responses activities in the district. The following chart shows the hierarchical representation of the Responsible Officer in an IRS:

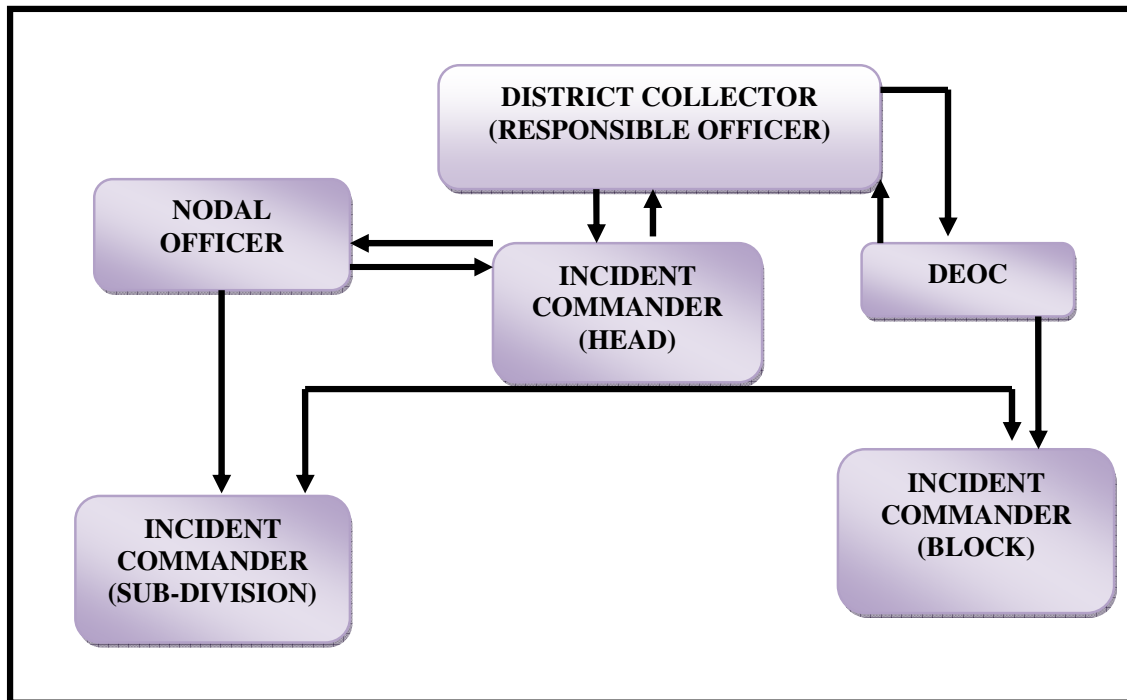


Figure 15: Chart showing hierarchical representation of the Responsible Officer in the IRS

The line departments and their head will perform different roles and responsibilities based on the nature and kind of disaster. These responsibilities of the line departments shall be clearly defined based on different types of disasters in the DDMP, which will be further approved by the State Government.

5.4 PROTOCOL FOR SEEKING HELP FROM OTHER AGENCIES

5.4.1 Army, Air Force & Central Paramilitary Forces

The Chairman of the DDMA will report to the State Home Department which will further ask for military help to the Central Home Ministry, who will take the subject with the concerned departments for the requisition of Army, Air force and Central Paramilitary Forces.

5.4.2 National Disaster Response Force

The DDMA can immediately make arrangements for requisition the NDRF team or battalion directly, if there are cases of sudden onset of disasters in areas, where early warning systems may not be present. The DDMA will maintain a close association with the NDRF Commander in Chief of the NDRF located nearest to the district (Pune), for the rapid deployment of the team in case of threatening disastrous situations.

5.4.3 State Disaster Response Force

The DDMA will write to the State Disaster Management Authority who will consult further with concerned ministries for requisition of SDRF, if it exists in the State.

5.5 MECHANISMS FOR CHECKING AND CERTIFICATION OF LOGISTICS, EQUIPMENTS AND STORES

The DDMA will write to the concerned Logistic Section Chief (LSC) in the Revenue Department, to further carry out the responsibility of checking and making certifications on logistics, equipments and stores.

5.6 OPERATIONAL CHECK-UP OF WARNING SYSTEMS AND EOC

The DDMA will conduct operational check-ups of warning systems, EOC and also the equipments available at the EOC, periodically. The pre-monsoon preparedness meeting also leads to checking of warning equipments.

5.7 SEASONAL INSPECTION OF FACILITIES AND CRITICAL INFRASTRUCTURE

The DDMA shall coordinate along with the Public Work Departments, to conduct a seasonal inspection of facilities and critical infrastructures like bridges and Highways, especially before the onset of monsoons, and post monsoons. Repairs and reconstruction process should be followed after the inspection.

5.8 COMMAND AND COORDINATION

The head or the Chairperson will coordinate meetings regularly with all the departments and stakeholders and even include various NGO's and groups for effective management and preparedness of summer seasons and monsoons.

5.9 NGO AND OTHER STAKEHOLDERS COORDINATION

The NGO which are working in development sector as well as disaster management sector can be used for different purposes such as Post-Disaster Need Assessment. The NGO workers or volunteers should be trained regarding their work during the pre-disaster phase and during the issue of warning, NGO officials can be communicated and can be used. Also in case of temporary shelter preparation, water and sanitation can be managed by NGO with the support and monitoring of government officials.

5.10 SEASONAL PREPAREDNESS

The DDMA can make seasonal preparedness by:

- **Identifying Risks:** Listing out various risks from hazards like floods, fire to the infrastructures and facilities. This will decrease the geographical susceptibility of the structure. Identifying vulnerability of the objects and structures are also an important process of the preparedness. Hence this identification process will focus on the prevention and mitigation of any damages that can take place in the future.
- **Identifying Resources:** The DDMA shall identify resources available in the district, for assistance in a disastrous situation and sources which can lower the damage and the risks.
- **Decreasing Risks:** Once the list of risks and vulnerabilities are prepared and specified, then the DDMA shall conduct and formulate a program making arrangement of activities that can decrease the risks. This can be done with the help and association of various line departments.

5.12 COMMUNITY PREPAREDNESS

Community preparedness plays a crucial part in disaster management. Community is one seem to be one of the exposed entity in any disaster risk. The two main elements to be explored in the community preparedness are community based and people centric. Community based disaster management is believed to have direct involvement of community in every phases of disaster. It is vital that community members themselves are aware and self reliant in getting the knowledge and information of the risks and vulnerabilities of the area. The core activities where community people could get involved are as follows:

Table 42: Core activities to involve community people for community preparedness

<i>Risk Knowledge</i>	<ul style="list-style-type: none"> • <i>Knowledge about historical hazards</i> • <i>Identification of hazards and disaster prone areas</i> • <i>What are the pattern and frequency of disaster</i>
<i>Dissemination and communication</i>	<ul style="list-style-type: none"> • <i>Develop community based early warning system</i> • <i>Dissemination of information to vulnerable communities</i> • <i>Dissemination of information to person with disability</i>
<i>Monitoring</i>	<ul style="list-style-type: none"> • <i>Parameters for the development of early warning</i> • <i>Parameters for structural development and implementation</i>
<i>Response Capabilities</i>	<ul style="list-style-type: none"> • <i>Take all the prevention, mitigation and preparedness measures</i> • <i>Capacity building and awareness programs</i> • <i>Provide support to conduct post disaster assessment studies</i>

5.12.1 Sensitization of Community about the Needs of Persons with Disability

People with disability are some of the most likely impacted groups during any disaster with high risk of death, injury, additional impairment. Various initiatives have been taken to deal with the group and make things accessible to them. Among them one of the initiatives is sensitization of communities about the needs of disabled people. Even in disaster risk reduction measures disability- inclusion is one of the important point. Some of the following measures are to be taken for person with disability in community preparedness.

Table 43: Measures to be taken for differently abled people during community preparedness

<i>Task</i>	<i>Activity</i>
Identification	<ul style="list-style-type: none"> • Identification of person with disability in community with the kind of disability. • Making the area of stay and work in the village.
Awareness and dissemination of Information	<ul style="list-style-type: none"> • Awareness programs related to disasters and vulnerabilities in their area. • Capacity building training with on rescue and emergency exits • Conducting mock drills including people with disability.
Monitoring	<ul style="list-style-type: none"> • Basic provisions for person with disability in Safe shelter with light, toilet, sanitation. • Accessibility of the safe shelter through ramps for them. • Ensuring safety evacuation doors for them.

5.13 KNOWLEDGE MANAGEMENT, NETWORKING AND SHARING

Knowledge management is all about getting right knowledge, in right place and at the right time. Preparedness is to develop, support and enhance the organizational knowledge process of knowledge creation, storage, retrieval, transfer and application. The management focuses on capturing, organizing and converting organizational knowledge into common database, for further effective retrieval of relevant contents through advanced searches from the data base. At the lower end organizations focuses on learning, sharing and collaborating through physical interactions, workshops, documentation of experiences or sharing through web portals. The networking comprises of all the SDMA, DDMA, and administrative training institutes.

Table 44: Tasks and activities of departments for knowledge management

<i>Task</i>	<i>Activity</i>	<i>Responsibility</i>
Knowledge Management	<ul style="list-style-type: none"> • Disaster management activities carried out at various levels. • Documentation and dissemination of information to line departments. • Training and awareness programs • Government, community and private 	<ul style="list-style-type: none"> • Revenue Department • DDMA • Technical Department.

organization resource mapping.

- *Recording of best practices, lessons learnt, work experience and sharing with stakeholders in meetings, workshops and seminars.*

5.13.1 Uploading of Information on Resources on IDRN

IDRN is a web based common information system for managing the inventory of equipments, skilled human resources and critical supplies for emergency response. It manages the district level resource database throughout the nation. The primary focus is to enable the decision makers to find answers on availability of equipments and human resources required to combat any emergency situation. This database also enables the organization to assess the level of preparedness for specific vulnerabilities. Total 266 technical items are listed in the resource inventory. The districts have been given the username and password through which they can perform data entry and data updation on IDRN for resources available in the district. The IDRN network has functionality of generating multiple query options based on specific equipment, skilled human resources and supplies with their location and contact details. Every year the resource inventory has been updated at the district level by DDMOs, whereas NIC provides its technical assistance by updating it in website.

5.14 MEDIA MANAGEMENT/ INFORMATION DISSEMINATION

Mass media and communication system plays vital role in predicting and dissemination of information in advance. The communication system has significantly developed to a great extent in predicting and disseminating information about the disaster, there has been an impact on how public learns of and perceives the impact of disasters. Both the electronic and printing media has been linked to the disaster preparedness in awareness programs, warning dissemination, and evacuation, alerts government officials and in coordination with various stakeholders. Communication virtually links all the hazards mitigation process. The capabilities of communication, data gathering and data management technology have leaped forward in parallel with the increase knowledge about the origin and behaviour of natural hazards. The advancement in

mass and telecommunication with technology had major contribution in forecasting and dissemination of information. For observation, prediction and warning systems of specific disasters, the following departments and the technology helps in the dissemination of information in the entire district:

Table 45: Dissemination of information

<i>Sr. No.</i>	<i>Disaster</i>	<i>Monitoring stations</i>	<i>Monitoring Instruments</i>	<i>Warning Systems & Technology</i>	<i>Departmental Agency</i>
1.	Earthquake	<i>Observatory at Satara and Koynanagar, Patan</i>	<i>Seismic Device</i>	<i>Police Information, Wireless Phones and HAM Radio</i>	<i>District Controller</i>
2.	Floods	<i>Irrigation Department – Flood Control Department</i>	<i>Water Level Checking Device</i>	<i>Wireless Phones</i>	<i>Irrigation Department</i>
3.	Epidemics	<i>P.H.C and Civil Hospitals</i>	<i>Health Laboratories</i>	<i>Phones, Wireless Systems</i>	<i>District Health Department</i>
4.	Industrial and Chemical Accidents	<i>Industrial Safety and Health</i>	<i>FireFighters</i>	<i>Phone, Wireless Systems</i>	<i>DISH</i>
5.	Fires	<i>Municipal Corporation,</i>	<i>FireBrigade</i>	<i>Phone and Wireless Systems</i>	<i>Municipal Councils</i>
6.	Road Accidents	<i>Police Stations, Traffic Control Room</i>	<i>CheckPost</i>	<i>Wireless, Phones</i>	<i>Police Department, Transport Department</i>

5.15 MEDICAL PREPAREDNESS AND MASS CASUALTY MANAGEMENT

For medical preparedness, the details of all the Hospitals available in the district should be made available in the DDMA or Control room. In preparedness phase, the Hospital authorities, management, doctors and other staffs should be trained in emergency management. Details of medical equipments and manpower available in each region should be made available and in case of emergency, the transportation of injured people should be made accordingly. During emergency, first aid for injured and triage in case of heavy causality is the duty of medical professional in the Taluka or district level. Based

on the need for critical care facilities, Surgical Services, Transfusion Services etc victims should be allotted to different Hospitals as per the available resources.

Chapter 6 – CAPACITY BUILDING AND TRAINING MEASURES

According to the High Powered Committee Report, Capacity Building is a very complex, long-term phenomenon requiring the development of human resources, the establishment of well functioning organizations within a suitable work environment and a supportive socio-political environment for improving the performance of institutions and personnel's. Capacity Building is helpful in develop and strengthens skills, competencies and abilities of both the Government and Non-Government officials and communities for both during disasters and after disasters.

6.1 APPROACH

The approach of the DDMA in regards to prevention, mitigation and preparedness will be proactive, and will follow a holistic and integrated approach to deal with disasters. The approach towards capacity building will be holistic in such a manner that it will integrate all aspects of disaster management like preparedness, response, recovery with sustainable development. This approach will also involve all stakeholders, government, NGO's and the community with Disaster Management.

6.2 CAPACITY BUILDING PLAN

A series of training programmes shall be organized for specialized groups like, district DMTs, sub-division and community level office bearers, teachers and principals, doctors and engineers, architects and masons and builders and contractors etc. All walks of people shall be trained. This can even be on construction of buildings and other structures earthquake resistant.

Satara district shall identify sensitization as one of the best tools to create awareness programme and preparation of Community Based Disaster Management planning. In this respect the DC NE shall organize a series of programmes for the community people, Resident Welfare Organizations and NGOs. There are organizations like Civil

Defence, NCC, NSS etc, which have hundreds of volunteers from each nook and corners of the district. The district must train their volunteers and the wardens of these bodies in the district, thus people from various corners will be trained and sensitized in disaster management and this can make a magnifying result.

For better sustainability of disaster management, the DDMA Satara shall think of training Civil Defence & Home Guard, NCC and NSS volunteers at the cost of the district administration and they shall be given certificate of training, identity cards as disaster managers. The DDMA Satara can take appropriate decision for paying any honorariums for their services.

6.2.1 Training of Trainers

Training programmes shall be organized with RWA's and NGO's in the district or they shall be funded for organizing such programmes. Corporate sponsors shall be contacted to hold such massive training programmes.

6.2.2 Community Capacity Building and Community based Disaster Management

As a community is the first responder to disasters, hence community capacity building and community based disaster management is the most important step towards community preparedness. A community can be considered one of the most important stakeholders in disaster management. Therefore the following are the activities that the DDMA and the BDO's should put up at community level for community preparedness:

- Identification of vulnerable groups among the communities,
- Provision of information on risk and vulnerability,
- Preparation of DM Plan at community level,
- Provision of resources and supporting DRR at community level,
- Promotion of community preparedness with help of education, awareness, trainings,
- Distribution of skills to community to deal with any kind of disastrous situation.

Chapter 7 – RESPONSE AND RELIEF MEASURES

7.1 RESPONSE PLANNING, PREPAREDNESS AND ASSESSMENT

An emergency response plan is the first thing to be followed in a multi-hazard approach. This brings out all the disasters in a single proposal and incorporates the 'culture of quick response. Under this plan, different set of activities for a quicker response is to be identified and articulated. A successful response planning requires realistic identification of likely response roles, assignment of precise tasks to individual response agencies, identification of equipments required for response purposes, supplies and allotment of personnel's required by the response agencies for performing the allocated tasks and activities. Strategies and resources that are usually required for search and rescue, evacuation, are generally outlined in the response plan, evacuation,etc.

7.1.1 Warning and Alert

At district level, district control rooms will be activated and setup before the occurrence of disaster and immediately after the disaster, so that proper and timely information will be provided to all the concerned authorities.

7.2 OPERATIONAL DIRECTION AND COORDINATION

7.2.1 Various Response Levels

Most of the disasters are to be managed at the state and district level. The Centre plays a supporting role in providing resources and assistance. It will mobilize support in terms of various emergency teams, support personnel, specialized equipment's and operating facilities depending upon the scale of the disaster. Active assistance would be provided only after the declaration of national emergency level. In case disaster may be managed at the district level, district emergency operation system would be activated where state

and national level authorities would be on guard in case of assistance needed. Incident commander (IC) of the district would activate the emergency support functions and Incident Response System and similarly according to the guidance disaster management teams and quick response teams would respond.

If disaster may not be managed with district level and required active participation of state resources, State EOC would activate and Divisional Commissioner would take over the IC system.

7.2.2 Operational – Coordination Structure

Each organization generally has a framework for direction of its operation and coordination between its different units. Disaster Management generally requires partnership between organizations and stakeholders. An effective and early response requires mobilization of manpower, equipments and materials belonging to different organizations which may not be working together during normal times. Therefore a framework needs to be prescribed as a part of emergency planning for operational directions and coordination during response phase. This plan recognizes role of Deputy Commissioner in providing overall operational direction and coordination for all the response functions. With the help of District Disaster Management Committee (DDMC) and District Emergency Operation Centre, Deputy Commissioner will formulate following coordination structure for response plan.

7.2.3 Trigger Mechanism

As soon as Emergency Operation Center would get the information about any emergency, the staff on duty in EOC will pass the information the DC- Satara and seek for his instruction for further actions. If the information pertains to the occurrence of a disaster in any part of the district, the staff on duty will also try to inform DDMA members, Emergency Support Functions-team leaders, major Hospitals and State Disaster Management Authority etc. The staff on duty will also be responsible to reclaim information related to type, magnitude and location of the disaster and also inform it to responsible authorities. The EOC in-charge will also inform all the details to Divisional Commissioner and State EOC. All the desk officers/team leaders and

Incident Response Team members will also be informed to immediately report at District EOC. Incident Response team and Desk officials would respond as per their standard operating procedures and directions of Incident Commander (IC).

7.2.4 Activation of Incident Response System

The emphasis in Disaster Management has shifted from relief centric approach to proactive regime, and as such a well-coordinated response with clockwork precision becomes one of the most important goals. Incident Response System has been developed in this regard.

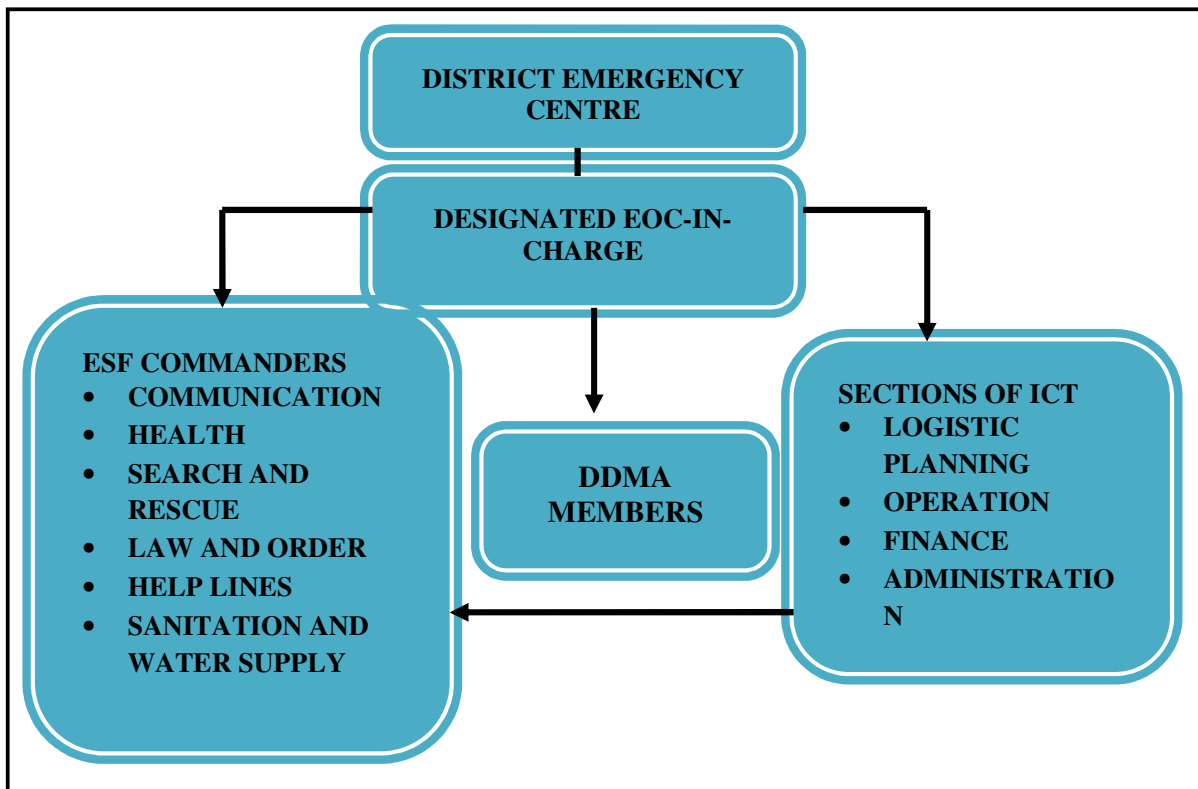


Figure 16 : IRS operating in the district

7.2.5 Incident Response System

During emergency period DC-Satara would be designated as Incident Commandant and shall take up following immediate actions:

- IC will designate IRS members according to the rank requirement and assign responsibilities under four sections of logistics, planning, finance and administration.
- IC will also direct to the EOC in-charge (District Disaster Management Officer) to inform all the DDMA members about the incident and ICP (Incident Commandant Post).
- IC will direct ADM of Satara District to coordinate with the team leader of Emergency Support Functions (ESFs).
- EOC/PCR will also pass the information to the DDMA members about the location of ICP.
- Direct EOC in-charge to pass the information to the State apex body/Unified commander.

7.3 RESPONSIBILITIES OF IRS

The five command functions in the Incident Command System are as follows:

1. **Incident Commander:** The Incident Commander is responsible for all incident activity. Although other functions may be left unfilled, there will always be an Incident Commander.
2. **Operations Section:** Develops tactical organization and directs all the resources to carry out the Incident Action Plan.
3. **Planning Section:** The Planning Section is responsible for collecting, evaluating, and displaying incident related information. Maintaining the status of resources, and also preparing the Incident Action Plan and incident related documents are part of its functions.
4. **Logistics Section:** Provides resources and all other services needed to support the organization.
5. **Finance/Administration Section:** Monitors costs related to the incident, provides accounting, procurement, time recording, cost analysis, and overall fiscal guidance.

The following table shows the Incident Response Team and their respective roles:

Table 46: IRT and its roles

Sr. No.	IRT	Roles
1.	Incident Commander	<ul style="list-style-type: none"> • <i>Incident Commander (IC) shall rush to the Emergency Operation Centre (EOC) where technical experts and section chiefs shall join him. He shall remain in the contact of EOC to know the updated status of incident.</i> • <i>In consultation to technical experts Incident Command Post (ICP) shall be selected near incident site. Site selection shall be on the basis of the wind prevailing directions and probability of secondary hazards etc.</i> • <i>Obtain updates of the incident situation from ICP and establish a link for continuous communication through dedicated telephone lines with speaker phones, set of walkie-talkies, computer link etc. with the help of coordinator.</i> • <i>Supervise the overall management of each function through respective members of DDMA and expediting response whenever required.</i> • <i>Identify the hazardous and threatened areas based on map and information received ICP.</i> • <i>Take decisions on requirement and priorities of evacuation and organize the resources to execute the same.</i> • <i>Based on the inputs from the first responders, and experts available at ICP, identify the additional resources requirement and initiate mobilization with the help of section chiefs.</i> • <i>Coordinate with the other district authorities and state authority.</i> • <i>After making required arrangement, IC shall visit</i>

		<p><i>incident site to supervise the situation.</i></p> <ul style="list-style-type: none"> • <i>He shall also take decisions in demobilizing the resources after the incident.</i>
2.	Safety Officer	<ul style="list-style-type: none"> • <i>Support the Incident Commander.</i> • <i>Recommend measures for assuring safety of responders and to assess or anticipate hazardous and unsafe situations and review it regularly.</i> • <i>Ask for assistants and assign responsibilities as required.</i> • <i>Participate in planning meetings for preparation of IAP (Incident Action Plan).</i> • <i>Review the IAP for safety implications.</i> • <i>Obtain details of accidents that have occurred within the incident area if required or as directed by IC and inform the appropriate authorities.</i> • <i>Review and approve the Site Safety Plan, as and when required.</i>
3.	Liaison Officer	<ul style="list-style-type: none"> • <i>Maintain a list of concerned line departments, agencies (CBOs, NGOs) and their representatives at various locations.</i> • <i>Carry liaison with all concerned agencies including NDRF and Armed forces and line department of Government.</i> • <i>Monitor Operations to identify current and potential inter-agency problems.</i> • <i>Participate in planning meetings and provide information on response by participating agencies.</i> • <i>Ask for personnel support if required.</i> • <i>Keep IC informed about arrival of all Government and Non – government agencies and their resources.</i> • <i>Help in organizing briefing sessions of all Government and Non-governmental agencies with IC.</i>
		<ul style="list-style-type: none"> • <i>Prepare and release information about the incident</i>

4.	Information Officer	<p><i>to the media agencies and others with the approval of IC.</i></p> <ul style="list-style-type: none"> • <i>Jot down decision taken and directions issued in case of sudden disasters when Incident Response Team has not been fully activated.</i> • <i>Ask for additional personal support depending on the scale of incident and workload.</i> • <i>Monitor and review various media reports regarding the incident that may be useful for incident planning.</i> • <i>Organize Incident Action Plan meeting as directed by the Incident Commander.</i> • <i>Coordinate with IMD to collect weather information and disseminate it to all concerned.</i>
5.	Operations Chief	<ul style="list-style-type: none"> • <i>Determine need and request additional resources.</i> • <i>Review suggested list of resources to be rebased and initiate recommendation for release of resources.</i> • <i>Make expedient changes to IAP as necessary.</i> • <i>Report Information about special activities, events or occurrences to Incident Commander.</i> • <i>Maintain Unit / Activity details.</i>
6.	Planning Section Chief	<ul style="list-style-type: none"> • <i>Collection, evaluation, dissemination and use of information about the development of incident and status of resources. Information is required to understand the current situation and to prepare alternative strategies and control operations.</i> • <i>Supervise preparation of Incident Action Plan (IAP).</i> • <i>Provide input to Incident Commander and Operation Chief in preparation of IAP.</i> • <i>Reassign out of service personnel already on site to other positions as appropriate.</i> • <i>Determine need for any specialized resources in support of the incident.</i> • <i>Establish information requirements and reporting</i>

		<p><i>schedules for Planning Section Unit (e.g. Resources, Situation Unit).</i></p> <ul style="list-style-type: none"> • <i>Compile and display incident status information.</i> • <i>Facilitate the preparation and implementation of Incident Demobilization Plan.</i> • <i>Incorporate Plans (e.g. Traffic, Medical, Site Safety, and Communication) into IAP.</i> • <i>Maintain Unit / Activity details.</i>
7.	Logistic Section Chief	<ul style="list-style-type: none"> • <i>Assign work locations & tasks to section personnel.</i> • <i>Participate in preparation of IAP.</i> • <i>Identify service and support requirements for planned and expected operations.</i> • <i>Coordinate and process requests for additional resources.</i> • <i>Provide input to / review communication plan, traffic plan, medical plan etc.</i> • <i>Prepare service and support elements of IAP.</i> • <i>Recommend release of unit resources as per DDMP.</i> • <i>Maintain Unit/ Activity details.</i>

7.4 ACTIVATION OF EOC

The Emergency Operations Centre is a necessity and needs to be setup in almost all the districts. It acts like a nodal point for the general organization and control of relief work. Different kind of EOC's like DEOC and SEOC shall be setup depending upon the types of disasters.

7.5 EMERGENCY SUPPORT FUNCTIONS

Emergency Support Functions (ESFs) are the essentials of Emergency Management which comprises of various coordinating agencies, which manage and coordinate specific kinds of assistance common to all disasters types. The plan establishes an organized set-up to conduct ESF operations for any of the natural and manmade Disasters. It outlines an implementing framework of sharing resources and co-

coordinating, preparedness, mitigation, response and recovery as per the requirement. The plan structures the activities of concerned agencies i.e. primary/nodal and support agencies into an organized manner according to their capabilities, skills, resources and authorities across the state and district government. It also attempts to unify efforts of state departments so that they are involved in emergency management comprehensively to reduce the effects of any emergency or disaster within the state.

The Revenue Department of the district is the prime coordinating agency for disaster risk management efforts. However there will be other agencies involved in-charge of different ESFs. Each ESF is headed by a lead organization and assisted by supporting organizations for coordinating the delivery of resources and services to the disaster-affected area. These ESFs form an integral part of the EOC and each ESF should coordinate its activities form the allocated EOC. Extension teams and quick response teams (QRTs) would be required to follow their response procedures at the affected site. Nodal officers of all the ESFs would constitute Incident Management Team. Nodal officer would also nominate names for the QRT members who will accomplish disaster management related work at the field level. Similarly supporting agencies would also nominate their nodal officers and QRT members who will assist to the primary officers during response phase. Additional names should also be proposed to backstop the requisite positions. Nodal and Supporting agencies comprising of QRTs shall be trained to carry out their functions at the response site. The success of ESF will be of critical importance and would reflect in the lives saved in the golden hour. All ESFs have to assist the Incident Commander i.e. Deputy Commissioner at State level as per their assigned duties described in the SOP's and to be followed during emergency within the District/State. The following table shows the ESF's as deployed by the Commissioner of Relief to various officers and agencies during an emergency period:

Table 47: Table showing ESF's and agencies engaged

Sr. No.	Emergency Support Functions / Tasks	Task Lead By	Support Function Officer /Agencies
1.	Direction Control and Coordination	DM	<ul style="list-style-type: none"> • DDO, • SP, • Resident Dy. Collector • Tahsildar
2.	Information Collection and Analysis, Damage	DM	<ul style="list-style-type: none"> • DDO,

	<i>survey</i>		<ul style="list-style-type: none"> • SP, • Resident Dy. Collector (RDC), • Tahsildar, • DIC, • Dy. DDO, • Ex. Engineer, • R&B Dept., • DAO
3.	Communication	RDC	<ul style="list-style-type: none"> • Dy. Tahsildar, • Mobile Operators, • TV, • Radio, • Police, • Forests, • Fire
4.	Alert and Warning	RDC /SP	<ul style="list-style-type: none"> • EOC / Disaster Tahsildar, • District Information Officer(DIO)
5.	Transport (ESF, Evacuation, relief supply)	RTO /DTO	<ul style="list-style-type: none"> • RDC, • DDO, • DSO, • SP, • DMHO
6.	SAR (Search and Rescue)	SP / Civil defense/ SDRF /NDRF	<ul style="list-style-type: none"> • Fire, • Civil Defense, • Home Guards & SDRF (when magnitude of any disaster would beyond coping capabilities of these response agencies: NDRF may be requisitioned for search & rescue operations.)
7.	Emergency Public Information	DIO	<ul style="list-style-type: none"> • EOC , • Police Department, • Transport, • Forest
8.	Law and order / Public Protection	SP	<ul style="list-style-type: none"> • Dy. SP, • Home Guards Commandant, • NGOs, • Para-military and Armed Forces
9.	Public Works	Ex. Eng.	<ul style="list-style-type: none"> • Irrigation, • Ex. Engineer, • Panchayat, • NGOs, • Water Supply Board, Municipalities', • Home Guards, Police
10.	Mass Care / Emergency Assistance /Shelters	Dist. Primary Education Off	<ul style="list-style-type: none"> • School Principal, • Teachers, • Health, • PHC, • State Transport, • Water Supply,

		<i>icer</i>	<ul style="list-style-type: none"> • RTO, • Tahsildar, • TDO
11.	Health and Medical Services, Psycho social care	<i>District Health Officer (DHO)</i>	<ul style="list-style-type: none"> • Supt. Govt. Hospital, • Municipality, • PHCs, • Red Cross, • Fire Brigade, • Civil Defense, • R&B, NGOs, • Doctors, • TDO, • Tahsildar
12.	Animal Health & Welfare	<i>Dy. Director Animal Husbandry</i>	<ul style="list-style-type: none"> • Veterinary Inspector, • NGOs
13.	Water Supply and Sanitation	<i>Ex. Eng. Water Works</i>	<ul style="list-style-type: none"> • Dy. Ex. Engr., • Talati, • Tahsildar, • TDO, • Health, • Dy.Engineer
14.	Power	<i>Supt.Engr. Electricityboard</i>	<ul style="list-style-type: none"> • Ex. Engr., • Dy. Engr. Technical EB, • Transport
15.	Resource Management (Including food and relief supplies and other) Logisticsupport	<i>DDO</i>	<ul style="list-style-type: none"> • RTO, • DSO, • Private & Public Sector, • Municipal Water Supply Board, • Tahsildar, • N.T.Supply

7.6 RELIEF MEASURES

People affected by disasters should be looked after for their safety, security and well-being. They should be provided with food, water, shelter, medical facilities etc, so that these people are allowed to live in peace. As per the minimum standards of relief laid by NDMA and SDMA, the District Administration will be responsible in providing relief and assistance to the affected population.

- **Food and Nutrition:** People affected by the disasters will be given food aid in order to sustain life and order. Food distribution shall be made to only the person who needs it the most, and it can be discontinued as soon as possible. Community kitchens shall be introduced in affected areas, and while distributing

food local practices and beliefs shall be kept in mind. Food quality will be checked, and food distribution shall be responsive, transparent and acceptable. NGO's, CBO's and other social agencies will also collaborate with the Government agencies in provision of food. The nutritional requirements of the people will also be looked after.

- **Water and Sanitation:** As water and sanitation facilities are widely affected during a disaster. The respective departments will recognize and look out for alternate options and sources of provision of water and hygienic sanitation facilities. Collection and storage of water will be made available to the affected victims. The drinking water will be ensured safe and of prescribed quality, and water will be provided for both personal and domestic usage.
- **Health:** As post disaster, there are high chances of spread of epidemics and diseases, among the affected people, therefore medical help and health of the people will be given major emphasis. Quick and effective medical response will be made available. Mobile medical Hospitals and resources will be provided and adequate measures will be taken to control diseases and spread of epidemics. The mental health of the victims will also be taken care of. Psychological support and mental health services will be made available. NGOs and other social organizations, will also volunteer in order to help the people and provide mental health support and aid.
- **Clothes, Utensils and Shelter:** The victims will be provided sufficient clothing and utensils and cover-ups in order to ensure them with safety, security and wellbeing. People who are rendered homeless will be shifted to temporary shelters or camps and shifted to safer locations. Later, these people may be provided with resources in order to reconstruct their houses, and also will be rehabilitated to safer locations after construction of houses.
- **Relief Camps:** Adequate number of safe locations, like grounds, opens spaces or building will be identified in order to setup relief camps at the time of emergencies. Special task forces will be created to look after the relief camps. Adequate supply of raw materials and other facilities like water, sanitation, food will also be provided. For effective governance systems, like provision of entitlement cards, identification cards, bank accounts for cash transfers will also be provided. The camps will be under continuous supervision.

7.8 RESPONSIBILITY MATRIX FOR EMERGENCY RESPONSE FUNCTIONS (HAZARD-WISE)

7.8.1 Earthquake

The following table shows the roles and responsibilities during earthquake emergency response for first 72 hours:

Table 48: Roles and responsibilities during earthquake emergency response

<i>Sl. No.</i>	<i>Key Actions</i>	<i>Responsibilities</i>
<i>TIME FRAME : ADVANCE PREPARATORY ACTIONS</i>		
<i>1.</i>	<i>Training of Personnel on Earthquake safety, precautions, prevention measures etc.</i>	<i>DDMA</i>
<i>2.</i>	<i>Establishment of alternative means of mobile communications.</i>	<i>BSNL</i>
<i>3.</i>	<i>Mobilization plan for fire services, including auxiliary firemen</i>	<i>Fire Service Department</i>
<i>4.</i>	<i>Plans of rescue of casualties trapped under-debris.</i>	<i>Fire Services, Civil Defense</i>
<i>5.</i>	<i>Provision of Hospital, medical and nursing staff.</i>	<i>Health Department</i>
<i>6.</i>	<i>Medical plans for improvised first aid posts and emergency Hospitals.</i>	<i>Health Department</i>
<i>7.</i>	<i>Removal of Debris</i>	<i>Fire Department and PWD</i>
<i>8.</i>	<i>Plan for emergency sanitation, alternative supplies of water</i>	<i>Water Supply Department</i>
<i>9.</i>	<i>Provision of welfare facilities</i>	<i>Social-Welfare Department, Revenue Department, Food and Supplies Department</i>
<i>10.</i>	<i>Plan and make arrangements for disposal of the dead and their identifications</i>	<i>Police Department, Civil Defence</i>
<i>11.</i>	<i>Mobilization of transport.</i>	<i>Transportation Department</i>
<i>12.</i>	<i>Requisitioning of vehicles and issue of petrol, oil, lubricant, spare parts and repair facilities.</i>	<i>Transportation Department</i>

13.	Plan for protection of properties including objects of art and things of cultural importance.	PWD
14.	Special measure for the protection/repair/restoration or essential service communications, industrial and vital plants.	DDMA
15.	Publicity, information dissemination, awareness on EQ safety.	DDMA

Sl. No.	Key Actions	Responsibilities
TIME FRAME : 0 + 15 MINUTES		
16.	Report the occurrence of earthquake to DDMA, Heads of all line departments, ESF Nodal agencies, DDMC	Officer-in-charge of EOC
TIME FRAME : 0 + 30 MINUTES		
17.	Establish communication links by activating alternate communication equipments i.e. satellite phone, HF/ VHF set, HAM radio, VSAT etc.	Officer-in-charge of EOC

18.	Deploy mobile emergency communication units to affected areas for establishing communication link	BSNL
19.	Activate the DMTs, QRT, FRT, ESFs etc.	DDMA Chairperson
20.	Ask all desk officers / team leaders and Incident Command Team members to immediately report to the EOC.	Officer-in-charge of EOC
21.	Verify the authentic of the incident from agencies like IMD, ISR, block level officers, police and fire department etc.	Officer-in-charge of EOC
22.	DDMA and EOC together analyze the information and take decision on the level of the disaster (viz. Village level, block level, sub-division level, district level etc.).	DDMA Chairperson
23.	Organize first coordination meeting with the ESF team leaders, District IAG, and the officials from the affected areas. IAG member representative from the affected areas should also be invited to share updates and ground level information. This meeting can be	Officer-in-charge of EOC

	<i>organized in the affected areas (such as Block office) if required and feasible.</i>	
TIME FRAME : 0 + 1 HOUR		
24.	<i>Establish onsite Emergency Operation Center</i>	<i>EOC</i>
25.	<i>Activate the emergency response as per the level of the disaster.</i> <ul style="list-style-type: none"> • <i>In case of disaster up to block level, the BDO takes charge of the emergency response coordination along with the DMTs, QRTs, FRTs and ESFs.</i> • <i>The BDO shall stay in regular communication with the DDMA and EOC for information updates and response actions.</i> • <i>In case of disaster up to district level, a senior officer of ADM rank shall be given responsibility of emergency response coordination. He/she shall coordinate with the EOC, DMTs, QRT, FRT, ESFs etc.</i> 	<i>DDMA Chairperson</i>
26.	<i>Activate the search and rescue teams in the affected areas with immediate effect.</i>	<i>EOC</i>
27.	<i>If required, ask for external support from armed forces, other technical institutions for reach, rescue and evacuation operations.</i>	<i>DDMA</i>
28.	<i>Collate and analyse the available initial information on damage and needs.</i>	<i>EOC</i>
29.	<i>Ask District-IAG to share their assessment information with EOC.</i>	<i>EOC</i>
Sl. No.	Key Actions	Responsibilities
TIME FRAME : 0 + 3 HOUR		
30.	<i>Senior ADM level officer to be deputed to the affected areas</i>	<i>DDMA</i>
31.	<i>Assess the condition of roads, rail route for quick mobilization of emergency teams and resources to the affected areas and take follow up actions</i>	<i>Transport Department, EOC</i>
	<i>Establish media management / information cell for</i>	

32.	<i>public information, guidance to volunteers and aid agencies and for rumor control</i>	<i>EOC, Information and Public Relations Department</i>
33.	<i>Contact District IAG, public and private sector agencies etc. to assist in emergency rescue and relief operations</i>	<i>DDMA</i>
34.	<i>If required, seek assistance from neighboring districts and state level.</i>	<i>DDMA</i>
35.	<i>Provide security in affected areas and maintain law and order situation</i>	<i>Police Department</i>
36.	<i>Mobilize medical response teams with orthopedic experts, first aid, cuts, wounds etc. to the affected areas.</i>	<i>Health Department</i>
37.	<i>Mobilize SAR teams and equipments etc. to the affected areas.</i>	<i>EOC, DDMA</i>
38.	<i>Maintain constant communication with onsite EOC</i>	<i>EOC</i>
39.	<i>Alert all major Hospitals to make necessary arrangements for treatment of injured</i>	<i>DDMA, EOC</i>
TIME FRAME : 0 + 12 HOUR		
40.	<i>Open access routes and manage traffic for mobilization of equipment, machinery and volunteers to the affected areas</i>	<i>Transportation Department</i>
41.	<i>Establish information centers at arrival and departure points viz. Railways station, bus stops etc.</i>	<i>DDMA</i>
42.	<i>Mobilize relief materials i.e. tents, food materials, water, essential medicines, blankets etc. to the affected areas.</i>	<i>Revenue Department</i>
43.	<i>Arrange to shift evacuated persons to temporary shelters and ensure provision of food, water & sanitation facilities, blankets, storage of relief materials etc.</i>	<i>Revenue Department</i>
44.	<i>Set up field Hospitals near the affected areas.</i>	<i>Health Department</i>
45.	<i>Arrange to shift injured people to field Hospitals.</i>	<i>Health Department</i>
TIME FRAME : 0 + 24 HOUR		
46.	<i>Develop situation report of the affected areas and share with all stakeholders. This should also be updated on the DDMA website promptly to ensure its</i>	<i>EOC</i>

	<i>availability to other stakeholders.</i>	
47.	<i>Prepare press note twice a day with details of situation and response being made.</i>	<i>EOC</i>
<i>Sl. No.</i>	<i>Key Actions</i>	<i>Responsibilities</i>
TIME FRAME : 0 + 24 HOUR		
48.	<i>Depute additional officers and supporting staff to affected areas from non-affected areas</i>	<i>DDMA</i>
49.	<i>Restore essential services i.e. power, water supply, telecommunication facilities of the EOC, HQ, AIR, Doordarshan, offices of key line departments, SP, Hospitals etc. on priority basis.</i>	<i>MSEB, BSNL, PWD</i>
TIME FRAME : 0 + 48 HOUR		
50.	<i>Plan for a multi sectoral damage and needs assessment of the affected areas. The assessment team may comprise of various ESFs and members from IAG to have a multi-agency, multi-sectoral assessment.</i>	<i>EOC</i>
51.	<i>Publish the assessment reports and other relevant information on the DDMA website.</i>	<i>EOC</i>
52.	<i>Arrange for identification, photograph, post mortem, and record maintenance for disposal of dead bodies (Refer NDMA guideline on disposal of dead)</i>	<i>Police Department, Health Department</i>
53.	<i>Set-up an information center near the relief shelters for community, relatives, NGOs etc.</i>	<i>EOC, Information and Public Relation Department</i>
54.	<i>Arrange system to receive reports and complaints regarding missing people and other such losses and damages, and initiate search in Hospitals, shelters and police records</i>	<i>EOC</i>
TIME FRAME : 0 + 72 HOUR		
55.	<i>Arrange for disposal of unidentified and unclaimed dead bodies</i>	<i>Police Department, Health Department</i>
56.	<i>Arrange for transportation of injured people from local Hospitals to district Hospitals or to other specialized Hospitals (if required)</i>	<i>Transportation Department, Health Department</i>
57.	<i>Initiate relief distribution and recovery actions</i>	<i>Revenue Department</i>

7.8.2 Floods

Table 49: Roles and responsibilities during flood emergency response

<i>Sl. No.</i>	<i>Key Actions</i>	<i>Responsibilities</i>
TIME FRAME : PRE FLOOD ACTIONS (PREPARATORY)		
1.	<i>Convening a meeting of the DDMA official, EOC and other concerned institutions to take stock of department wise preparations.</i>	<i>DDMA</i>
2.	<i>Take stock of functioning of the EOC and Control Rooms;</i>	<i>DDMA</i>
3.	<i>Closure of past breaches in river and canal embankments and guarding of weak points;</i>	
4.	<i>Rain-recording and submission of rainfall reports.</i>	<i>Water Resource Department</i>
5.	<i>Communication of gauge-readings and preparation of maps and charts</i>	<i>Water Resource Department</i>
6.	<i>Assigning charge of flood Circles;</i>	<i>DDMA</i>
7.	<i>Dissemination of weather reports and flood bulletins issued by the Meteorological centers, Central Water Commission, Flood Forecasting Organization;</i>	<i>EOC</i>
8.	<i>Deployment of boats at strategic points (most sensitive embankments);</i>	<i>DDMA</i>
9.	<i>Arrangement and use of power / motor boats;</i>	<i>DDMA</i>
10.	<i>Installation of temporary Police Wireless Stations and temporary telephones in flood-prone areas;</i>	<i>Police Department, BSNL</i>
11.	<i>Arrangement for keeping telephone and telegraph lines in order;</i>	<i>BSNL</i>
12.	<i>Storage of food in interior, vulnerable strategic and key areas and arrangements for their safety</i>	<i>Food and Supplies Department</i>
13.	<i>Arrangements of dry food stuff, essential medicines and other necessities of life;</i>	<i>Food Supplies Department, Revenue Department</i>
14.	<i>Alternative drinking water supply arrangements;</i>	<i>Public Health Department</i>
15.	<i>Arrangements for keeping the drainage system desalted and properly maintained.</i>	<i>Water Resource Department</i>
16.	<i>Appropriate measures for Health, Veterinary services etc.</i>	<i>Health & Animal Husbandry Department</i>

17.	<i>Identification / Selection of flood shelters;</i>	<i>Revenue, DDMA</i>
18.	<i>Advance arrangements for army assistance if required;</i>	<i>DDMA</i>
19.	<i>Training of department employees in flood relief work;</i>	<i>DDMA</i>
Sl. No.	Key Actions	Responsibilities
TIME FRAME : POST FLOOD ACTIONS (RESPONSE)		
20.	<i>Report the occurrence of flood to DDMA, Heads of all line departments, ESF Nodal agencies, DDMC</i>	<i>EOC</i>
21.	<i>Establish communication links by activating alternate communication equipment's i.e. satellite phone, HF/ VHF set, HAM radio, VSAT etc.</i>	<i>EOC</i>
22.	<i>Deploy mobile emergency communication unites to affected areas for establishing communication link</i>	<i>EOC</i>
23.	<i>Verify the authenticity of the flood event from agencies like IMD, ISR, block level officers, police and fire department etc.</i>	<i>EOC</i>
24.	<i>Organize first meeting of duty officers</i>	<i>DDMA</i>
25.	<i>Organizing and dispatching the search rescue teams to the affected areas.</i>	<i>DDMA</i>
26.	<i>Ask for SDRF/NDRF/ Army assistance as per requirement.</i>	<i>DDMA</i>
27.	<i>Organize relief camps and flood shelters</i>	<i>Revenue Department</i>
28.	<i>Provision of safe drinking water to the affected communities</i>	<i>PWD, Water Supply Department</i>
29.	<i>Organizing controlled kitchens to supply foods initially at least for 3 days.</i>	<i>Revenue & Food supplies</i>
30.	<i>Provision of health, sanitation and hygiene facilities</i>	<i>Health Dept., PWD, NGOs and Community Groups</i>
31.	<i>Making necessary arrangements for air dropping of food packets in the marooned villages through helicopters.</i>	<i>DDMA</i>
32.	<i>Organizing cattle camps, if necessary, and provide veterinary care, fodder and cattle feed to the affected animals.</i>	<i>Animal Husbandry and Fisheries Department if available</i>

33.	<i>Submission of daily reports and disseminates correct information through mass media and DDMA website to avoid rumors.</i>	<i>Revenue Department</i>
34.	<i>Rehabilitation of homeless people</i>	<i>EOC</i>
35.	<i>Commencement of agricultural activities-desiltation, re-sowing.</i>	<i>Revenue Department</i>
36.	<i>Maintain constant communication with the onsite EOCs</i>	<i>EOC</i>

Chapter 8 – RECONSTRUCTION, REHABILITATION AND RECOVERY MEASURES

Recovery is usually decision making and taking actions after a disaster with a view to “restoring or improving life and assets of the disaster stricken community, while encouraging and facilitating necessary adjustments towards disaster risk reduction. Recovery and reconstruction (R&R) or comprehensive rehabilitation is the final step in cycle of disaster management. In addition, this is the phase of new cycle, where the opportunity to reconstruction and rehabilitation should be utilized for building a better and more safe and resilient society. Strategies for restoring physical infrastructure and lifeline services may be:

- Build Back Better, which ensures greater resilience, preparedness and minimum loss in any event.
- Participatory planning, so that infrastructure development and social and cultural needs and preferences are both balanced well together.
- Coordination among various agencies and authorities.

Post disaster reconstruction and rehabilitation should pay attention to the following activities for speedy recovery in disaster hit areas. The contribution of both government as well as affected people is significant to deal with all the issues properly.

8.1 DETAILED DAMAGE AND LOSS ASSESSMENT

As damage assessment is one of the major requirements for an effective disaster management. Thus damage assessment needs to be conducted into two phases:

1. Preliminary Damage Assessment, which is carried out instantly after a disaster,
2. Detailed Damage Assessment which is conducted before reconstruction and rehabilitation processes by the respective departments. The following table can be filled or used after an event of disaster for damage and loss assessment:

Table 50: Damage and Loss Assessment

Power									
Service	Units Damaged		Villages Affected	Population Affected	Recovery Measure	Implementing Agency	Tentative Duration	Budget	
Feeder									
Transformer									
HT Lines									
LT Lines									
Electric Poles									
Health									
	PHC (Village Name)	Sub-PHC	Drug Store	Recovery Measures	Implementing Agencies	Tentative Duration (days to months)	Budget		
No. of Health Centres Inaccessible									
Drugs and Medicines Destroyed									
Medical Equipments Damaged									
Socio-Economic									
Village	Men	Women	Children	Houses	Shops	Recovery Measures	Implementing Agencies	Tentative Duration (Days to Months)	Budget
Water Supply									
Type	Village	Number of Units Affected	Recovery Measures	Implementing Agencies	Tentative Duration (months)	Budget			
Well									
Borewells									
Ponds									
Water-supply									

<i>Disrupted</i>								
<i>Contamination</i>								
<i>Pipeline Damaged</i>								
<i>Hand Pump</i>								
<i>Cattle Trough Damaged</i>								
<i>Reservoir Damaged</i>								
Road and Transport								
<i>Road Damage</i>	<i>Location</i>	<i>Severity</i>	<i>Length of the Road</i>	<i>Implementation Agency</i>	<i>Tentative Duration (months)</i>	<i>Budget</i>		
<i>Panchayat</i>								
<i>State Roads</i>								
<i>National Highway</i>								
<i>Nagar Palika</i>								
Communication								
<i>Landline Connectivity</i>								
<i>Mobile Connectivity</i>								
<i>Wireless Tower</i>								
<i>Radio</i>								
Food Supply								
<i>Type</i>	<i>No of Godowns damaged</i>	<i>Types of Grains Perished (tons)</i>	<i>Quantity of grain at risk (in tons)</i>	<i>Implementation Agencies</i>	<i>Tentative Duration (months)</i>	<i>Budget</i>		
<i>Civil Supply</i>								
<i>AMPC</i>								
<i>Others</i>								
Housing								
<i>Partial Damage</i>	<i>Fully Damaged</i>			<i>Recovery Measure</i>	<i>Scheme / Program</i>	<i>Implementing Agency</i>	<i>Tentative Duration (months)</i>	<i>Budget</i>
<i>Kutcha</i>	<i>Pucca</i>	<i>Kutcha</i>	<i>Pucca</i>					
Public Utilities								
<i>Public Buildings</i>	<i>Partial Damaged</i>	<i>Fully Damaged</i>	<i>Recovery Measures</i>	<i>Program / Scheme</i>	<i>Implementing Agency</i>	<i>Tentative Duration (months)</i>	<i>Budget</i>	
<i>Panchayat</i>								
<i>Education Buildings</i>								
<i>Anganwadi</i>								
<i>Hospitals</i>								
<i>Office Buildings</i>								
<i>Market</i>								
<i>Police Station</i>								
<i>Community Halls</i>								
Agriculture								

<i>Crop Failure (hectare)</i>	<i>Households effected</i>	<i>Recovery Measures</i>	<i>Implementation Agency</i>	<i>Tentative Duration (months)</i>	<i>Budget</i>

The above table shall be used after the initial damage assessment by departments.

8.2 ADMINISTRATIVE RELIEF

The district has essential but basic resources to respond to any natural calamity or hazard. The district level relief committee consisting of official and non-official members includes the local legislators and the members of parliament review the relief measures and make arrangements towards issue of essential commodities, group assistance to the affected people, damage assessment and administering appropriate rehabilitation and restoration measures.

8.3 RECONSTRUCTION OF HOUSES UNITS AND BASIC INFRASTRUCTURE REHABILITATION

Housing reconstruction and rehabilitation is usually constructed at a new location or site. For this land acquisition may be done and a proper survey to check its vulnerabilities is also conducted. Houses should be reconstructed in the disaster hit areas according to the following directions:

- Public Private Partnership Program (PPPP). Under this programme, the houses are reconstructed by the NGO's for the beneficiaries to be registered in the joint names.
- All the houses should be insured.
- Reconstruction driven by the owners itself.
- Assistance (technical, financial and material) to be provided by the government.
- The designs for seismic reconstruction of houses provided by the government.

- The material assistance provided through material banks at subsidized rates.

Upgrading the existing damaged houses with the help of repairing and retrofitting is also part of reconstruction. Restoration of basic infrastructures like schools, offices, bridges may also be processed either on the damaged or the existing areas or on new relocated areas.

8.4 ECONOMIC REHABILITATION

Economic rehabilitation mainly focuses on restoring economic attributes and bringing about stability in the economic system. This can be done by creating livelihood options, reconstruction of the infrastructure, provisions of schemes to disaster affected communities, provision of essential capital like seeds, manure, livestock to communities to restart their livelihood activities like farming and agriculture. Employment opportunities for rehabilitation processes may also add to economic rehabilitation.

8.5 SOCIAL REHABILITATION

Social Rehabilitation mainly focuses of restoring educational facilities and institutions in the district, cultural places and socially deprived communities or population. For example special medical support will be given to pregnant women's and lactating mothers. Special camps and orphaned children will be settled in foster care, and child-help lines will also be established. Aged people and women will also be provided with pensions and some reimbursements. Women maybe engaged in livelihood restoration projects and differently-abled people will be given special treatments and will be kept under continuous supervision of the doctors.

8.6 LONG TERM RECOVERY PROGRAM

Disaster recovery usually occurs in stages, with preliminary efforts committed to helping those affected and hence meeting up immediate needs for housing, food and water. As homes, business and economy are recovered, people return to work and societies persists with the rebuilding efforts. Many government agencies, voluntary

organizations, and the private sector cooperate to provide assistance and support to the affected communities.

Some individuals, families and communities that are especially affected hard by a disaster, need more time and specialized assistance to recover and more dignified structure to support them to reach a standardized space. This phase of long term recovery can also be termed as reconstruction and rehabilitation as now the focus of the authorities has shifted from short term needs to getting the normal lives of effected people on track. During this time the contribution of both government as well as affected people is significant to deal with all the issues properly.

Chapter 9: FINANCIAL RESOURCES FOR IMPLEMENTATION OF DDMP

Section 48 of the DM Act, states that the State Disaster Response Fund (SDRF) and State Disaster Mitigation Fund (SDMF), District Disaster Response Fund (DDRF) and District Disaster Mitigation Fund (DDMF) will be created at both State and District levels. The DDMA will use the DDRF and the DDMF, to meet the expenses for emergency situations according to the guidelines executed by the GOI and the State Government.

9.1 STATE ALLOCATION

The Revenue and Disaster Management Department, Government of Maharashtra prepares the budget for Disaster Management in the State.

9.2 STATE DISASTER RESPONSE FUND (SDRF)

According to the Section 48 of the DM Act, 2005, the SDRF will be formed with 90 percent funding from the Central Government and 10 percent with the help of State share. This fund will be used for post-disaster activities.

9.3 STATE DISASTER MITIGATION FUND (SDMF)

The Section 48 of the DM Act, 2005 states that SDMF is to be created for pre-disaster activities that are to operate in the state.

9.4 DISTRICT DISASTER RESPONSE FUND (DDRF)

The DDRF is also stated in the Section 48 of DM Act, 2005 and this fund will be used by the DDMA for pre-disaster activities in the district.

9.5 DISTRICT DISASTER MITIGATION FUND (DDMF)

The District Authority have District Disaster Mitigation fund. It shall be provided by the government of Maharashtra for structural mitigation through pilot projects and for non structural mitigation such as sensitization programmes, trainings, awareness programs do's and don'ts, preparation of taluka, village and District level Disaster management plans mock drills etc. DDMA Satara has a separate bank account for this fund and it has operated by District collector and Resident Deputy Collector.

9.6 DISTRICT CALAMITY RELIEF FUND (DCRF)

Besides, the provision of DDMA Satara shall constitute a District Calamity Relief Fund (DCRF). This amount shall be raised purely from the General Public through donations. But DDMA Satara has no such relief fund. There can be a committee under the leadership of the District Collector Satara, to operate the fund. Once the fund is created, every year the DDMA shall prepare reports on the utilization of fund, disasters faced in the previous financial year as well as potential programme planning for utilization of this fund.

9.6 DEPARTMENTAL FUND

Section 39 of the DM Act, 2005 also states that each department of the State Government will allocate funds for prevention, mitigation measures, capacity building and preparedness processes.

9.7 RECOMMENDATION OF THE 13TH FINANCE COMMISSION

The 13th Finance Commission (2011-2014) has responded very positively to the long pending request for greater allocation of fund for disaster management. The finance commissioner suggested various recommendations to solve the issue in state and district level. Every state has a State Calamity Relief Fund (SCRF) for immediate action after math of a disaster. There is police modernization fund, which is utilized mostly to

modernize the police department to fight against disaster. An alternative mechanism is to be constituted in all the districts of Satara to tackle the disasters. As the 13th Finance Commission recommends it, State of Maharashtra shall Rupees Five crore has been given to state.

Chapter10 - PROCEDURE AND METHODOLOGY FOR MONITORING EVALUATION, UPDATION MAINTENANCE AND DISSEMINATION OF DDMP

The strategy of monitoring and evaluating the DDMP are given below:

- Standard reviews to be given on the execution of the plan.
- Examining the efficiency of the plan by applying it after any major emergency situation that occurs in the district.
- Maintaining the India Disaster Resource Inventory (IDRN) by staying updated and connected with the plan.
- Revising all the list of important personnel's and their roles and responsibilities in the field of DM, every six months.
- Plan should be easily available in the web and in hard copies.
- Plan needs to be disseminated among the entire stakeholders and the line departments, agencies and concerned organizations, so that they are made aware of their roles and responsibilities.
- Conduction regular drills and activities needs to be done in order to test the usefulness of the plan.
- Regular training of officials responsible in implementation of the plan, and regular interactions with the army or any central government agencies for strengthening the plan.

10.1 AUTHORITY FOR MAINTAINING AND REVIEWING THE DDMP

The District Disaster Management Authority (DDMA) will be the responsible body to maintain and review the DDMP. It is stated in the Section 31 of the DM Act, 2005 that the plan will be updated annually and will be uploaded in the district website.

10.2 MONITORING AND EVALUATION

The DDMP will be monitored and evaluated properly by conducting mock-exercises and drills at the district, block and village levels. The purpose of evaluation of DDMP is to determine the adequacy of resources, coordination between various agencies, community participation and partnership with NGOs. The ease of understanding and using the plan will also be important considerations. The plan will be updated when shortcomings are observed in the following manner:

- Organizational structures,
- Technological changes,
- Response mechanism followed on reports,
- Assignments given by the State agencies.

Individuals and agencies assigned specific responsibilities within this plan will prepare appropriate supporting plans and related standard operating procedures, periodically review and update alerting procedures and resource listings, and maintain an acceptable level of preparedness. The DDMP would be evaluated by both the district and the state.

10.3 PLAN UPDATE

The DDMP is a 'living document' and the District Disaster Management Authority will update it every year under the guidance of Collector and the State Government, taking into consideration updates on human resources, technology to be used and coordination issues. An annual conference for DDMP update will be organized by the Collector. All concerned departments and agencies would participate and give recommendations on specific issues. The following guidelines would be adhered to while updating the DDMP:

- A procedure would be in place to update the plan on a regular basis to ensure that the items requiring updating are considered.
- When an amendment is made to a plan, the amendment date would be noted on the updated page of the plan.

A senior official in every agency is to be designated to ensure that all plan-holders are notified of changes as soon as possible. Plan-holders would be requested to verify that they have received the changes.

Chapter 11 - COODINATION MECHANISM FOR IMPLEMENTATION OF DDMP

11.1 PREPARATION AND UPDATION OF DDMP

District Disaster Management Plan for the Satara is a public document. It is neither a confidential document nor restricted to any particular section or department of administration. The underlying principal of disaster management is that it has to be part of all departments and none can fold fingers against it. The District Disaster Management Plan is the sum and substance of the *Horizontal and the Vertical* disaster management plans in the district. Horizontal plans included plans prepared by line departments such as Police, Fire Service, Municipal Corporation Department, Irrigation and Flood Control, Civil Defence, Department of Food and Civil Supplies, Public Works Departments etc where as the Vertical plan includes Sub Divisional Plans, Community Plans, School/Hospital plans and all other logical units' plan at the lower level and State disaster management plans and National disaster management plans at the higherlevel.Preparation of plan is the ultimate responsibility of the District Disaster Management Committee (DDMA or the person / sub committee appointed by the DDMA in the district. The first draft plan is to be discussed in the DDMA and later the Chairman of the DDMA shall ratify it.The same procedure is to be followed in updating of the plan document. The District plan is to be updated biannually by the District Disaster Management Committee or the s committee appointed by the DDMA. In order to update the document, all Vertical and Horizontal plans shall be collected and incorporated to the District Plan.After each biannual updation of the DDMP, version number shall be given serially. A copy of the updated document shall be circulated to each stakeholder of disaster management in district.

11.2 REGULAR UPDATION OF DDMP

Besides the above said procedure of updation of the DDMP, a regular data collection system shall be set up at district EOC. This is just to be ready to face any situation, though the Plan Document has not been updated since last few couple of months. The EOC in-charge, under the supervision of the DDMA Chairman shall enter the collected data to an online system or shall be documented properly.

11.2 POST DISASTER EVALUATION MECHANISM

Disasters are always unexpected. Each disaster causes huge loss of human lives, live stocks and property as well. It is said that, every disaster repeats after a particular interval. Also lessons learnt from a particular disaster will help to plan for another potential hazard. The DDMA Chairman shall make special arrangements to collect data on a particular disaster irrespective of size and vulnerability. This post disaster evaluation mechanism shall be set up with qualified professionals and researchers and the collected data shall be thoroughly crosschecked and documented in the EOC for further reference.

11.3 MEDIAMANAGEMENT

Media Management is one of the core issues related to disaster management. Usually, in case of disaster, hundreds of media crew reaches the site even before the outside disaster management agencies and the masses the situation. The report they release on air is contradicting and creates panic. In order to control the situation certain arrangements shall be made by the district. As a disaster is noticed the Incident Commander shall do the following measures to control the media:

- Along with information dissemination to the vertical and horizontal agencies, press people also shall be called and given preliminary data based on assessment. This shall reduce the guesswork of the media people.
- Only the state owned electronic, print media should be taken to the site. More people mean more confusion and hazard in disaster management.
- In every one hour or so the Incident commander shall give press release in order to control false information to the outsideworld.

- No media shall be allowed to air or print pictures of dead bodies with worst condition. There is a tendency to do so by the media to make sensitivity. In a disaster situation, only the incident commander or his assignee in district level will communicate with the media and provide brief, No other parallel agency or ESF or voluntary agency involved in the disaster management shall give any sort of press briefings.

Chapter 12 - STANDARD OPERATING PROCEDURES (SOPs) AND CHECKLISTS

12.1 STANDARD OPERATING PROCEDURES (SOP's)

These are the common method of implementing instructions. SOP's makes provision of responsive protocols, and helps in carrying out responsibilities in an effective way. SOP's are appropriate handling for complex tasks, which requires step by step instructions and norms. The SOP's will be prepared for each departments and it will be followed under the guidelines set by Government of India.

12.2 OBJECTIVES OF SOP

The objectives of Standard Operating Procedures (SOP) at district level are as follows:

- To offer a suitable and a concise list of chief exclusive actions which can be involved into response towards natural disasters and important measures related to relief, response and preparedness.
- To make sure that all ministries and departments at district level, are aware of the exact methods required of them at each stage of the process and also to guarantee that all activities are closely and continuously synchronized.
- To point out various actions which will be required by the district administrative units and departments within their area of responsibilities, in order for them to prepare and review the Contingency Actions Plans accordingly.

12.3 ROLES AND RESPONSIBILITIES OF VARIOUS DEPARTMENTS

12.3.1 Revenue Department

Table 51: Revenue Department

<p><i>Normal Time Activities</i></p>	<ul style="list-style-type: none">• <i>A map of disaster prone areas in the district, history of the district, geographical conditions occupational details, settlements, rain, irrigation and industries etc.</i>• <i>Safe alternative routes to utilize during disaster in the disaster prone areas.</i>• <i>Key officers of all the departments, staff, vehicles and buildings.</i>• <i>Details of control room arrangement.</i>• <i>Details of geographical groups and assignment of Zonal Officer.</i>• <i>Details of food grain storage places in the district and the Fair Price Shops.</i>• <i>Details of vehicles, boats and equipment's available in the district for rescue operation.</i>• <i>Setting up of communication to communicate the messages from village to village.</i>• <i>Details of operating systems for District Disaster Management Committee.</i>• <i>Prepare a list of NGOs and self-help groups and their addresses and phone numbers in the district.</i>• <i>Orientation Training to various District level officers and departments for effective functioning of control room, co-ordinations and operations.</i>• <i>Details of salt pan workers and fisherman who can become the victims of Disasters and sufficient arrangement to contact the owners of Saltpans.</i>• <i>Special appointments of persons in charge of control room.</i>• <i>Hazard analysis, seasons, and possibilities of</i>
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disasters and review of disaster history.

- *Review of disaster prone areas, risks, response plan, resource and utility of resources and equipment's.*
- *Prepare a strategy for disaster management.*
- *To update the DDMP.*
- *To check the condition of safe shelter during his visits in the district places and if necessary gets it repaired by co-ordinating with the local authorities, available financial resources and voluntary organizations.*
- *Repairing of roads and ways leading to safe shelters by coordinating with various development plans/schemes.*
- *Evacuation plan as a part of DDMP.*
- *To undertake development projects like rural housing, scarcity of relief works, disposal of rainwater and water conservation and water harvesting.*
- *To co-ordinate scheme for poverty eradication, self-employment and the schemes of other departments.*

On Receiving Warning

- *Will review the alarming situation in the meeting of DDMC.*
- *Assigning the work as to what to be done by which officer in case the disaster hits.*
- *Will review and have co-ordination task*
- *Will alert and activate the functionaries' related to early warning and communication looking to the possibilities of disaster and will see that the messages are intimated to the members.*
- *Distribution of work for operation of round the clock control room.*

- *Will send the vehicles with mikes and sound system for the areas of top priorities.*
- *Will instruct all the staff to remain present at their respective places.*
- *Shifting the people living in low lying areas, seashores, and economically weaker people socially and economically backward families and houseless families to safe places.*
- *Will work out the arrangements for search and rescue operation, shifting of people and utilization of human resources as per necessity with the help of DMTs and local community through Zonal Officers.*
- *Will arrange for temporary shelter for the people evacuated by giving the warning in advance.*
- *Will provide the vehicles to shift the people to the safer place when necessary.*
- *Will undertake the operation of forceful evacuation of people if they are not ready to leave even after warning.*
- *Will arrange for food, drinking water, medicines at temporary shelters and relief camps with the help of local NGOs, doctors, industrial houses, etc.*
- *Will make in advance preparations for relief activities through local NGOs, industrial houses, and donors over and above normal norms of the relief.*
- *Will work out the financial estimates for search and rescue and immediate relief.*
- *Will segregate the villagers and areas victimized by the disaster and activate the DMTs .*

Post-Disaster Activities

- *Will start relief activities including emergency relief distribution and work out the strategy of damage assessment and provide the formats for the same and explain to all the staffmembers.*
- *Will guide the team members about the payments of relief accident to damage as per the rules and policies of the government before the start of duty.*
- *Will make arrangements for the transportation and distribution of Govt. relief amount and materials.*
- *Will make due arrangements to see that there should be no hap-hazard distribution of relief material so that needy people are not deprived of it.*
- *Will arrange for drinking water and essential things at community kitchen / relief camps as per the necessity.*
- *Will work out the primary estimates of the damage.*
- *Will undertake the rescue operations to save the trapped people through DMTs trained police personnel and swimmers on need base.*
- *Will requisite more vehicles for rescue work, shifting the people to temporary/permanent dispensary for treatment through DMTs, NCC, Home Guards, Local Police, and Para Military Forces etc.*
- *Will arrange for identification of the people, who died, maintain the dead bodies till legal procedure is over.*

12.3.2 Police Department

Table 52: Police Department

<p><i>Normal Time Activities</i></p>	<ul style="list-style-type: none">• <i>The Superintendent of Police shall coordinate the work of disaster management as nodal officer. He will prepare a separate and comprehensive plan of district regarding the department of police and also prepare details of resources as a part of DDMP. He will consider the following in it.</i>• <i>Details of contacts of all the staff members under the district.</i>• <i>Maps and statistical data of district areas.</i>• <i>Resources and human resources useful at the time of disasters.</i>• <i>Details of police staff and retired officers/staff of the police and the control room.</i>• <i>Details of functions of staff of the district control room.</i>• <i>Appointment of the nodal officer in the control room.</i>• <i>Traffic arrangements towards the disaster affected areas.</i>• <i>Details of anti social elements.</i>• <i>Security arrangements at relief camps and food storage.</i>• <i>Security for the transportation of the relief material.</i>• <i>Immediate police procedures for human death.</i>• <i>To assist the authorities for the evacuation of people from disaster affected areas.</i>• <i>Adequate equipments for communication.</i>• <i>List of swimmers.</i>
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	<ul style="list-style-type: none"> • <i>Wireless stations in the district and communication network.</i> • <i>To update the related details of Disaster Management Plan.</i>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>Will contact the district collector.</i> • <i>Make advance preparation to implement the action plan for search and rescue.</i> • <i>Will prepare a plan for police personnel for search and rescue.</i> • <i>Will arrange to communicate the messages through all the equipments of communication and vehicles as per the necessity.</i> • <i>Will requisite vehicles after obtaining the orders for the same from the district authorities</i>
<p><i>Post Disaster Activities</i></p>	<ul style="list-style-type: none"> • <i>Will arrange law and order against theft in the disaster affected area.</i> • <i>Will co-ordinate the search and rescue operation through NCC/NTF/NGO.</i> • <i>Will arrange for security at the relief camps/relief materials storages.</i> • <i>Will see the law and order is maintained at the time of distribution of relief material.</i> • <i>Will assist the authorities for evacuation of people to the safer places.</i> • <i>Will make due arrangements for post mortem of dead persons, and legal procedure for speedy disposal.</i>

12.3.3 Health Department

Table 53: Health Department

<p><i>Normal Time Activities</i></p>	<p><i>While preparing the DDMP / updating the same, the health department shall take care to include the following particulars carefully.</i></p> <ul style="list-style-type: none"><i>• A separate plan for disaster management regarding health.</i><i>• Arrangements for exchange of information in the control room.</i><i>• Appointment of nodal officer.</i><i>• Advance arrangements for life saving medicines, insecticides and vaccines.</i><i>• Maintenance of vehicles such as ambulance, jeep and other equipments such as generator etc.</i><i>• Distribution of work by forming groups of staff during emergency.</i><i>• List of private practicing doctors / medical facilities.</i><i>• Arrangement for survey of disaster.</i><i>• Mobile dispensary units.</i><i>• Information regarding proper places for on the spot medical services in various villages during disaster.</i><i>• Dissemination of information among the people regarding the death, injury.</i><i>• Primary information of disaster related relief activities to all the staff members.</i><i>• Training to PHC / Community Health Centre staff to prevent spreading of diseases among the people, animals, and</i>
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	<p><i>advance planning for the same.</i></p> <ul style="list-style-type: none"> • <i>Blood group wise list of blood donors with contact telephone numbers and addresses.</i> • <i>Training of DMTs regarding first aid.</i> • <i>To prepare an action plan for the availability of equipments to be useful at the time of disaster management for medical treatment.</i> • <i>Co-ordination with various government agencies – schemes to meet the necessity of equipments in emergency.</i> • <i>To see that all vehicles like ambulance, jeep and equipments like generators and equipments essential for health care are in working condition.</i>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>Will ensure the availability of important medicines, life saving medicines, insecticides and if necessary contact for additional supply.</i> • <i>Round the clock control room at the district level.</i> • <i>Will send the health staff for duty in their areas as per the plan of disaster management.</i> • <i>Activate the mobile health units for the post disaster situation.</i> • <i>Will organize in advance to mobilize the local doctors and local voluntary agency for emergency work.</i> • <i>Will contact the blood donors for blood donation, on the basis of lists prepared.</i>
	<ul style="list-style-type: none"> • <i>Provide first aid to the injured and shifting of seriously injured people to the nearby Hospital.</i> • <i>Send sufficient stock of medicines to the</i>

Post Disaster Activities

- affected areas immediately.*
- Will make arrangements for the available additional health staff in the affected areas deputed by the state authority.*
- Will organize to get the insecticides to prevent spreading of diseases.*
- Will ensure the purity of drinking water by testing the sources of water.*
- Will depute the mobile units for first aid.*
- Distribution of chlorine tablets and other necessary medicines from house to house.*
- Will shift the seriously injured people to the Hospital.*
- Will immediately start the procedure for post mortem of the dead persons as per the rules.*

12.3.4 Water Supply Department

Table 54: Water Supply Department

Normal Time Activities

- The water supply dept. shall ensure the following to be included in the DDMP:*
- Setting up of control room and arrangement for the control room operator.*
 - Assign the responsibility as nodal officer to the Executive Engineer or any other officer.*
 - Prepare an alternative contingency plan to provide drinking water in case of failure of regular water distribution system during disaster.*
 - Detailed information of available water resources throughout the district.*
 - Arrangement of Govt. or private tankers to provide water temporary and immediately.*
 - Preventive measures for water borne diseases and chlorination of water.*

	<ul style="list-style-type: none"> • Availability of safe drinking water in the affected areas. • Inform the staff about the disaster.
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • Organize the teams to check the sources of water / drinking water. • Standby arrangements of tankers for drinking water through tankers or any other available source. • Will make available chlorine tablets insufficient quantity and arrange to distribute through DMTs.
<p><i>Post Disaster Work</i></p>	<ul style="list-style-type: none"> • Implement the alternative contingency plan to provide drinking water in case of failure of regular water distribution systems during disaster. • Will start work for immediate repairing of water pipes in case of damage. • Will arrange to check the water tanks, overhead tanks, and pumps, reservoirs and other water resources. • Will contact the electricity authorities to re-establish the electric supply in case of failure. • Will provide chlorinated water either by activating group water supply schemes individual schemes or through tankers. • Will provide drinking water to the relief camps / relief kitchens, shelters etc. through available resources.

12.3.5 Irrigation Department

Table 55: Irrigation Department

	<p><i>The irrigation department shall carefully include the following particulars while preparing / updating the DDMP:</i></p> <ul style="list-style-type: none"> • <i>Contact address and phone numbers of all the staff / officers, vehicles and swimmers of the District.</i> • <i>Details of irrigation related factors in the district such as rivers, pools canals, large and medium dams, etc.</i> • <i>Control room arrangements and appointment of Nodal Officer.</i> • <i>Details of damage prone areas.</i> • <i>Location of water level gauge station for flood situation.</i> • <i>To disseminate information / warning to the damage prone areas in case of flood situation.</i> • <i>Details of immediate action to be taken in case of leakage in large water storage reservoirs.</i> • <i>Supervision over major storage / reservoirs.</i> • <i>Very clear explanation of disaster and priorities during disasters to all the staff.</i> • <i>Effective working of control room at every major dam.</i> • <i>Enough and ultra modern equipments for communication.</i> • <i>Periodical checking of Dams, canal –tunnel, roads leading to dams etc. for maintenance during normal time.</i>
<p><i>Normal Time Activities</i></p>	
	<ul style="list-style-type: none"> • <i>Ensure that communication equipments like telephone, mobile phone, wireless set and</i>

On Receiving Warning

- siren etc. are in working conditions.*
- Keep the technical and non-technical staff under control, ready and alert.*
- Get status report of ponds, dam, canal and small dams through technical persons.*
- Will take decision to release the water in consultation with the competent authority and immediately warn the people living in low lying areas in case of increasing flow of water or overflow.*
- Keep the alternative arrangements ready in case of damage to the structure of dam / check dam to leakage or overflow in the reservoirs.*
- Make due arrangements to disseminate the information about the increasing and decreasing water level whatever it may be to the community, media etc.*
- A senior officer will remain and work accordingly at large storage reservoirs.*
- Will arrange to provide the dewatering pumps, generators, trucks and bulldozers, excavator, boats for search and rescue operations wherever required.*

Post Disaster Work

- Will obtain the clear picture of the condition of all the reservoirs through teams of technical officers.*
- Ensure about no overflow or no leakage.*
- If overflow or leakage is found, start immediate action to avoid adverse effect to the reservoir as per the action plan.*
- If there is no possibility and risk, keep the people and media informed about “everything being safe”.*
- If overflow or any leakage is found, he will*

immediately warn the people living in the low lying areas.

- Will take due care for the transportation of drinking water if drinking water is provided through irrigation scheme.*
- Will assist the local administration to use boats, dewatering pumps, and etc. search and rescue operations.*

12.3.6 Agriculture Department

Table 56: Agriculture Department

Normal Time Activities

- All the details of his subordinate staff with addresses and phone numbers and resources of irrigation for agriculture in all the villages.*
- Details of buildings, vehicles and equipments under his control and list of contractors with vehicles and equipments used by them.*
- Maps showing details of agricultural resource laboratory, seed centre and agriculture training school with statistical data.*
- Details regarding agricultural production, extension, seed growth centres, agriculture university campus, training centres etc;*
- Action plan regarding the repair/alternative arrangement in case of agricultural production related facilities are disrupted.*
- Will prepare the action plans to avail the technical, semi technical and administrative employees along with vehicles from nearby district and taluka offices.*
- Will inspect the sub-ordinate offices, other*

centres and sub-centres under his control, which are damageprone.

- *Will prepare a sub-plan for timely and speedy availability of machines and equipments to restoration of the economic activities in case of loss of properties as well as crops.*
- *Will maintain the departmental equipments such as diesel generators, dumpers, generator, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, de-dusting equipments etc; which can be used during emergency and ensure every 3 months those are in working condition.*
- *Will prepare a list of public properties related to agriculture in the damage prone areas and will in advance make arrangements to lessen the damage.*
- *Will take due care to see that the emergency services at Hospital, shelters, with special reference to agriculture are not disrupted.*

On Receiving Warning

- *Will immediately contact the District Control Room and will assist in the work assigned to him as a part of his duty.*
- *Will assign the work to his subordinate officers and staff the work to be done regarding agriculture under DDMP and will send them to their sites.*
- *Will receive instruction from the district liaison officer and will take necessary action.*
- *Will ensure the availability of resources included in the DDMP and will make due arrangement to get those during emergency.*
- *Will make groups having vehicles for*



emergency work and will assign the areas to them.

- *Will set up a temporary Control Room for the dissemination of information foremergency work and will appoint a nodalofficer.*



- *Will follow the instruction of the District Liaison Officer.*
- *Will carry out the duty assigned to him for search and rescue work.*
- *Will deploy the resources and manpower available to manage the disaster.*
- *Will review the matters regarding discontinuation of movement for safety measures and will see that it is restarted verysoon.*
- *Will send DMTs with necessary equipments in case the crop is washed away, and if there is water logging in a very largeamount.*
- *Will act in such a way that the human life is restored again speedily and timely in the priorityareas.*

Post Disaster Activities



- *Will contact the circle office or central control room if machines equipments, vehicles, man power, technical personnel are required to restore the agricultural activities.*
- *Will make arrangement to avail the external helps to manage to disaster.*
- *Will collect the details of loss of crops to send it to the district administration.*
- *Should have the details of village wise various crops in the district.*
- *Will prepare a primary survey report of*

crop damage in the area and will send the same to district control room and also to the administrative head

- *Will immediately put the action plan in real action during the emergency.*

12.3.7 MSEB (Maharashtra State Electricity Board) or Energy Department

Table 57: MSEB

Normal Time Activities

While preparing a separate plan regarding M.S.E.D.C /Energy Department will prepare the list of available resource as a part of DDMP. It will include the following:

- *Details of the staff members with their contact addresses and telephone numbers.*
- *Maps showing the power stations, sub-stations, Diversification of Power units (DPs), transformers and major electric lines with detail information.*
- *Other important details like water supply scheme depending on electricity, drainage systems, railway stations, bus-depots, ports, strategically important places, army, air force, navy camps, light houses, major Hospitals and for that he will check and ensure of electric supply during emergency.*
- *Prepare an action plan for repairs I alternative arrangement in the case of electricity disruption as a part of DDMP.*
- *Inspect at every 3 months the power stations. Sub-stations etc; which are damage prone.*
- *The, plan should include for timely supply of electric poles, D.Ps, transformers etc; at the time of linedisruption.*
- *To prepare an action plan for immediate procurement of the required tools and equipments for restoration of electric supply on temporary bases.*
- *To prepare a list of public properties related to M.S.E.B,*

	<p><i>which are in the damage prone areas and will make advance arrangements to minimize the damage.</i></p>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>To contact the District Control Room and make assistance in their work.</i> • <i>To ensure that all the employees remain present on duty at the taluka head quarter.</i> • <i>To assign work to all officers/employees related to M.S.E.D.C.</i> • <i>Will ensure to make available the resources available and will establish contacts for the same to deploy those at the time of emergency, which are included in the DDMP.</i> • <i>To consult the District Liaison Officer to discontinue the supply in case of damage in the line or for the safety of the people and property.</i> • <i>To make groups having vehicles for the emergency work and will assign the areas.</i> • <i>To immediately set up a temporary control room in the office for dissemination of information during the disaster and will appoint a nodal officer from MSED C for this work.</i>
	<ul style="list-style-type: none"> • <i>To follow the instructions of the district liaison officer.</i> • <i>To perform the duties assigned for the search and rescue work.</i> • <i>To deploy the resources and manpower required for the disaster management.</i> • <i>To dispatch the task forces with necessary equipments to the place where the electric supply is disrupted and ensures that the same is restarted at the earliest.</i> • <i>Contacting the circle office or the Central Control Room of MSED C to procure the machines and equipments, vehicles, manpower, technical personnel for restoration of the electric supply.</i> • <i>To utilize the external resources and manpower allotted to him in a planned manner for disaster management.</i> • <i>To immediately undertake the emergency repairing work as mentioned in the action plan.</i>

Post Disaster Activities

- *To prepare a primary survey report regarding damage in the area and send the same to the district control room and to the own administrative head immediately.*
- *To make temporary arrangement for electric supply to the places like Hospitals, shelter, jail, police stations, bus depots etc; with D.G. setsin.*

12.3.8 Public Works Department

Table 58: P.W.D

Normal Time Activities

- *Details of the staff members with their contact addresses and telephonenumber.*
- *Details of buildings, vehicles and equipment as well as the names of contractors and the vehicles and equipment used bythem.*
- *Maps of the areas in the district with the statistical data related to available resources.*
- *The position of approach roads and other road of all the villages including bridges, railway crossingetc.*
- *To strictly observe the rules during the constructions regarding earthquake and cyclone proofmaterials.*
- *The PWD will inspect periodically the buildings, residences, high rise buildings under theircontrol.*
- *Damage prone road bridges and arrangement for their inspections*
- *Action plan for emergencyrepairs.*
- *Will appoint an officer of the rank of Assistant Engineer to coordinate during emergency at the District ControlRoom.*
- *Will maintain the departmental equipments*

	<p><i>such as bulldozers, tractors, water tankers, dumpers, earthmovers excavator, de-watering pumps, generators, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters etc; which can be used during emergency and will quarterly check up these to ensure in working condition.</i></p>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>Will immediately contact the District Control Room for assistance.</i> • <i>Will ensure that all the staff members remain on duty at the headquarters.</i> • <i>Will send the officers and the staff assigning them specific duties for the DDMP</i> • <i>Undertake all the action for the disaster management required to be done by the PWD after receiving instructions from district liaison officer</i>
<p><i>Post Disaster Activities</i></p>	<ul style="list-style-type: none"> • <i>Will follow the instructions of the District Liaison Officer.</i> • <i>Will remain active for search and rescue activities.</i> • <i>Will provide all the available resources and manpower for disaster management.</i> • <i>Will mobilize the service of technical personnel for the damage survey work to help the district administration.</i> • <i>Will prepare a primary report of damage in the affected area within 12 hours / 24 hours looking to the emerging situation.</i> • <i>Will make arrangements for electricity, water, and latrines in the temporary shelters. Will also inspect the approach roads leading to the temporary shelter and</i>

repair the same if so required.

12.3.9 Telecommunication Department (BSNL)

Table 59: Telecommunications Department

<p><i>Normal Time Activities</i></p>	<ul style="list-style-type: none">• <i>Details of the staff members with their contact addresses and telephonenumber.</i>• <i>Details of buildings, vehicles and equipments including the contractors and the vehicles and equipments used by them.</i>• <i>Maps showing the details of telephone exchanges, D.Ps, important telephone lines, hot lines, telex lines, microwave towers with statistical data.</i>• <i>Details of telephone numbers of water supplies, Control Room, Hospitals, drainage system, railway stations, bus depots, strategically important places, ports, Army, Air force, Navy camps, Jail, Police Station and other sensitive places, light houses, major industrial units, and other communication channels which can be used during emergency.</i>• <i>Action plan for repairs/alternative arrangement in case of disruption of telephone line and microwavetowers.</i>• <i>Inspect the telephone exchanges/sub-exchanges in the damage prone area at every 3 months.</i>• <i>To appoint an officer not below the rank of telephone inspector to co-ordinate the district control room during emergency.</i>• <i>To maintain the equipments such as diesel generators, dumpers, generator, cutters, tree cutters, ladder &, ropes, flood lights, shovels,</i>
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	<p><i>axes, hammers, RCC cutters, cable wires, fire equipments, etc; which can be used during emergency and ensure every month that these are in working condition.</i></p> <ul style="list-style-type: none"> • <i>To ensure that the telephone lines at the shelters, emergency Hospitals, police stations, control room and other places of emergency services, which can be used during disaster, are not disrupted.</i> • <i>To prepare a list of public properties related to the telephone department which are in damage prone areas and will make arrangements to lessen the damage.</i>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>To contact the District Control Room and assist in the work.</i> • <i>To ensure that the staff are on duty at the headquarters.</i> • <i>To assign work to the subordinate officers as per the DDMP and send them to the sites.</i> • <i>To receive the instructions from the District Liaison Officer and to do the needful.</i> • <i>To ensure availability of resources included in the DDMP and establish</i> • <i>To setup a temporary control room for the exchange of information's.</i>
	<ul style="list-style-type: none"> • <i>To follow the instructions of District Liaison Officer.</i> • <i>To perform the duties assigned for search and rescue work.</i> • <i>To deploy the resources and manpower available to manage the disaster.</i> • <i>To review the situation regarding disconnected telephone lines due to safety measures and re-establish the communication network as soon as possible.</i>

Post-Disaster Activities

- *To send the Disaster Management Teams with the necessary equipments for restoration of the telephone lines speedily where the lines are disrupted and to such places, which are strategically important.*
- *To make arrangements to obtain external help to manage the disaster.*
- *To prepare a primary survey report of damage and to send the same to the District Control Room and also to the administrative head within 6 hours.*
- *To arrange for temporary hotline services or temporary telephone connections at the District Control Room, Hospitals, shelters, ports, jails, police station, bus depots, etc.*
- *To immediately undertake the emergency repairing work.*
- *To make an action plan to avail immediately and timely, telephone poles, D.Ps, transformer to the established the communication system.*
- *To prepare an action plan to avail temporarily, technical personnel from the nearby district, staff and vehicles from the district office which are not affected in consultation with the district authority.*

12.3.10 Animal Husbandry

Table 60: Animal Husbandry Department

- *Addresses of members with telephonenumber.*
- *Details of veterinary centres, artificial insemination centres, veterinary dispensary, veterinary colleges' buildings, vehicles,*

Normal Time Activities

mobile dispensaries and equipments and also the details of vehicles and equipments used often by outsource.

- *Maps showing the details of animal breeding laboratories, animal vaccination centres animal husbandry training school with statistical data.*
- *Details of essential facilities to be provided at sensitive place such as important animal husbandry centres, veterinary college campus, training centre etc;*
- *Arrangement of repairs/alternative arrangements in case the facilities related to animal husbandry and veterinary services is disrupted.*
- *To make arrangements to necessary medicines, vaccines and other material, for treatment of animals.*
- *To collect the details of cattle in each village of the taluka, details of safe places for the treatment of animal, milk dairies, other private veterinary doctors and facilities related to it.*
- *To appoint an employee not below the rank of livestock inspector to coordinate the District Control Room during emergency.*
- *To maintain the equipments available such as stands to keep animals, sharp instruments, insecticides, diesel generators, dumpers, generator, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, de-dusting equipments etc; which can be used during emergency and will also ensure that they are in working condition.*

- To see that essential services related to animal husbandry and Veterinary services are not disrupted at the time of emergencies.
- To prepare a list of public properties related to animal husbandry, which are damage prone areas and will make advance planning to lessen the damage.

On Receiving Warning

- To immediately contact the District Control Room (DCR) and will assist in the work.
- To ensure that the staff is on duty at the headquarters.
- To assign the work to be done to the subordinate officers and staff and send them to their sites.
- To receive instructions from the district liaison officer and do the needful.
- To ensure the availability of resources included in the DDMP and will make necessary arrangements to obtain those during emergency.
- To consult the Liaison Officer to prevent the probable epidemic among the cattle and also for the safety measures.
- To make groups having vehicles for emergency work and will assign the areas to them.
- To set up a temporary control room for the exchange of information for emergency work and will appoint a nodal officer.

- To follow the instruction of the District Liaison Officer.
- To carry out the duty assigned to him for search and rescue work.
- To deploy the available resources and manpower to manage the disaster.

Post Disaster Activities

- *To review the matters to restart the milk collection activity where it has been closed for security measures.*
- *To send DMTs with necessary equipments in case of cattle death are there in the affected areas for the disposal of carcass with a view to restoration of public life and result oriented work. To arrange to treat the injured cattle.*
- *To contact the State Director of A.H. if additional equipments vehicles, manpower, technical personnel etc; are required for restoration of the cattle related activities.*

12.3.11 Transportation Department

Table 61: Transportation Department

Normal Time Activities

- *Details of the staff with contact numbers, details of bus drivers, conductors, mechanical and supervisory staff.*
- *Details of location of buses in all the areas of the district available round the clock.*
- *Details of fuel arrangements for buses for emergency work.*
- *Do's and Don'ts to be observed strictly during emergencies and details of priorities should be given to the staff.*
- *Arrangement for additional buses for evacuation of people from the affected areas.*
- *Details of buildings, vehicles and equipments under his control and list of contractors with vehicles and equipments used by them.*
- *Map showing S.T. depots; pick up stand, control point, S.T. garages and important routes with equipments of communication,*

telephone line, telex lines, megaphone, and amplifiers with statistical data.

- *Details of important telephone numbers of water supply schemes, control room Hospitals, drainage system, railway stations, bus depots, strategically important places, ports, Army Air force Navy camps and other sensitive places, light houses, major industrial units, and other communication channels which can be used during emergency/calamity.*
- *Action plan regarding repairs/alternative arrangement in case of disruption of transport services.*
- *Alternative routes for the transportation and road.*
- *To inspect the damage prone S. T. Depots, pick up stand, control points, garages etc; at the frequency of every threemonths.*
- *To plan out for restoration of goods transportation in case of damages observed, to the buses & parcelvan.*
- *To prepare an action plan to procure temporary buses, the technical personnel from the nearby district which are not affected.*
- *To maintain the equipments available such as cranes, diesel generator, earth over machines, de-dusting pumps, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, etc. which can be used during emergency and will ensure that those are in the working conditions.*
- *To take due care to see that the transportation at shelters and emergency*

	<p><i>Hospital is not disrupted during calamities.</i></p> <ul style="list-style-type: none"> • <i>To prepare a list of public properties related to transport department, which are in the damage prone area and will arrange in advance to minimize the damage.</i>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>To set up a temporary special control room and information centre at the main bus station.</i> • <i>To immediately contact the district control room and will assist in the work.</i> • <i>To ensure that the staff in the headquarters are on duty.</i> • <i>To assign the work to be done by the subordinate officers and staff regarding transportation under DDMP and to send them to their sites.</i> • <i>To receive instructions from the district liaison officer and will do the needful. To ensure for not allowing passenger buses to move out of the S.T. Depots during final warnings of cyclone, flood etc; to take safety measures for passengers who cannot return back to their home.</i> • <i>To ensure the availability of resources included in the DDMP and will make due arrangements to get those during emergency.</i> • <i>To consult the Liaison Officer to close the transportation in the damage prone areas for the safety of the people and the property.</i> • <i>To make groups having vehicles for emergency work and will assign the areas to them.</i> • <i>To set up a temporary control room for the dissemination of information for emergency</i>

Post Disaster Activities

work and will appoint a nodal officer.

- To make available the sufficient number of S.T. buses to the state administration for the evacuation of the people to safe places from the disaster prone areas.*
- To assist the administration to send the messages of warning to the remote areas through the drivers/conductors on transport routes.*
- To follow the instructions of District Liaison Officer.*
- To carry out the duty assigned for search and rescue work*
- To engage the resources and manpower available to manage the disaster.*
- To review the matter regarding closing of movement of buses for safety reason and see that those are restarted very soon.*
- To send DMTs with necessary equipments if the transportation is disrupted.*
- To contact the District Control Room if additional equipments, vehicles, manpower, technical personnel, which are required to restore the transportation related activities.*
- To prepare a primary survey report on damage in the area and will send it to the district control room and also to the administrative head within 6 hours.*
- To make temporary arrangement of transportation for control rooms, Hospitals, shelters, bus depot etc.*
- To immediately undertake repairs needed at the bus stations.*
- To collect the details of roads, damaged and will get them repaired in co-ordination*

with competent authority and will restore the bus services.

12.3.12 Forest Department

Table 62: Forest Department

<p><i>Normal Time Activities</i></p>	<ul style="list-style-type: none">• Addresses of members with telephonenumber.• Details of veterinary centres, artificial insemination centres, veterinary dispensary, veterinary colleges' buildings, vehicles, mobile dispensaries and equipments under his control and also the details of vehicles and equipments used often by outsource.• Maps showing the details of area with statistical data.• Approach roads under forest department and their condition including bridges, causeways, railway crossing etc.• Inspection of damage prone roads, bridges, check dams, causeways, under forest department• To inspect periodically the buildings, residencies, high causeways under forest department• To maintain the equipments available such as sharp instruments, insecticides, diesel generators, dumpers, generator, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, de-dusting equipments etc; which can be used during emergency and will also ensure that they are in working condition.• To take care of public shelters, other places to be used for evacuation with primary
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	<p><i>facilities likewater</i></p> <ul style="list-style-type: none"> • <i>To prepare a list of public properties in the damage prone forest areas and will make advance arrangements to lessen the damage.</i>
<p><i>On Receiving Warning</i></p>	<ul style="list-style-type: none"> • <i>To immediately contact the district control room and will assist in the work.</i> • <i>To ensure that the staff at the headquarters are on duty.</i> • <i>To assign the work to be done by the subordinate officers and staff regarding transportation under DDMP and to send them to their sites.</i> • <i>To arrange for wireless, telephones, manpower, forest guard in advance to disseminate information of the disaster in the damage prone areas and will play a key role with the district administration to warn the public.</i> <p><i>To make in advance arrangement for fuel wood and bamboos for priority areas.</i></p>
<p><i>Post Disaster Activities</i></p>	<ul style="list-style-type: none"> • <i>To follow the instructions of District Liaison Officer.</i> • <i>To carry out the duty assigned for search and rescue work.</i> • <i>To engage the resources and manpower available to manage the disaster.</i> • <i>To prepare a primary report of damage for the affected areas.</i> • <i>To take actions to provide electricity, water and latrine to the temporary shelters in the forest areas.</i> • <i>To send task forces with vehicles, tree cutters, ropes, flood light, generator in case of closure of roads due to felling of trees.</i>

**Satara District Phone Directory
Mantralaya Mumbai**

No	Name of Officer	Office	Mobile No.
1	Shri. Kishore Rajenimbalkar Secretary Reilef & Rehabilitation, mumbai	022-22025274 22016818	
2	Shri. Abhay Yawalkar Director Disaster Management, Maumbai	022-22026712 25200393	8007902145
3	Control Room Mantralaya Mumbai	22027990 22816624 22615035	22653819 22816625
4	Shri. Anupam Shrivastav Commandant NDRF , Pune	02114 - 247010	9423506765
5	Control Room (NDRF) Sadumbare pune	02114-247000	02114-247008

Divisional Commissioner office Pune

No	Name of Officer	Office	Mobile No.
1	Shri. Dipak Mhaisekar Divisional Commissioner pune	020-26362223 26361365	9011373444
2	Shri. Pratap Jadhav Deputy Commissioner (Revenue)	020-26360326	8425889947
3	Control Room Divisional Commissioner pune	020- 26340534 020-26360326	

Collector Office satara

No	Name of Officer	Office	Resi.	Mobile no.
1	Shri. Shekhar Singh Collector Satara	232750	232751	8806946449
2	Shri. Ramchndra Shinde Add. Collector satara	230138	233750	9422406636
3	Shri. Sunil Thorve RDC Satara	236133	234913	9423009367
4	Mrs. Vidyut Varkhede Dy. Collector Revenue	232349	-	9923461046
5	Monika Singh Dy. Collector (Election)	229605		8308397999
6	Smt. Kiran Kulkarni Dy. Collector (EGS)	233842		9422907230
7	B J Jagdale District Planning Officer	234843	239414	9422584516
8	Mrs. Samiksha Chandrakar Dist. Rehabilitation Officer	234292		9822186477
9	Mrs. Sneha Kiswe Dist. Supply Officer	234840		9604146186
10	Smt Rekha Solanki Dy. Collector, SLAO 2			9420482997
11	Sanjay Asawale Dy. Collector, SLAO 4			8552800664
12	Mrs. Dy. Collector, SLAO 9			
13	Dy. Collector, SLAO 16			
14	Manjusha Miskar Dy. Collector, SLAO 21			9049231001
15	Smt. R A Khamkar PA to collector	232250		9403772277
16	Chandrakant Gawari PA to Collector	232250		9604700355
17	Smt. Anita Deshmukh Tahsildar (Revenue)	236133		9527727200
18	Smt. Susma Paikerkari Tahsildar (General)	236133		8698681719
19	Ajit Kurhade Tahsildar (SGY)	236133		9561140239
20	Sameer Yadav Asst. DSO	234840		7588627304
21	Jagdish Nimbalkar Tahsildar DRO	234292		9921161118
22	Devidas Tamhane District Disaster Management Officer DDMO	232349		9657521122
23	Ravi Pawar Admin. Officer Nagar palika	233034		9689931521
24	Sanjay Gumaste District Information Office NIC	311103		9403166151

25	--- Mining Officer	234991	-	
26	Rajesh Jadhav Nyab Tahsildar (Revenue)	236133		942230380
27	Nyab Tahsildar (DC Branch)	232175		
28	Ravi Ranjane Nyab Tahsildar (RTS)	232349		9922488115
29	Smt Pratibha Khade Nyab Tahsildar (Entertainment)	-		9822312147
30	Law Officer	-		

Sub Divisional Officer

No	Name of Officer	Office	Resi.	Mobile no.
1	Minaj Mulla SDO Satara	02162 234395	234810	9423326601
2	Uttam Dighe SDO Karad	221378	221306	9130550892
3	Shivaji Jagtap SDO Phaltan	02166 222386	222261	9970694068
4	Smt Sangita Chowgule SDO Wai	02167 227744	222222	9404641020
5	Smt Kirti Nalawde SDO Koregaon	02163 221300	-	9423009011
6	Shrirang Tambe SDO Patan	02372 283122	-	9767805090
7	Smt Ashwini Jirange SDO Man	02165 220161	-	8600749999

Tahsildar

No	Name of Officer	Office	Resi.	Mobile no.
1	Mrs. Asha Holkar Tahsildar Satara	02162-230681	233876	9158303900
2	Mrs. Shubdha Shinde Tahsildar Koregaon	02163 - 220240	220241	9545520877
3	Sharad Patil Tahsildar Jawali	02378-285223	285254	7798889000
4	Ranjit Bhosle Tahsildar Wai	02167-227711	221222	9403240333
5	Mrs. Sushma Patil Tahsildar Mahableshwar	02168-260229	260262	9420125556
6	Dashrath Kale Tahsildar Khandala	02169-252128	252148	7030833939
7	Ramesh Patil Tahsildar Phaltan	02166-222210	220529	7083999900
8	Mrs. Bai Mane Tahsildar Maan	02165-220232	220249	9423990179
9	Mr. Archana Patil Tahsildar Khatav	02161-231238	231208	9960020021
10	Amar Wakde Tahsildar Karad	02164-222212	222468	9689475858
11	Sameer Yadav Tahsildar Patan	02372-283022	283040	7588627304

Satara Zilla Parishad

No	Name of Officer	Office	Mobile No
1	Shri. Uday Kabule Chairman ZP satara	233845	9822037366
2	Shri. Vidhate Dy. Chairman ZP Satara	233947	9820552115
3	Sanjay Bhagwat CEO, ZP Satara	230688/233945	9422993333
4	S V Dhotre Add. CEO Satara	226005	9421060248
5	S V Dhotre Project Director, DRDA	234189	8007577241
6	Dharmendra Kalokhe Chief Acc. & Finance Officer	233832	9423260201
7	Manoj Jadhav Dy. CEO (General)	238126	9970316105
8	Avinash Fadtare Dy. CEO (Grampanchyat)	233843	9766927673
9	K S Saymote Dy. CEO (Water & Cleanness)	236569	9595247449
10	M M Sase Dy. CEO (Woman & Child Development officer)	229888	9225801111
11	Mrs. Kolekar Education Officer (Primary)	234807	8275202366

12	Rajesh Kshirsagar Education Officer (Secondary)	233522	9423327836
13	Shri. A G Magdum Education Officer (Nirantar)	237687	9403551690
14	Patil S R Ex. Engg. Works (North)	238190	9423777778
15	Shri. Bhosle Ex. Engg. Works (South)	227927	9370562205
16	Amol Naik Ex. Engg. Minor irrigation	227998	8408080700
17	Shri. Sunil Shinde Ex. Engg. Rural Water Supply	230226	9921301155
18	Dr. Anirudha Athale District Health officer (DHO)	233025	9421233250
19	Chandrakant Bagal Agri. Development officer	234186	9822438548
20	Dr. Sanjay Shinde Animal Husbandry Officer	233793	9158521000
21	A S Banne Social welfare officer	228764	8275565336
22	Shri. Tonpe Senior Geologist	237586	9881845472
23	Shri. Lade Dy. Engineer Mechanical	233066	9011246148

Health Dept. District (Civil Surgeon)ü

No	Name of Officer	Office	Mobile No
1	Dr. Amod Gadikar District civil surgeon	02162-233377 230051 Res. 238005	9422471912
2	Dr. Anirudha Athalye District Health officer (DHO)	02162-233025	9421233250
3	Dr. Suhas Mane Add. District civil surgeon	238494	9850053000
4	Dr. Patil S R Resident Medical Officer	238494	8421815454 9403684560
5	Dr Bakshi Sudhir Nodal Officer (Disaster Mgmt)	230051	9850522521
6	Rajendra Kadam Manager BVG (108 Ambulance)		7774081762
7	Niin Ithape Coordinator BVG (108)	238494	9403683754
8	ICU (24 hour operational phone)	02162-234653	-

ZP Health Officer

No	Name of Officer	Office	Mobile No
1	Dr. Anirudha Athalye District Health officer (DHO)	02162-233025	9421233250
2	Dr. Sachin Patil Add. District health officer (DHO)	02162-233025	9423920650
3	Dr. Kishor Sankpal Asst. Director	02162-233996	9403684778
4	Dr. Ashok Misal District medical officer	02162-233569	9970930300
5	Dr. Kishor Sankpal Tuberculosis Officer	02162-237089	9403684778
6	Dr A P Patil, Dist. Malaria Officer	02162-233269	9421060017
7	Dr. Pargaonkar Medical officer (Epidemics)	02162-233025	9881561563

Taluka Medical officer, Panchyat Smittee

No	Name of Officer	Office	Mobile No
1	Dr. D G Pawar Satara	02162-231080	9850802158
2	Dr. B R Mohite Jawali	02378-285427	7743923902
3	Dr. Ajit Kadam Mahableshwar	02168-261272	9421300604
4	Dr. Sandeep Yadav Wai	02167-227841	9403684588 8421039594
5	Dr. Avinash Patil Khandala	02169-252090	9421060017
6	Dr. Vikram Pote Phaltan	02166-225729	9604455406
7	Dr. Luxman Kodalkar Maan	02165-220074	9403684806
8	Dr. Yunus Shaikh Khatav	02161-231462	9403684786
9	Dr. R T Jadhav Koregaon	02163-220072	9403684502
10	Dr. S C Deshmukh Karad	02164-224423	9423809055
11	Dr. R B Patil Patan	02372-282598	9659571111

State Transport (S T)

No	Name of Officer	Office	Mobile No
1	Sachin Palsule Divisional Controller satara	02162-231850 R 236144	9890924284
2	Mechanical Engineer	02162-234677	
3	Kulkarni Divisional Traffic Officer	239479	8976943248
4	Mrs. A S Bharti Safety Officer	238167	9850694677 8275484977 9923018874
5	K T Patil Divisional Traffic Superident		7058679737 9767280364
6	P T Kashid Divisional Engineer Works	238168	7028425151
7	Smt. R D Otari Divisional Stores Officer	238170	9923296595

ST Depot Manager

No.	Officer Name	Office no.	ST Depo no.	Mobile no.
1	Smt. N S Giri - Satara	02162 - 230064	234567	7722037978
2	Smt J G Jadhav - Wai	02167 - 220680	220001	9146062400
3	K T Patil - Patan	02372 - 283036	283032	9767280364
4	Yashwant Kantode - Dahiwadi	02165 - 220248	220235	9881671293
5	Vikram Deshmukh - Mahbleshr	02168 - 260485	260254	7741900777
6	Waman Jadhav - Medha	02378 - 285259	285260	9890476253
7	Milind Jadhav - Khandala	02169 - 252245	252135	9921021858
8	Subhash Chaugule - Waduj	02161 - 231070	231235	9890574534
9	Ramakant Gaikwad - Karad	02164 - 222563	222278	9423532555
10	A P Kulkarni - Koregaon	02163 - 220221	220232	8888379146
11	Ramdas Vyavhare - Phaltan	02166 - 222379	222227	9890292246

**Police Department
Police Head Quarter**

No	Name of Officer	Office	Mobile No
1	Mrs. Tejaswi Satpute SP satara	02162-232225 R. 232224	7720002714
2	Dhiraj Patil Add. SP Satara	02162-237486	9673734111
3	Shri. Salunkhe DYSP (Home)	02162-234776	9549916729
4	R M Kulthe PI Control Room Satara	231181/233833	9923151612
5	Shri. Gunjawte PI DSB (Special Branch)	02162-234231	8805108100
6	Shivaji Shinde PSI BDDS	02162-243247	9823811924
7	P G Ghanwat PI LCB	02162-233923	9823563640
8	Bhagwat PI Dist. Traffic Planning		9702137773
9	Milind Salvi PI Wireless	02162-235698	9823880575
10	Shri. Ghadge S N API Traffice Satara	-	8275200947
11	K N Patil - Traffic Control room	229333	9923499987
12	Dist. commandant Home Guard	02162-233082	
13	Manik Shinde - Office Suprident Home guard satara	02162-222082 222082	9881001841
14	S G Tamboli, Home Guard , Kendra Nayak	02162-222082	8856006567
15	Bhuinj Highway traffic Tap	02167	285627
16	Karad Highway traffic Tap	02164	242299

SDPO (Sub Division Police Officer)

No	Name of Officer	Office	Mobile No
1	Sameer Shaikh SDPO Satara	02162-234886	9718193546
2	Smt. S S Garud SDPO Koregaon	02163-222818	9850810681
3	Suraj Gurav SDPO Karad	02164-222345	9158835858
4	Shri Barde SDPO Phaltan	02166-222468	9028456113
5	Ajit Tike SDPO Wai	021667-227733	8275306824
6	Ashok Thorat SDPO Patan	02372-282336	9422816845
7	Mahamuni SDPO Dahiwadi	02165-232222	9890479060

Police Station

No	Name of Officer	Office	Mobile No
1	Jadhav P D PI Satara City	02162-230580	9527881144
2	Jadhav P D PI Satara Taluka	02162-233949	9527881144
3	K M Dhumal PI Shahupuri	02162-252333	9112251972
4	S S Choudhari PI Borgaon	02162-265233	9552543544
5	Sambhaji Mhetre PI Koregaon	02163-220233	9823718200
6	Shriganesh Kangude PI Rahimatpur	02163-230233	9881080400
7	Mayur Vairagkar PI Wathar Station	02371-252221	9923284375
8	Sambhaji Gaikwad PI Pusegaon	02375-260233	9422644090
9	Yashwant Shirke PI Waduj	02161-231233	9881043244
10	Pravin Patil API Dahiwadi	02165-220233	8450989777
11	Maloji Deshmukh API Mhaswad	02373-270233	9881487100
12	Rajendra Patil PI Aundh	02161-262233	8275303681
13	Prakash Dhas PI Phaltan City	02166-222333	9923102381
14	Ashok Shelke PI Phaltan (Rural)	02166-222533	9922863334
15	S P Bhosle API Lonand	02169-225033	9923695343
16	Yuvraj Hande PI Khandala	02169-252133	8275200947
17	Bhausahab Patil PI Shirwal	02169-244133	9823242999
18	V B Vetel PI Wai	02168-227033	9821626325
19	D G Nale PI Mahableshwar	02168-260333	9923195362
20	Shri. Panchal PI Panchgani	02168-240333	9765770469
21	D P Kathale PI Medha	02378-285233	8108123946
22	Sali PI Bhuij	02167-285233	9405404344
23	Annasaheb Manjre PI Patan	02372-283033	8888897324
24	Swapnil Lokhande PI Dhebewadi	02372-258233	9421740511
25	Rajendra Sawant PI Koynanagar	02372-284533	9823948001

26	Prakash Jadhav PI Karad City	02164-222233	9923135235
27	K D Kshirsagar PI Karad Taluka	02164-222377	9823332992
28	M K Patil API Umraj	02164-264033	8308108182
29	Vaishali Patil PI Talbid	02164-285333	9823751199

Chief Officer Nagar Palika

No	Name of Officer	Office	Resi.	Mobile no.
1	Shankar Gore - Satara	02162- 239247 234077	230783	7350800999
2	Yashwant Dange -Karad	02164- 222237 222444	222363	9075633633
3	Prasad Katkar - Phaltan	02166- 222325 221767	221767	9503635459
4	Vidya Pol- Wai	02167- 220022	220070	9011267863
5	Amita Dagde - Pachgani	02168- 240244	240355	9423333237
6	Amita Dagde - Mahableshwar	02168- 260220	260671	9423333237
7	Vinayak Aundhkar - Rahimatpur	02163- 230223	-	9922926693
8	Chetna Kerure - Mhaswad	02373- 270221 270252	270221	9420484831
9	Sanjivani Dalvi - Malkapur	02164- 241324	241377	9422364443 8308106903
10	Hemant Dhokle - Lonand	02169-225250 225248		9881745577
11	Ashok Kumbhar - Koregaon	02163-220560		7588490156
12	Yogesh Doke - Khandala	02169-252212		7391809598
13	Madhav Khandekar - Waduj	02161-231283 232257		7391999753
14	Sandip Gharge - Dahiwadi	02165-220945		9975747263
15	Amol Pawar - Medha	02378-285216		9503900980
16	Abhishek Pardeshi			8149810599

Fire Officer

No	Name of Officer	Office	Mobile no.
1	Saurabh Salunkhe Shri. Nikam - Satara	02162-282636/234076	9527549615 9130007287
2	Anand Mane - Karad	02164-221836	9423015020 9423011020 9420486101
3	Haridas Suryavanshi Vinod Jadhav - Phaltan	02166-200101/222325	9321728200 9860850350
4	Narayan Gosawi - Wai	02167-220022	9850070985
5	J A Kazi - Mhaswad	02373-270221	9145127071
6	Abaji Dhoble - Mahableshwar	02168- 260100/260220	9860465765

7	Suryakant Kasurde - Pachgani	02168-240244	9822919133
8	Ghadge – Safety officer Ajinkya tara Sugar Factory,Shendre	02162-279266	9890991437 9850809130 8600110023
9	S R Shinde - Safety officer Krushna Sugar Factory, Rethre	02164-266222 266223/24/25	7030906681
10	Krushna Hospital - Karad	02164-241557	
11	Patan Kharedi vikri Sangh	02372-283026	
12	Sambhaji Barge - Safety officer Kisanveer Sugar Factory, Bhuinj	02167-285240 8600110006	8600110019
13	State Fire Control	022-26677777	
14	Pune Fire Brigade (CFO - Gawde)	9689931991	

Other Government offices

No	Name of Officer	Office	Mobile no.
1	Sanjay Raut Dy. RTO Satara	235888 230330	9867111124
2	Ajit Shinde Dy. RTO Karad	02164-255300	7875751075 9420951509
3	Dr. Parihar Dy. Commissioner, Animal husbandry	221907	9422400760
4	Smt. Sapna Gholve Asst. Commisioner Samaj kalyan	234246	8793010922
5	Shrikant Deshmukh Asst. Director, Town planning	239241	
6	Yuvraj Patil District Information officer	237440 /41	8888164834
7	Shri. Shinde District treasury Officer	227778	8975050100
8	A R Jadhav Dist. Milk Officer	244343	9373332370
9	Shri. Nadgauda Fishery Dev. Officer	239588	9822707990
10	Shivthare CT Survey Officer	233299	9822146413
11	Yuvraj Naik Dist. Sports Officer	237438	9422669377
12	Dr. Tonpe Malaria officer	233269	9960643950
13	Shri. Panvelkar Asst. commissioner labour	232919 239640	9822348676
14	Cnl. Vardhane Sainik School Satara	233663 235860	9730635909
15	Shriram Ahirrao Nehru Yuva Kendra	229752	9422943543
16	Shri. Choundhe Jail Officer Satara	233850	9657984234
17	Shri. Prabhune Akashwani Satara		9422401415
18	Shri. Raut Vijay Suptd. Agri Officer	02162 239282	9420685895

Public Works Department

No	Name of Officer	Office No.	Mobile no.
1	Sharad Rajbhoj SE PWD	02162-234586	9503021111
2	Smt. Nikam A K Asst. S E	02162-234586	7758009009
3	Shri. Darade Ex. Engg. (East)	02162-233792	9420479999
4	S B Utture Ex. Eng. (West)	02162-234329	7620776422
5	Kadam Ex. Eng. PGSY	02162-237894	7219073044 9923093106
6	Rahul Ahire Dy. Eng. Satara	02162-233795	9657272751
7	R T Ahire Dy. Eng. Koregaon	02163-220239	9657272751
8	M D Patil Dy. Eng. Phaltan	02166-220554	9822515890
9	H K Shingte Dy Eng. Dahiwadi	02165-220263	9763850070
10	Jadhav S B Dy. Eng. Khatav	02161-231260	9822020183
11	Y A Desai Dy. Eng. Khandala	02169-252414	9689754242
12	M A Sul Dy. Eng. Jawli	02378-285370	7720923511
13	K P Mirajkar Dy. Eng. Wai	02167-227029	7588167063 7768876688
14	S D Ahire Dy. Eng. Patan	02372-283008	9422604339
15	V L Khade Dy Eng. (South) Patan	02372-282372	9850063750 9960948069
16	M S Patil Dy. Eng. Mahableshwar	02168-260304	9422761626
17	Mane P R Dy. Eng. Karad (North)	02164-222637	7774970970 9765799111
18	B N Patil Dy. Eng. Karad (South)	02164-222305	9850016692
19	Shri. Shinde Dy. Eng. (Electricals)	02162-234182	9850849259

BDO, Panchyat Samitee

No	Name of Officer	Office No.	Mobile no.
1	A N Gawde - Satara	02162-234291	9822780121
2	S R Budhe - Jawli	02378-285226	7588062942
3	Gholap - Mahableshwar	02168-260249	9421208937
4	U J Kusurkar - Wai	02167-227034	9730444598
5	Deepa Bapat - Khandala	02169-252124	9422039939
6	V L Jadhav - Phaltan	02166-222214	9420633891
7	G D Shelar - Man	02165-220226	9822050972

8	P N Suradkar - Khatav	02161-231237	8087986190
9	S P Magar - Koregaon	02163-220262	9923725019
10	A H Pawar - Karad	02164-222221	9421131306
11	S M Gaikwad - Patan	02372-283028	7387902116

Deputy Engineer - Public Work Sub Division (Panchayat samitee)

No	Name of Officer	Office No.	Mobile no.
1	Salunkhe V V - Satara	02162-239787	7588560005
2	K G Nikam - Jawli	02378-285580	9270702216
3	Shri. Shinde S V - Koregaon	02163-220269	9823018673
4	S V Kasar - Wai	02167-227179	9403546390
5	M V Gonjari - Mhableswr	02168-260024	9822997662
6	Gaikwad A S- Khandala	02169-252203	9823202916
7	M R Namde - Phaltan	02166-222384	9850601239
8	A A Shitole - Man	02165-220729	9545223355
9	S M Mane - Khatav	02161-231237	9421117753
10	V V Sakhare - Karad	02164-222436	9764444811
11	S B Mane - Patan	02372-283089	9822611168

Dy. Engineer Water Supply (Panchyat Samitee)

No	Name of Officer	Office No.	Mobile no.
1	Deshmukh (Add chrge) - Satara	02162-232922	9822550472
2	R B Sathe - Jawli, Mahableshwar	02378-285662	9850103341
3	R B Sathe - Wai	02167-227653	9850103341
4	D J Sonawne - Khandala	02166-223185	9822269314
5	A J Dongle - Dahiwadi	02165-220884	9823419541
6	M K Metkari - Waduj	02161-231274	9422128292
7	Shri. Patki - koregaon	02163-220108	8082438197
8	M D Aralekar - Karad	02164-225025	9604602082
9	R V Patil - Patan	02372-282525	9823081337

Maharashtra Jeevan Pradhikaran (MJP)

No	Name of Officer	Office No.	Mobile no.
1	Gaikwad Ex. Engg. MJP satara	02162- 221680	9168496268
2	Shri. N B Bhoi- Ex. Engg. MJP Karad	02164-229946	9422421582
3	Shri. Gaikwad Dy. Engg. Satara no.,1	-	8983529466
4	S K Bhople Dy. Engg. Waduj	02161-222534	9421173638
5	Shri. A R Pawar Dy. Engg. Phaltan	02166-220733	9890662832
6	S k Kodak Dy. Engg. Pachgani		9890604008
7	A R Dhonge Dy. Engg. Karad no. 1	02164-222534	7977688073
8	R J Tade Dy. Engg. Karad no. 2	02164-222534	7588112692

Forest Department

No	Name of Officer	Office No.	Mobile no.
1	Bharatsingh Hada Dy. Conservater of Forest	02162-220058 Toll Free 155314	9410992572
2	V M Mule Asst. Conservater of Forest	02162-220058	9403780327
3	S B Chavan Asst. Forest off (Forest life, EGS)		9403780326
4	A L Joshi Asst. forest off. (Western Ghat)		9860252199
5	M S Patil Forest officer Satara	02162-228670	9423593580
6	S N Dombale Sachin Forest officer Jawli	02378-285350	9423593569
7	Ranjit Gaikwad Forest officer Mahableshwar	02168-260281	7083637281
8	Mahesh Zanjurne Forest officer Wai	02167-227188	9561522631
9	A V Shinde Forest officer Khandala	02169-252028	9423593569
10	S K Ghadge Forest officer Phaltan	02166-226979	9423593597
11	R B Dhumal Forest officer Man	02165-220850	9423593563
12	G R Chavan Forest officer Khatav	02161-231030	9423593601
13	R S Atole Forest officer Koregaon	02163-220850	9423593576
14	B S Shinde Forest officer Karad	02164-241462	9423593568
15	V R Kale Forest officer Patan	02372-283063	9423593582

MSEB

No	Name of Officer	Office No.	Mobile no.
1	Sunil Mane SE MSEB Satara	02162-244640	7875768009 7875768222
2	U M Kulkarni Ex. Eng. (Admin) satara	02162-246015	7875768028
3	S L Mane Ex. Engg. Satara	02162 -244641	7875768009
4	Rakh Ex. Engg. Karad	02164-271797	7875768008
5	S B shirhatti Ex. Engg. Wai	02167-227142	7875768661
6	A P Yadav Ex. Engg. Waduj	02161-231188	7875768011
7	Rajdeep Ex. Engg. Phaltan	02166-222463	7875768010

8	Jitendra Mane Dy. Eng. Satara City	02162-283151	7875768870
9	A V Rakh Dy. Eng. karad City	02164-228391	7875768612
10	A D Wanmore Dy. Eng. Phaltan city	02166-222380	7875768810
11	B V Mundhe Dy. Eng. satara Rural	02162-220818	7875768866
12	J J Mane Dy. Eng. Koregaon	02163-220332	7875768865
13	A P Mandke Dy. Eng. Karad Rural	02164-255045	7875768609
14	D k korde Dy. Eng. Phaltan	02166-220502	7875768811
15	K D doiphode Dy. Eng. Dahiwadi	02165-250563	7875768620
16	G V Patil Dy. Eng. Patan	02372-283050	7875768747
17	A M Dongre Dy. Eng. Umraj	02164-264048	7875768611
18	Korde SS Dy. Eng. Lonand	02169-225092	7875768813
19	U K Kawade Dy. Eng. Khandala	02169-226944	7875768814
20	P S Khuspe Dy. Eng. wai	02167-227080	7875768663
21	V N Thorawde Dy. Eng. Medha	02378-285516	7875768664
22	V N Bandewar Dy. Eng. Mahableshwar	02168/ 260292	7875768667
23	H N Dhok Dy. Eng. Waduj	02161-231244	7875768618
24	S R Lipare Dy. Eng. Khatav	02375-242570	7875768619
25	P L kohle Dy. Eng. Rahimatpur	02163/ 231244	7875768868
26	MSEB Control Room	7875768554	7875768520

Maharashtra pollution Control Board

No	Name of Officer	Office No.	Mobile no.
1	Limbaji Bhad Sub Regional officer	02162-233527	7588048223
2	A J Khamkar – Field Officer	02162-233527	9371078584
3	Smt Gaikwad I T – Field Officer	02162-233527	9822841731
4	P M Bhosle – Field Officer	02162-233527	9890070787

BSNL

No	Name of Officer	Office No.	Mobile no.
1	Rajesh Kumar General manager	02162-235000	9417088890
2	C C Nilakhe Dy. Gen. manager	02162-232000	9422003499
3	C N Sawant – Dy. Eng. satara		9423034998
4	B N Desai – Dy. Eng. Karad	02164-222246	9421214242
5	J S Khandagle – Dy. Eng. phaltan	02166-220000	9404504022
6	O N Mokashi – Dy. Eng. Mshwar	02168-261122	9423863400
7	Smt. purandare – Dy. Eng. Jawli	02378-285300	9423508242
8	Smt. V N Avchat – Dy. Eng. Khandala	02169-225400	9422987445
9	A S Lawand – Dy. Eng. Khatav	02161-231000	9421185777
10	S Y kallur – Dy. Eng. Patan	02372-283080	9423862600
11	D G Chavan – Dy. Eng. Dahiwadi	02165-220000	9422604900
12	D S Navadkar – Dy. Eng. koregaon		9423874798
13	V L Deshpande – Dy. Eng. Wai		942240222

Irrigation Department

No	Name of Officer	Office No.	Mobile no.
1	V S Ghogre SE Irrigation circle satara	02162-244654	9922388388
2	Gaikwad S S Ex. Eng. Urmodi project	02162-246043	9422068283
3	P D Jadhav Ex. Eng. Dhom Irrigation (Krishna Sinchan)	02162-244681	9822404405
4	V B Jadhav Ex. Eng. Dhom Balkawdi	02167-220079	9923349237
5	Shri. Paware Ex. Eng. Kanher dev.	02162-244455	7745079613
6	Pravin Chawre Ex. Eng. Dhom Canal 2	02162-246046	9881922572
7	Shri. Otari Ex. Eng. Minor Irrigation (Jalsandharan)	02162-244644	9604789277
8	Rajendra Sankpal Ex. Eng. Arphal Canal, Karwadi	02164-271094	9404161661
9	R Y Rediyyar Ex. Eng. Minor irrigation	02162-246193	9850892507
10	R Y Rediyyar Ex. Eng. Wang Project	02162-244644	9850892507
11	Shri. Nikam NRBC Phaltan	02166-222228	9922423410
12	Gaikwad SS Ex. Eng. Tarli Project		9422068283

Koyana Dam

No	Name of Officer	Office No.	Mobile no.
1	Sanjay Doiphode SE Koyna Project (Satara Sinchn)	02162-246071	9850154805
2	Kumar Patil Ex. Eng. Koyna Dam	02372-284343	9860768738
3	Abhay Katkar Ex. Eng. No. 1	02372-284340 294499	9623409250
4	S M Chavan – Dy. Ex. Eng.	02372-284406	9422033119
5	A S Shinde Ex. Eng. Kolkewadi, Alore, Dist. Ratnagiri	0255-230034	9890607774

MIDC Satara & Industrial safety

No	Name of Officer	Office No.	Mobile no.
1	Sunil Awsare Dy. Director Industrial Health	02162-234694	9423237345
2	Ashok Chavan Ex. Eng. MIDC Kolhapur	0231-2656582	9552566972
3	Shri. Pawar Regional Manager MIDC Satara	02162-245716	9689907390
4	V V Rathod Dy. Eng. MIDC satara	02162-244610	8411881947
5	S S Pawar – Jr. Engineer	02162-244610	7773977333

Food and Drugs

No	Name of Officer	Office No.	Mobile no.
1	Shri. Godse Asst. Commissioner (Medicine)	02162-235220	9552926113
2	Naragude S B Asst. Commissioner (food)	02162-235220	9764961888
3	V V Nage – Medicine Inspector		7387561343
4	Savita Datir – Medicine Inspector		8605000460
5	U S Lohakare Food Inspector Khandala		9423750839
6	R R Kakade Food Inspector Karad		9403403295
7	D S salunkhe Food Inspector Wai, Mahbleswr		9967264833
8	M S pawar Food Inspector Phaltan		8554850707
9	Smt. V V Rupanwar Food Inspector Koregaon		9403684885
10	I S Hawaldar Food Inspector Satara		9423009252
11	Smt. S B Ankush Food Inspector patan, Jawli, Man and Khatav		9028097699

State Excise Department

No	Name of Officer	Office No.	Mobile no.
1	Anil Chaskar Suprident Excise	02162-222339	9822642642
2	A N Ghule - Inspector satara	02162-222339	9320213599
3	V D Tikole - Inspector Phaltan		9881237686
4	J G Jadhav - Karad		98223063622
5	Satish Kalbhor - Ast. Inspector satara Jawli		9881994488
6	B L Yele - Ast. Inspector Koregaon, man, Khatav		9881000697
7	V N Chikhle - Ast. Inspector Wai Mahableshwar		9890769571
8	J D Bhamure - Ast. Inspector Khandala, Phaltan		9822595841
9	V N Inje - Ast. Inspector Karad		9921047936
10	D C Ladke - Ast. Inspector Patan		9860503396

Earthquake Mesurment Centre

No	Name of Officer	Office No.	Mobile no.
1	Shri. Jadhav, Circuit House Satara Campus		9422380315
2	Shri. Choudhari, Patan	02372-284405	9420628081
3	Shri. Tikhe IMD Satara, Krushnanagar	02162-231869	9420630083
4	Shri. Shedge IMD Satara		9881087891
5	IMD Mahableshwar	02168-260471	9422600718
6	IMD Mumbai	022-22160824	

Railway Dept.

No	Name of Officer	STD Code	Mobile no.
1	Railway station Satara	02162	270050
2	Railway station Karad	02164	271034
3	Railway station Koregaon	02163	220261
4	Railway station Rahimatpur	02163	230900
5	Railway station shhenoli	02164	269398
6	Railway station Lonand	02169	225050
7	Railway station Wathar	02163	252228

Primary Health Center , Satara

No.	Taluka	PHC Center		Telephone
1	Satara	Primary Health Center	Parali	278228
2	(02162)	Primary Health Center	Kanher	265239
3		Primary Health Center	Limb	276302
4		Primary Health Center	Nagthane	268301
5		Primary Health Center	Nandgaon	263116
6		Primary Health Center	Chinchner	274251
7		Primary Health Center	Kumthe	279545
8		Primary Health Center	Thoseghar	227265
9	Jawali	Primary Health Center	Kudal	235392
10	(02378)	Primary Health Center	Saygaon	240508
11		Primary Health Center	Kelghar	245454
12		Primary Health Center	Bamnoli	202616
13		Primary Health Center	kusumbi	242041
14	Mahableshwar	Primary Health Center	Tapola	247256
15	(02168)	Primary Health Center	Taldev	274070
16		Primary Health Center	Pachgani	240257
17	Wai	Primary Health Center	Kawthe	274227
18	(02167)	Primary Health Center	Bhuinj	285213
19		Primary Health Center	Bavdhan	276176
20		Primary Health Center	Malatpur	282140
21	khandala	Primary Health Center	Ahire	275344
22	(02169)	Primary Health Center	Lonand	225373
23		Primary Health Center	Shirwal	244213
24	Phaltan	Primary Health Center	Barad	242246
25	(02166)	Primary Health Center	Taradgaon	243683
26		Primary Health Center	bibi	255235
27		Primary Health Center	girvi	256016
28		Primary Health Center	Sakharwadi	254135
29		Primary Health Center	Rajale	248135
30	Man	Primary Health Center	Palshi	284211
31	(02165)	Primary Health Center	Mardi	286350
32		Primary Health Center	Pulkoti	230221
33		Primary Health Center	Malawdi	250274
34		Primary Health Center	Mhaswad	270536
35	Khatav	Primary Health Center	Pusegaon	260236
36	(02161)	Primary Health Center	Diskal	264306
37		Primary Health Center	Pusesawli	248744
38		Primary Health Center	Katarkhatav	242307
39		Primary Health Center	Nimsod	240227
40		Primary Health Center	khatav	266297
41		Primary Health Center	Mayni	270253
42	koregaon	Primary Health Center	Wathar Station	252395
43	(02163)	Primary Health Center	Kinai	232234
44		Primary Health Center	Wathar Kiroli	235235
45		Primary Health Center	Tadawle	233539
46		Primary Health Center	Palshee	256174
47		Primary Health Center	Rahimatpur	230282
48	karad	Primary Health Center	Wadgaon	268128

49	(02164)	Primary Health Center	Sadashivgad	271900
50		Primary Health Center	Supne	255746
51		Primary Health Center	Rethre Bk	281038
52		Primary Health Center	Kale	254330
53		Primary Health Center	Indoli	264706
54		Primary Health Center	Umbraj	264332
55		Primary Health Center	Masur	252060
56		Primary Health Center	Undale	250093
57		Primary Health Center	Kole	256223
58		Primary Health Center	Helgaon	253738
59	Patan	Primary Health Center	Talmawle	272087
60	(02372)	Primary Health Center	Dhebewadi	258229
61		Primary Health Center	Marali	268008
62		Primary Health Center	Morgiri	271029
63		Primary Health Center	Mhalarpet	285440
64		Primary Health Center	Keral	283373
65		Primary Health Center	murud	267617
66		Primary Health Center	Salve	264147
67		Primary Health Center	Helwak	284593
68		Primary Health Center	Tarale	266749
69		Primary Health Center	Chaphal	287561
70		Primary Health Center	Kalgaon	261029
71		Primary Health Center	Sowade	249491

Government and Private Hospital

No.	Hospital Name and address	Telephone no.
	Satara City / Taluka	Code 02162
1	Government Hosp. satara, Deshmukh colony	237852
2	Aryangal medical hosp Rajwada satara	282235
3	Datta Kashi. Hosp, shaniwar Peth satara	234922
4	Sanjivani hosp. New Radhika road satara	238324
5	Jeevan jyot hosp. shaniwar peth satara	233927
6	Lawand hosp, Deshmukh colony satara	237526
7	Chintamani hosp. Shaniwar Peth	237826
8	Radhika Nursing Home, ajinya colony	234978
9	Mohan patil hosp. Durga peth	232203
10	nandadeep hosp. Powai naka satara	239933
11	Ashwini Hosp. civil hosp. near	239027
12	Kanse hosp. Near Bhu vikas bank	234754
13	Bodhe hosp. Shukrawar peth	250384
14	Hirwe hosp, New Radhika road	234091
15	Darbhe hosp. Near Cent Paul School	238034
16	Ajinkya hosp. Ajinkya colony	237026
17	Dabholkar hosp. Near Civil hosp.	239439
18	Mane hosp. Visawa Naka	235035, 235766
19	Pawar hosp. Ajinkya colony	234873
20	Joshi hosp. Near police parade Ground	239560
21	Limaye Hosp. Near Police parade ground	238302
22	Gaikwad hospital Near police head Qtr	238640
23	Pardeshi Hosp. New radhika Road	234085
24	Prabhu krupa hosp. Yado Gopal Peth	230088

25	Phadke hosp. ST colony	237476
26	Samarth hosp. Yado Gopal Peth.	282068
27	Bokil hosp. Satara	282029
28	Pawar Hospital Radhika Rd	238327
29	Patil hosp. Radhika Road	236729
30	Salunkhe Hosp. Godoli	232284
31	Sunny Nursing home satara	231047
32	Jadhav hosp. Guruwar peth	224626
33	Chidgupkar Hosp. Shahupuri	250764
34	Bagwan Hosp. Shivaji hou. Soc.	238177
35	Dhanwantri hosp. Malhar peth	234781
36	Gajanan Hosp. Kamani Haud	234075
37	Amruta Nursing home, Near Market	-
38	Symbiosis Hosp. sadar Bazar	-
39	Varujikar hosp. Near ST Stand	234238
40	Gadakkar hosp. Near RTO Off.	232028
41	Parange hosp. Near ST stand	239205
	Borgaon	code. 02162
1	Dhane hosp. Nagthane	265314
2	Nikam hosp. Nagthane	265265
3	Salunkhe Hosp. Nagthane	265316
4	Vignaharta hosp. Nagthane	265338
5	Shree clinic Borgaon	9881252611
	Koregaon	Code 02163
1	Rural hosp. Koregaon	220447
2	Indira hosp.	220281
3	Pooja Nursing home	220408
4	Gosavi Hosp	220409
5	Dhananjay hosp.	220605
6	Sawant hosp.	222444
	Rahimatpur	Code 02163
1	Mauli hosp.	02163-230665
2	Sai nursing Home	02163-230234
3	Chougule hosp.	02163-230058
4	Kulkarni Nursing home	02163-230255
5	Nirmala nursing Home	02163-230164
	Karad City	Code 02164
1	Late. Venutai Chavan Rural Hosp	222459,221020
2	Krushna hosp. Malkapur	241555
3	Bhagayashree Hosp.	223517
4	Siddhivinayak Hosp.	227327
5	Jet Malani Hosp.	222659
6	City Medical Center	224344
7	Gujar Hosp. Shaniwar peth	222868
8	Ankur Hosp	223328
9	Bodhe Hosp	223356
10	Datta Clinic	223194
11	Dadge Hosp	222033
12	Dhanwantri hosp	222072
13	Gursale hosp	222374
14	Hawle Hosp.	222242
15	Jamgude hosp.	22268

16	jog. Hosp.	223519
17	Kulkarni hosp.	222782
18	Kanthak Hosp.	221819
19	Erram hosp.	222396
20	Kore Hosp.	223322
21	Karnala hosp.	222139
22	Luxminarayan hosp.	222924
23	Puranic hosp	222882
24	Ratnakalyan hosp.	220923
25	Rangoli hosp.	222823
26	Bahulekar hosp.	222534
27	Tate Hosp.	222165
28	Saraswati Hosp.	222976
29	Karad nursing home	222440
30	Sharda Clinic	222440
31	suman hosp.	222174
32	Sanghvi hosp.	223531
33	Kshirsagar hosp.	223381
34	Shinde hosp.	220120
35	Sayyad hosp	220147
36	Anu Hosp.	223298
37	sahyadri speciality Hosp. Patan Tiktne karad	661800,227227
38	City Medical hospital	229595
	Karad Taluka	Code 02164
1	Dr. Arvind mudgal, Shivnagar	266248
2	Krushna Hospital, shiv nagar rethre	266333
	Umraj	Code 02164
1	Dr. Madhuri Kodgole	264140
2	Shree Hospital	264274
3	Ramgude hosp.	264225
4	Patil hosp.	264675
5	Shubham Hosp.	264552
6	Jadhav hosp.	264145
7	Thorat hosp.	264248
8	Kharade Hosp.	-
	Talbeed	Code 02164
1	Sahyadri hosp. Yashwant nagar	271171
	Waduj	Code 02161
1	Kuteer Rugnalaya, Kaledhon	244240
2	Rural hospital, waduj	231218
3	Shree Dutta hosp.	231331
4	Cerjical Hosp.	231332
5	Dhanwantri hosp.	231337
6	Susrut Hosp.	231106
7	Inamdar hosp.	231203
8	Yeldare hosp	231254
9	Navjeevan hosp.	231291
	Aundh	Code . 02161
1	Shree Yamai Krupa clinic Aundh	2621239
2	Shree Khade hosp. Aundh	262269
3	Vardhishnu hosp. Pusesawli	248275
4	Sanjeevan hosp. Pusesawli	248347

5	Upaleshwar Homipathic, pusesawli	248359
6	Ratnapalkhi hosp, Pusesawli	248474
	Pusegaon	Code 02375
1	Dr. Bhujbal janseva hosp.	260245
2	Mane hosp.	260312
3	Sanjeevani hosp.	260057
4	Ankue Hosp.	-
	Dahiwadi	Code 02165
1	Rural hosp. Dahiwadi	230374
2	Rural hosp. Gondwale Khurd	282255
3	Shaha hosp.	9423263450
4	Dr. Pradeep Palve	220556
5	Dr. Arun Patil hosp.	20301
6	Dr. Anil g Borate	220348
7	Dr. bharat Karande	220167
8	Dr. Ajay Karne Hosp.	220343
9	Dr, Manoj Katkar hosp.	220590
10	Dr. sandeep Pol hosp.	221000
11	Dr. Khade hosp.	220371
	Mhaswad	Code - 02373
1	Raut Nursing home	270512
2	Dr. Sable Hosp.	270324
3	Dronagiri hosp.	270260
4	Dr. modse hosp.	270360
5	Katkar Nursing home	270360
6	Khutale hosp.	270247
7	Sanjeevani Hosp.	270396
	Patan	Code - 02372
1	Cottage hospital	283268
2	Dr. Yadav	283309
3	Dr. patil	283116
4	Dr. Ranawre	283015
5	Dr. Malawde	283137
6	Patankar hosp.	283142
7	Dr. Panaskar hosp.	283115,23143
8	Dr. Chavan hosp.	283056
	Koynanagar	Code 02372
1	Koyna project	284499
2	Akshay Arogya Seva	284130
3	Shivram clinic	284413
4	Nangre Hosp.	9423033435
	Dhebewadi	Code 02372
1	Anjali hosp. Talmawle	258268
2	Geetanjali hosp. Talmawle	258255
3	Badekar hospital Dhebewadi	258430
4	Sai hosp. Talmauli	9765317463
5	Shraddha hosp. Talmauli	272100
	Phaltan city	Code 02166
1	Rural hospital Phaltan	220943
2	Dr. Adsul hosp.	222493
3	Shivanjali accident hosp.	220871
4	Dr. Nikop hosp	220854

5	Dr. Phade Hosp.	223244
6	Dr. Magar hospital	220795
7	Dr. Dhumal hosp.	225792
8	Tulsi Hosp.	223127
9	Dr. Raut siddhanath Hosp.	222044
10	Barwe Hosp.	222350
11	Gandhi Hosp.	221292
12	life Hosp.	225630
	Phaltan Rural	Code . 02166
1	Rural hospital Sakarwadi	254135
	Khandala	Code 02169
1	Rural hospital Khandala	252136
2	Shree Medical Foundation , shirwal	244110
	Lonand	Code 02169
1	Shree Dutt hosp.	225132
2	Ashwini clinic	225414
3	Navjeevan Hosp	225419
4	Savitri hosp.	225161
5	Sanjeevani hosp.	225104
6	Gandhi Hosp.	225808
7	Saste Hosp.	225790
8	Nimbalkar Hosp.	225286
9	Pandit hosp.	225076
10	Shrre sidivinayak hosp	9822973161
11	Kachare Hosp.	9890370806
12	Renuka hosp.	9822599077
	Wathar	Code 02371
1	Akshay Hospital, Wathar	-
2	Rural hospital,Pimpode Budruk	251248
3	Guru Hosp. Wathar	252275
4	Mathura hosp. Pimpode Budruk	251125
5	Mahajan hosp.	251514
	Wai	Code 02167
1	Rural hospital Wai	220044 9422534303
2	Mission hosp.	220002 9822076048
3	Dr. Abhyankr modern Hosp.	220043
4	Dr. Ahiwale siddarth Hosp.	220665
5	Dr. Manohar datar Hosp.	220061
6	Geetanjali hosp.	220340
7	Lokhande Hosp.	220869
8	Zagde Hosp.	221448
9	Elmar hosp.	220385,220885
10	Ghorpade Hosp.	221149
11	Patange hosp.	220450
12	Mirajkar hosp.	220665
13	Karale Hosp.	22038
14	Abhyankar hosp.	220042
15	Kadam hosp.	220854
16	Kelkar Hosp.	221254
17	Saigaonkar hosp.	221850

18	Dr. Jagtap hosp.	227615
19	Dr. Falsankar Hosp.	220382
20	Babar hosp.	221715
	Bhuinj	Code 02167
1	Dr. Shrre Paramne, pachwad	285256
2	Dr. Jadhav, Pachwad	285372
3	Dr. Sasane , pachwad	285321
4	Dr. Jaju Armata hosp. Bhuinj	285323
5	Sunita Hosp. Pachwad	285329
6	Dhanwantri hosp. Bhuinj	285750
	Pachgani	Code 02168
1	Bel air hosp.	240709
2	Adhar prasuti graha	240495
3	deshpande Clinic	240330
4	Dr. Patahn Hosp.	240234
	Medha	Code 02367
1	Siddarth Hosp. Medha	285233
2	sadanand hosp, Kudal	235343,235392
3	Rural hospital Medha	285264
4	Rural Hospital Somardi	230442
	Mahableshwar	Code 02168
1	Rural Hospital	260247
2	Dr. Thoke	260330
3	Dr. Redyy	260359
4	Dr. Yadav	261746
5	Dr. Bhangdia	260345
6	Dr. Dabde	260435
7	Dr. Mankar	260394
8	Dr. Dongre	260686

Private Hospital Kot No. (Emergency Situation)

No.	Hospital Name	Kot No	Telephone
1	Aryangal hospital Satara	80	02162-282235
2	Sanjeevani hospital satara	40	02162-239729
3	Sahayog hosp. satara	20	02162-237379
4	Chintamani hosp. satara	30	02162-237826
5	Datta Kashi Hosp. satara	15	02162-234856
6	Pratibha Hosp. satara	15	02162-226600
7	Creaty care Hosp. Satara	20	02162-235193
8	Girija Hosp. satara	15	02162-232523
9	Patil Artho Accident Satara	20	02162-228014
10	Private Ambulance Satara	2	9767012101
11	NH 4 Ambulance	2	9822204357

Blood Bank List

No	Blood Bank name	Telephone
1	Civil hospital satara	02162-238494
2	Mauli blood Bank satara	02162- 222031
3	Akshay Blood Bank satara	02162-230730
4	Late. Venutai Chavan Rural hosp. Karad	02164-222469 / 59
5	Krushna blood Bank Karad	02164-241554
6	Medical Foundation Phaltan	02166-221197
7	Janseva Blood Bank satara	02162-237031
8	Gujar Hospital, Shaniwar peth Karad	02164-222886
9	City medical centre Karad	02164-229595
10	Jagtap Hospital	9970063946
11	Swami Vivekanand blood bank wai	02167-223460
12	Modern clinic blood bank wai	02167-220043
13	Shree siddhivinayak blood Bank Lonand	02169-226821

JCB
an

d Crane Owner name

No	Name of Person	Contact no.	JCB	Crane
Satara City (02162)				
1	Vikram Ghorpade, Satara	9422401572	1	1
2	Raviraj Ghorpade satara	234775	1	-
3	Sargeet shaikh satara	235424	1	1
4	Bhimrao Ghorpade satara	221414	1	1
5	Gadoph, Powai Naka satara	237754	2	2
6	Ghanshyam Chawda, gendamal	250400	1	1
7	Mahesh Chabda, Shahupuri	250450	1	1
8	J Patil, Visawa naka	228931	1	1
9	Shakil Sayyad, Near Kanse Hosp.	9822099990	1	1
10	Hambirrao Jadhav, satara	235687	1	1
11	Walmik Chavan, Samarath mandir	283129	1	-
12	Dinesh Jadhav, kodoli	9800881517	-	1
13	Ajinkya Crane MIDC satara	02162-244158 / 239271 9822115830 9850826999 9850089333	-	2
14	Arjun Dhane, satara	7387732118		1
15	Sanco Generators, satara	9922230099 / 9822969900	-	1
16	NH4 (Ambulance , crane) Anewadi	9822204357	1	
17	Baban Chougule, Mangalwar Peth	9890456431	1	
18	Ranjeet Ghorpade, Kesarkar peth	9822443444	1	
19	Vasant Leve, 31 Chimanpure Peth	9822064785	1	
Satara Taluka (02162)				
1	Hamirrao chavan , Bassppa wadi satara	235930	1	-
2	Ganesh Chougule , Nagewadi	9970701000	1	
3	Raju Bhosle , As the, Songaon	9423204567		
Karad City (02164)				

1	Patil earth movers, karad	222678	1	-
2	Hyrolic Earth movers Karad	222678	1	1
3	Sahyadri hydrolics	228872	1	-
4	Siddarth Auto Eng.	241690	1	-
5	Balaji High Earth movers, karad	229937	1	-
6	Karad city police station	222233	1	-
7	Ajantha Transport	-	-	1
8	sai transport	-	-	1
9	Karad city police station	222233	-	1
Koregaon (02163)				
1	Shrimant Zanjurne	7588336531		1
2	Suresh Phadtare	9850134554	1	
3	Mahesh Barge (Dumper)	9657000911	1	
4	Vikas Barge	9822603150		
5				
6				
Waduj (02161)				
1	Suresh pawar, Umarde	-	1	-
2	Hindurao godse, Waduj	-	2	-
3	Tukaram Malu, Waduj	-	1	-
4	J Shaha, waduj	-	2	-
5	Surendra Gudge, mayni	-	1	-
6	Suresh Raut, Waduj	-	1	-
Pusegaon (02375)				
1	Arun Shinde, Visapur	260214	2	-
2	Baburao godse, Diskal	264231	1	-
3	Madan jadhav, Pusegaon	260133	2	-
Dahiwadi (02165)				
1	Sanjay Pisal Dahiwadi	220157	1	-
2	Sharad Jadhav, Dahiwadi	220975	1	-
3	Dhananjay Jadhav, Dahiwadi	220764	1	-
4	Sanjay Pisal, Dahiwadi	220157	1	-
5	Chandu Wagh, Vavarhire	288238	1	-
6	Hanumant Pandhre, Wawarhire	-	1	-
7	Kiran Awghde, Wawarhire	288213	1	-
8	Chandu Pol, Gondawle khurd.	282236	1	-
9	Vijay Jadhav, Dahiwadi	9422092230	1	-
Mhaswad (02373)				
1	Shrimant salunkhe, Injbav	274285	2	-
2	Arun Deasi, Warkute malawdi	272202	1	-
Patan (02372)				
1	Rajendra chavan , Malhar peth	98225580424	1	-
2	Srirang jadhav, Natoshi	-	1	-
3	Chandrakant Shirke, Nerle	-	-	-
4	Ramesh Galwr, Gokul tarf patan	-	-	-
5	Sudhir Naykawdi, Patan	9822409571	1	
6	Chetan Lohar, Chaphal	9960226496		
7	Sunil Kumar Jadhav, Tarle	9420486766 9766930302	1	
8	Nitin Mathne, Malhar Peth	9890808335 9822260750	1	
9	Sachin Patil, Dhebewadi	8275037386	1	

10	Balaso Kadam, Koynanagar	9422092926	1	
Phaltan (02166)				
1	Hanumantrao choudhari, Choudhrwadi	221547	1	-
2	Anil Tawre, Choudharwadi	-	1	-
3	Pintu Shirke, Choudharwadi	-	1	-
4	Balaso bhosle, Choudharwadi	-	1	-
5	Tukaram Kokate , Choudharwadi	-	1	-
6	Jalindhar Jadhav , mangalwar Path,	-	1	-
Khandala (02169)				
1	vithhal yadav, Khandala	-	1	-
2	Vishal raut , Shirwal	-	1	-
3	Rajendra Newse, Naygaon	-	1	-
4	Radhakrishna cranes, shindewadi	9822557906 9021225454 9325495454	-	2
Bhuinj (02167)				
1	Shekhar Balaso bhosle, Bhuinj	285204	1	-
Pachgani (2168)				
1	Dubhash Peshota, Bhosekhind Panchgani	240451	1	-
2	Anadrao biramani, Pachgani	240591	1	-
Wai (02167)				
1	Rajendra Kalokhe , Khanapur	9822374235	1	-
2	Shashikant Sankoli, Wai	220701 9222794294	1	-
3	Nitin Shinde, Wai	223771 9222081743	1	-
4	Sangram Sapkal	9921754448	1	-
Aundh (02161)				
1	Yogesh Shinde, Goregaon	-	1	-
2	Arvind Shinde, Goregaon	-	1	-
3	Prakash patil, Palsi	9921065363	1	-
4	Jaywant kadam, Goregaon	-	1	-
5	Satwasheel Kadam, Goregaon	9423032722	1	-
Wathar (02371)				
1	Dnyaneshwar Mohite, Fadtarwadi	-	1	-
2	lalasaheb Newse, Karanjkhop	9423032195	1	-
3	Shivajirao Bhoite, Wagholi	9890914686	1	-
4	Namdev Pisal, Pimpode	251313	1	-
Medha (02378)				
1	Tukaram Tarde , Bamnoli, tarf kudal	9850082424	1	-
2	Krushna Kamble, Medha	9423264309	1	
3	Mahaesh Kadam, Medha	9426803737	1	
4	Shivanana, Tarde, Bamnoli	9657110068	1	
Other Equipment				
	Sayyad Mistry (Gas Cutter) , Wai			
	Sonawne Mandap (Generator) , Wai	9096871212		
	Shashikant Sankule (Buldozer) Wai	9822661186		
	Avinash Ranjane (Buldozer, Tanker) Wai	9822056604		
	Kumar Dhotre (Tanker)	8080653844		
	Scuba Diving (Sindhudurg)	9403938318		

	Gurunath Rane Sachin Govekar (Malvan)	9422077772		

Boat Club

No.	Name	Contact No.
1	Tapola Boat Club, Mahableshwar Ganesh Bhosle Mohan Bhosale	9422403079 9422119822 02378-247222 02378-247309
2	Vishal Boat Club, Tapola, Mahableshwar Yogesh Karande	9422403069 02378-247269
3	Mohat, Jawali	02378-245489
4	Bamnoli Balu Sindkar Jambhale, Salunkhe	02378-210310
5	Boriv , WAI Sahyadri Boat Club Shivaji Bhosle	02167-28161 9404176060 7776951166 9422038515
6	Boat Mechanic Patil	7385826933 8552025667
7		

Control Room

No.	Name	Office No	Mobile no.
1	Control Room, Mantralaya Mumbai	22027990 22816624 22615035	22653819 22816625
2	Control Room, Divisional commissioner Office Pune	020- 26340534	26360326
3	Control room Satara District	02162-232175	02162-232349
4	Police Control room satara	231181/233833	9011181888
5	Civil Hospital Control Room	02162-234653	238494
6	MSEB Control Room Kokre Control room Incharge	02162-244640 7875768554	7875768520
7	PWD Control room	234989	234329
8	Irrigation Control Room Satara	02162-244481	244681
9	Shri. Srivastav, Commandant NDRF Sadumbare, Pune	02114 - 247010	9423506765
10	Control Room NDRF	02114-247000 9422315628	02114-247008
11	Shri. Sandeep, Commandant ARMY, Mahar Batalian Aundh Pune	8108639933	020-25803014
12	Shri. Shedge, Commandant of ARMY, Pune	9923739603	7507776216
13	S G Kamble, Director, IMD Mumbai	022-22151989	022-22153823
14	Smt. Medha Khole,	020-25535886	020-25530201

	Dy. Director IMD pune		
15	Ganesh Sonune - Disaster Management Officer, Pune Municipal Corporation	020-25506800 801/2/3/4	9689931511
16	Control room Satara District	02162-232175	02162-232349
17	Control room Pune District	8975232955	020-26123371
18	Control room Solapur District	9665032744	0217-2731012
19	Control room Sangli District	9096707339	0233-2600500
20	Control room Kolhapur District	9823324032	0231- 2659232 2652950/53/54
21	Control room Raigad District	9763646326	02141-222118 222097
22	Control room Ratnagiri District	9420244937	02352-226248
23	Forest Dept. Satara	02162-220057	1926 (Toll free)

District Crisis Group (Search & Rescue Team)

Sr. No.	Name and Office	Designation in SAR Team	Contact Number
Team Leaders			
1	Shri. Salunkhe, Dy Sp (Home)	Team Leader	02162-234776 9594916729
2	Shankar Gore , CO satara NP	Dy. Team Leader	02162239247 7350800999
Group-A (Technical/Medical Assistance)			
3	District Informatics Officer, NIC, Satara	Member	02162-231103 9403166151
4	Shri. Yuvraj Patil District Information Officer,	Member	8888164834
5	Shri. Shelar N A Sectional Engineer PWD, Satara	Member	02162-233792 9766769201
6	Dr. S R Patil Resident Medical Officer, Dr. Manoj Kawde Medical Off. (Orth)	Member Member	02162-238494 8421815454 9422534303
7	Dr. Anirudha Athlye DHO Satara	Member	9421233250
8	Dr. Sachin Patil Medical Officer (Epidemics)	Member	9423920650
Group-B (Administration)			
9	Shri. Devidas Tamhane District Management Officer, Satara	Member	9657521122
Group-C (Police/Execution)			
10	Shri. Ahir RPI Satara	Police	9823264749
11	Shri. Shaikh, Constable	Police	9604117200
Group-D (Fireman)			
12	Shri. Saurabh Salunkhe	Fireman Satara	9527549615
13	Shri. Vikram Jadhav / Mane	Fireman Karad	9423011020

14	Shri. Vinod Jadhav	Fireman Phaltan	9860850350
15	Shri. Narayan Gosavi	Driver	9850070985
16	Shri. Bone M.A.	Driver	9405041652
17	Shri. S G Tamboli	Paltan Nayak	8856006567
18	Shri. Kadam K G	Homeguard	9422061094
19	Shri. Attar Ibrahim	Homeguard	9420947895
20	Shri. Varunkar Hashim	Homeguard	8087356350
21	Shri. Nanavre B P	Homeguard	9423828517
22	Shri. Gosavi A A	Homeguard	9850963500
23	Shri. Giri R G	Homeguard	9604540146
24	Shri. Yewle T R	Homeguard	9226633613
25	Shri. Tarde L A	Homeguard	9823890145
26	Shri. Bhagwan Chorge	Life Guard Swimmer	9850392174
27	Shri. Nitin Gujar	Life Guard Swimmer	8888498872
28	Akshay Kadam	Life Guard Swimmer	8552987085
29	Aniket Kadam	Life Guard Swimmer	8600784473
30	Sanjay Parthe	Trackers (NGO)	9421208702
31	Uday Yadav	Swimmer	9850938788
32	Shri. Tushar Tarde	Rescue Operation	7385709931 & 9975854317
33	Shri. Kartik Gole	Home Guard	9765865287
34	Shri. S D Dagde	Home Guard	8625948797

ANNEXURE – II

IDENTIFICATION OF VILLAGES AS PER HAZARDS

1. Types of Disasters and Total No. of Villages Vulnerable as per the Hazards in Satara District:

Harzards (Natural/ Man-Made)	Total No. of Villages
Floods	72
Cyclone/ Tsunami/ Storm Surge	0
Landslide	58
Earthquake	339
Drought	164
Fire	0
Chemical and Industrial	0

2. Hazards And Vulnerable Villages:

A. Floods

Name of Taluka	Name of circle or villages or wadi's (vulnerable)	No. of families affected	Total affected population
KARAD	Karad	3038	11176
	Gote		
	Sayapur		
	Kapil		
	Panchawadvasti		
	Varunji		
	Talgaon		
	Dushere		
	Tambave		
	Aane		
	Potale		
	Yaravle		
	Chachegaon		
	Mhopre		
	Karve		
	Pawarmali		
	Rethare Br.		
Rethare Kurd			
Goleshwar			
	Navdi	5	25

PATAN	Mandrul Haveli	1	7
	Girewadi	3	15
	Patan	130	650
	Helwak	23	81
	Shiral	23	98
	Rasati	4	14
	Banpethwadi	4	27
	Jamdadwadi	12	71
	Tripudi	5	20
PHALTAN	Sathe (Jadhavwadi)	23	119
SATARA	Jaitapur (Krishna River)	20	80

B. LANDSLIDES

NAME OF TALUKA	NAME OF CIRCLE OR VILLAGES OR WADI'S (VULNERABLE)	NO. OF FAMILIES AFFECTED	TOTAL POPULATION AFFECTED
JAOLI	Marli	120	521
	Kelghar	28	145
	Varoshi	10	50
	Mukavali	12	60
	Vahite	14	70
	Watambe	15	70
	Rengdiwad	14	50
	Bondarwadi	45	374
	Bahule	14	70
	Bhuteghar	11	60
	Taloshi	9	45
	Valanjwadi	15	75
	Gondemal	15	75
	Asani	35	165
	Okhavadi	28	145
	Bhogavali Medha	45	225
	Divdev	40	200
	Kurloshi	30	150
	Vagdare	24	120
	Bhamghar	45	225
	Mhatekh	20	105
	Sahyadri Nagar	14	130
	Kumbhargani	42	372
Dund	7	35	
	Arundal	50	220
	Nawali	40	195
	Adhal	35	205
	Umbari	145	614
	Machutar	262	1188

MAHABALESHWAR	Dhardev	53	282
	Danvali	130	537
	Tekwali	75	309
	Moleshwar	95	540
	Bhekvali	216	864
	Bhilar	705	2807
	Mettale	N.A	N.A
	Parpar		
	Kumathe		
	Manghar		
	Chikhali		
PATAN	Ghatewadi	136	450
	Jimanwadi	41	240
	Masugadewadi	37	177
	Batewadi	26	119
	Tolewadi	70	365
	Borgewadi	10	135
	Mharvand	68	367
	Vitthalwadi	11	62
PHALTAN	Tathawada	45	250
	Dhumalwadi	40	200
SATARA	Bondarwadi	34	112
	Kaloshi	18	70
	Raighar	32	175
	Dabewadi	26	130
	Jakatwadi	64	256
WAI	Baudhawasti	125	350
	Gavthan		
	Khadakwadi		

C. EARTHQUAKE

NAME OF TALUKA	NAME OF CIRCLE OR VILLAGES OR WADI'S (VULNERABLE)	NO. OF AFFECTED FAMILIES	TOTAL AFFECTED POPULATION
PATAN	Dhokawale	44	226
	Nawaja	132	523
	Dicholi	37	382
	Punvali	7	40
	Manainagar	77	356
	Mirgaon	64	285
	Kamargaon	97	445
	Humbarli	104	475
	Deshmukhwadi	203	850
	Gadhav Khop	103	471
	Vajegaon	27	132

Baje	47	280
Nanel	55	230
Rasati	363	1682
Gokul Tarf Helwak	664	3052
Torane	74	371
Ghatmatha	43	197
Kemase	15	78
Bopoli	126	604
Nechal	83	392
Shivandeshwar	169	794
Helwak	202	954
Mendheghar	62	296
Kondhavale	160	818
Goshatwadi	208	1061
Vanzole	79	448
Donichawada	89	440
Karate	184	875
Marul Tarf Patan	288	1478
Vajegaon	62	270
Shiral	233	1054
Shirshinge	2	8
Miraswadi	95	423
Vittalwadi	53	276
Kadoli	153	689
Mala	81	405
Govare	121	624
Kolane	68	302
Waghane	32	125
Nav	78	345
Gothane	63	289
Patharpunj	56	260
Sutarwadi	197	786
Manyachiwadi	107	420
Sabalewadi	120	541
Bhilarwadi	70	332
Maldan	411	1575
Shidrukwadi	249	946
Bagalwadi	123	488
Kadhane	206	940
Tupewadi	116	533
Khale	325	1234
Saikade	209	892
Manewadi	310	1299
Karpewadi	194	746
Taygadewadi	412	1756
Kumbhargaon	295	1253
Manyachiwadi	122	490

	Varekarwadi	63	240
	Shibewadi	137	540
	Chikhalewadi	332	1478
	Jambhalwadi	55	191
	Petekarwadi	57	237
	Vaichalwadi	60	219
	Bamanwadi	76	269
	Marekarwadi	93	344
	Boragewadi	213	870
	Chalkewadi	251	1073
	Shendewadi (Kumbhargaon)	153	622
	Galmewadi	337	1115
	Gawdewadi	136	760
	Matrewadi	192	810
	Mendh	254	964
	Jadhavwadi	59	232
	Ghotil	238	810
	Kasani	225	964
	Nivi	145	627
	Gudhe	569	2181
	Pachupatewadi	126	473
	Morewadi (Kuthare)	223	962
	Pagewadi	32	149
	Pawarwadi	185	656
	Kuthare	324	1308
	Supugadewadi	143	525
	Wazoli	298	1131
	Dakewadi (Wazoli)	95	299
	Dhamani	627	2487
	Chavanwadi (Dhamani)	163	611
	Maskarwadi	163	527
	Maskaswadi No. 1	97	342
	Yelavewadi	96	364
	Kalgaon	362	1511
	Dakewadi	165	647
	Lotalewadi	72	239
	Karapewadi	113	581
	Bharewadi	101	420
	Maskarwadi	91	411
	Loharwadi	89	380
	Letamewadi	62	322
	Chougulewadi	73	265
	Acharewadi	158	656
	Kolagewadi	100	438
	Ramishtewadi	154	658
	Muttalwadi	105	414
	Thankal	90	387

Bamanewadi	67	343
Sawarghar	171	837
Nivade	108	502
Kushi	126	662
Daphalwadi	111	595
Tondoshi	114	495
Murud	560	1966
Gorewadi	134	551
Dangistewadi	49	226
Maloshi	137	535
Padekarwadi	120	576
Ghatewadi	109	529
Kadave Kh.	218	1037
Kadave Bk.	394	1730
Konjavade	277	1092
Bhudakewadi	171	752
Awarde	286	1190
Bambavade	256	1235
Gaymukhwadi	71	276
Kalambe	107	450
Jalu	142	614
Malroshi	144	699
Jambhekarwadi	77	385
Dhoroshi	320	1682
Ambale	161	676
Tarale	1303	5961
Dhangarwadi	81	459
Katewadi	94	412
Jangalwadi	64	322
Pandharwadi	108	529
Nune	358	1516
Dutalwadi	153	601
Rahude	163	716
Vekhandwadi	300	1430
Ghot	276	1198
Borgewadi	97	434
Ambewadi	78	326
Fartarwadi	79	351
Jugaiwadi	69	343
Patan	3052	13779
Kusavade	100	515
Dhuilwadi	54	243
Van	118	702
Aral	78	408
Kathi	88	490

Nahimbe	49	192
Bharsakhale	110	660
Nivakane	88	490
Mharwand	114	615
Mandure	174	822
Chafoli	107	405
Divashi Kh.	132	508
Jungati	83	466
Marathwadi	107	611
Keral	282	1287
Dhadamwadi	171	773
Mendhoshi	201	977
Maulinagar	157	598
Borgewadi	61	272
Ghanav	131	659
Khivashi	122	562
Ghanbi	124	687
Vatole	223	1113
Ambavane	143	678
Chiteghar	88	400
Tamkane	185	842
Sakhari	259	1237
Kotawadewadi	91	448
Bondri	175	914
Jaichiwadi	86	471
Karvat	114	579
Gheradategad	37	188
Tolewadi	119	572
Kavadewadi	120	538
Mastewadi	122	654
Bibi	345	1542
Saltewadi	72	361
Chafer	144	671
Taliye	127	595
Risawad	46	233
Kokisare	292	1512
Gawalingar	77	418
Kille Morgiri	169	766
Morgiri	336	1416
Pethshivapur	234	1161
Nerale	176	834
Chawaliwadi	127	558
Kavarwadi	184	829
Mulgaon	223	1014
Donglewadi	127	492
Vadi Kotawade	171	798
Dhavade	192	876

Dikshi	54	270
Kodal	32	171
Humbarne	53	237
Kahir	120	171
Ambeghar Tarf Marli	163	810
Gokul Tarf Patan	148	766
Ambrag	323	1514
Tripudi	259	1222
Chopadi	387	1617
Belavade Kh.	434	1922
Ambrule	305	1470
Adadev Kh.	148	813
Adadev	123	584
Natoshi	681	2936
Pawarwadi	173	665
Kalkewadi	89	498
Shindewadi	326	1507
Sulewadi	204	925
Gavhanwadi	128	585
Chopdarwadi	302	1149
Siddheshwar Nagar	155	698
Marali	636	2572
Sonavade	414	1952
Humbarwadi	145	652
Dhajgaon	70	445
Katvadi	79	332
Ker	144	727
Pimpaloshi	160	833
Devghar Tarf Patan	10	41
Surul	189	1009
Mhavashi	779	3698
Gujarwadi	69	355
Yerphale	385	1822
Lugadewadi	111	515
Digewadi	272	1218
Harugdewadi	83	302
Nadoli	209	866
Adul	442	1970
Subhashnagar	98	482
Nade	427	1992
Padharwadi Telewadi	182	834
Sangwad	238	1135
Chougulewadi	261	1241
Jamdadwadi	128	606
Chaugulewadi	128	606
Paparde Bk.	104	480
Paparde Kh.	234	1038

Navasarwadi	223	1019
Yeradawadi	116	547
Bandhvat	72	296
Vajroshi	398	1885
Pabhalwadi	98	464
Dusale	107	486
Pathavade	84	387
Sadawaghapur	358	2110
Keloli	216	933
Chavanwadi	138	687
Virewadi	79	395
Padloshi	223	877
Dhayati	117	480
Nanegaon Kh.	166	614
Jalagewadi	224	837
Mathanewadi	84	311
Nanegaon Bk.	210	856
Kharadwadi	105	402
Khonoli	81	341
Kocharewadi	109	498
Wagjaiwadi	223	993
Gamewadi	86	365
Jadhavwadi	141	586
Chafal	689	2978
Majgaon	471	2143
Dervan	346	1420
Dadholi	251	1053
Shinganwadi	130	628
Thomase	326	1495
Bodakewadi	116	504
Urul	358	1569
Shedgewadi	180	821
Vihe	719	3327
Malharpeth	959	4256
Abdarwadi	206	853
Nisare	230	1154
Girewadi	93	475
Navadi	204	974
Vetalwadi	300	1423
Maandrul Haveli	151	694
Naralwadi	238	1051
Sonaichiwadi	383	1612
Khilarwadi	75	335
Garawade	384	1614
Bahule	503	2111
Marul Haveli	719	3253
Telewadi	151	672

Korivale	261	1115
Jarewadi	170	594
Atoli	181	872
Guteghar	40	217
Dongarobachiwadi	119	589
Pachgani	105	613
Bahe	42	177
Yerad	251	1356
Jyotibachiwadi	130	681
Tamkade	115	517
Kaloli	200	897
Banpethwadi	157	753
Gunjali	139	673
Zakade	95	341
Lendhori	160	802
Maneri	167	804
Divashi Bk.	558	2364
Asawalewadi	115	483
Davari	169	737
Paneri	173	661
Tamine	129	432
Palashi	178	817
Salave	226	1065
Varpewadi	93	451
Borgewadi	86	434
Ekavadewadi	99	467
Mahind	301	1038
Bacholi	144	502
Banpuri	677	2616
Shitapwadi	114	486
Mandrulkhole	835	3616
Mandrulkhole Kh.	280	1085
Janugdewadi	224	1006
Sanbur	684	2642
Udhavane	154	622
Karale	184	913
Ruvale	305	1308
Ambavade Kh.	252	1033
Dhebewadi	237	1025
Bhosgaon	339	1590
Kolekarwadi	243	1005
Jinti	386	1621
Sawantwadi	88	301
Satar	114	550
Modakwadi	103	350
Nigade	133	499
Umarkanchn	250	942

	Marathwadi	204	840
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D. DROUGHT

NAME OF TALUKA	NAME OF CIRCLE OR VILLAGES OR WADI'S (VULNERABLE)	NO. OF AFFECTED FAMILIES	TOTAL AFFECTED POPULATION
KARAD	Masur	17475	78637
	Shamgaon		
	Kivali		
	Khodjaiwadi		
	Surli		
	Karmathi		
	Padali		
	Gaikwadwadi		
	Gosavewadi		
	Gholapwadi		
	Meravewadi		
	Pachund		
	Vagheri		
	Helgaon		
	Kacharewadi		
	Bariugdewadi		
	Nigadi		
	Haribarwadi		
	Riswad		
	Antawadi		
KHATAV	Vaduj	140	65092
	Khatav		
	Pusegaon		
	Budh		
	Mayani		
	Katar Khatav		
	Nimsod		
	Aundh		
	Pusesavali		
PHALTAN	Vathar	972	2299
	Nirgudi	555	610

ANNEXURE – III

(Attach a separate sheet under each heading in case space is not sufficient)

1. Incident Name	
2. Map Sketch (Give details of the affected site)	
Date Prepared	Time Prepared

National Disaster Management Guidelines: Incident Response System

3. Summary of Current Action

a. Action already taken

b. Action to be taken

c. Difficulties if any in response including mobilization of resources and manpower

National Disaster Management Guidelines: Incident Response System

3. Summary of Current Action

a. Action already taken

b. Action to be taken

c. Difficulties if any in response including mobilization of resources and manpower

Incident Status Summary (ISS) - IRS Form 002 (Major Components)

(Attach a separate sheet if space is not sufficient)

1. Name of the Incident	2. Name of the IRT	3. Operational Period	4. Prepared Date : Time :				
5. Name of the IC			6. Phone No. :				
7. Current Situation (No. of casualty)							
(a) Locations	(b) Injured	(c) Treated	(d) Discharged	(e) Patients referred (Specify Hospitals with locations)	Dead	Identified and cremated / buried dead bodies	Unidentified dead bodies
8. Status of infrastructure (Put tick mark)							
(a) Infrastructure	(b) Not Damaged	(c) Partially Damaged	(d) Completely Damaged	9. Threats, if any which may be increase severity of incident may be indicated			
Road							
Railways							
Airport							
Water Supply							
Electricity Supply							
Communication Network							
Communities / Critical infrastructure							
Residence							
Any other (specify)							

Unit Log – IRS Form 003

(Major Components)

(Attach a separate sheet if space is not sufficient)

1. Name of the Incident	2. Name of the Section	3. Operational Period	4. Prepared Date : Time :	
5. Name of the Units	6. Work assigned with resources	7. Name of the Site	8. Status of the work	
			(a)	(b)
9. Specify accident/incident/weather conditions which may increase severity of incident				
(a)	(b)	(c)		
Time	Locations	Action taken or suggested		
10. Name and designation of officer prepared by				

Record of Performed Activities – IRS Form 004

(Major Components)

(Attach a separate sheet, if space is not sufficient)

1. Name of the Incident :	2. Operational Period	3. Prepared Date Time
4. Name of the section _____ Branch / Division / Unit		
5. Name of the facilities where (ICP / Incident Base / Comp / Relief Camp / Staging Area, Medical Camp / Helibase / Helipad / Any other) Division or Unit is deployed (Specify with exact location)		
6. Work Assigned	7. Status of work (Put tick mark)	
	(a)	(b)
	Completed	Not Completed
8. Any incident / accident during the response and action taken		
(a)	(b)	
Incident / Accident (Specify, if any)	Action Taken	
9. Name and designation of officer prepared by (Specify Name Position and Section)	10. Despatch Date : Time :	11. _____ Signature of Receiving Officer
(Prepared by all responders below the section)		

Organization Assignment List – IRS Form 005
(Major Components)

(Attach a separate sheet, if space is not sufficient)

This assignment list will be prepared as per IAP and will be circulated among all the responders and supervisory staff at the beginning of each operational period by the respective Section Chiefs.

1. Name of the Incident:	2. Operational Period	3 Prepared Date : Time :
4. Name of the section to whom work assigned :		
5. Name of the supervisory officer concerned :		
6. Name of the responder:		
7. List of task assigned		
(a)		
(b)		
(c)		
(d)		
(e)		
(f)		
(g)		
(h)		
8. Name and designation of officer prepared by (Specify Name Position and Section)	9. Approved by :	

On Duty Officer List – IRS Form 007
 (Major Components)
(Attach a separate sheet if space is not sufficient)

This will be maintained by all the section and sent to RD through IC

1. Name of the Incident : _____		2. Name of the Section/ Branch / Division / Unit specify		3. Operational Period _____		1. Prepared Date : Time :	
Sl.	5. Name of officer	6. Designation in Normal Period	7. Phone No. / Email ID	8. IRS Position for the Incident	9. Location of Deployment	10. Location of Camp with contact details	11. Any other information
12. Name and designation of officer prepared by			_____			14. Despatch Date : Time :	
			13. Signature of the Section Chief				

Medical Plan – IRS Form 008
 (Major Components)
 (Attach a separate sheet if space is not sufficient)

1. Name of the Incident			2. Operational Period _____				3. Prepared Date : _____ Time : _____			4. Total nos. of medical aid camp to be established :				
4.1 Sl. No	4.2 Location(s)	4.3 Resource available in the medical camp												
		(a)	(b)	(c)	(d)		(e)		(f)					
		No. of Medical officers	No. of Paramedics staff	Others (ANM and trained volunteers specify)	Lifesaving drugs / Appliances		Facilities of referral services and Blood Banks		Any other (specify)					
					Yes	No	Yes	No						
5. Status of Ambulance Services						6. Availability of regular medical facilities (specify in nos.)								
(a)	(b)	(c)		6.1 Govt.				6.2 Private						
Name of the Ambulance Service Provider	Address & Contact No.	Paramedics		(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(f)
		Yes	No	Location	Sub centre	PHC	Hospitals	Medical College	Location	Clinic	Nursing Home	Hosp	Med. College	RMP
7. Road Map of the area circulated among the ambulance service						8. Referral Medical Facilities in the Neighborhood								
(a)		(b)		(a)	(b)		(c)							
Yes		No		Location	Address		Specification							
9. Name and designation of officer prepared by _____						10. Approved by _____								

Communication Plan – IRS Form 009

(Major Components)

(Attach a separate sheet if space is not sufficient)

1. Name of the Incident: _____		2. Operational Period _____	3. Prepared Date : Time :										
3. List of locations where communication is available													
(a)	(b)	(c)	(d)										
		Type of communication											
Name of location	Organization responsible	Requirement of backup power supply		Wireless			Telephone			HAM Radio	Web		
		Yes	No	HF	VHF	Morse	Landline	Mobile	Satellite		e-mail	skype	
4. List of locations where communication has to be set up													
(a)	(b)	(c)	(d)	(e)									
Name of location	Organization responsible	Requirement of backup power supply		Personnel Requirement (Specify Nos. if required) Yes	Type of communication						HAM Radio	Web	
					Wireless			Telephone				e-mail	skype
		Yes	No		HF	VHF	Morse	Landline	Mobile	Satellite			
5. Arrangements for repair and replacement of faulty sets							6. In stock available sets (specify)						
7. Networking plan for integrating inter-organizational communication facilities with the local setup (Army / NDRF etc.) weather repeater or relay setup is required or not							8. Transport requirements for supervision and maintenance						
9. Name and designation of officer prepared by _____													

Demobilization Plan – IRS Form 010
(Major Components)

(Attach a separate sheet if space is not sufficient)

1. Name of the Incident : _____	2. Name of Section / Branch / Division / Unit to be demobilized (specify) _____	3. Operational Period _____			4. Prepared Date : Time :		
5. Name of responder (s) / details of resources to be demobilized	6. Location from where demobilization will take place	7. Date and Time	8. Mode of transport	9. Transit destination if any	10. Final Destination and name of agency to whom returned	11. Ultimate destination agency notified or not	
						Yes	No

12. Demobilization plan for out of service equipment and sick personnel

(a)	(b)	(c)	(d)	(e)	(f)	(g)	
Name of sick personnel / out of service equipment	Location from where demobilization will take place	Date and Time	Mode of transport	Transit destination, if any	Final Destination and name of agency to whom returned	Ultimate destination agency notified or not	
						Yes	No

13. Name and designation of officer prepared by _____

14. Approved by _____ 15. Issued by _____

Incident Response System

Demobilization Plan – IRS Form 010

(Major Components)

(Attach a separate sheet if space is not sufficient)

1. Name of the Incident : _____		2. Name of Section / Branch / Division / Unit to be demobilized (specify) _____		3. Operational Period _____			4. Prepared Date : Time :		
5. Name of responder (s) / details of resources to be demobilized		6. Location from where demobilization will take place		7. Date and Time	8. Mode of transport	9. Transit destination if any	10. Final Destination and name of agency to whom returned	11. Ultimate destination agency notified or not	
								Yes	No
12. Demobilization plan for out of service equipment and sick personnel									
(a)	(b)	(c)	(d)	(e)	(f)		(g)		
Name of sick personnel / out of service equipment:	Location from where demobilization will take place	Date and Time	Mode of transport	Transit destination, if any	Final Destination and name of agency to whom returned		Ultimate destination agency notified or not		
							Yes	No	
13. Name and designation of officer prepared by _____									
14. Approved by _____					15. Issued by _____				
Incident: Response System									

ANNEXURE - IV

List of Search and Rescue Master Trainers, selected by NDRF

Sr. No.	District	Name of Candidate
1.	Raigad	Shri Harshad Harishchandra Sonawale
2.	Raigad	Shri Samadhan Devidas Kandu
3.	Ahmednagar	Shri Gaurav Dattaray Harbo
4.	Ahmednagar	Shri Sunil Mohite
5.	Dhule	Shri Pramod Wankhede
6.	Dhule	Shri Abhijeet Nilkanth Patil
7.	Dhule	Shri Dinesh Omprakash Atole
8.	Kolhapur	Shri PrashantPrakashShende
9.	Kolhapur	Shri PradipMahadevAinapure
10.	Kolhapur	Shri OnkarRajivNavlihalkar
11.	Kolhapur	Shri AbhinavAshokGirigosavi
12.	Satara	Shri TusharDilip Tarade
13.	Hingoli	Shri GajananVitthal Zade
14.	Hingoli	Shri VikasDyaneshwarWankhede
15.	Jalna	Shri SunilSubhashPawar
16.	Washim	Shri AnilBhagwatWagh
17.	Pune	Shri SagarDattatrayJagtap
18.	Pune	Shri NileshKailashChavan
19.	Nanded	Shri PradeepDigamberBhadre
20.	Nanded	Shri TukaramAnant Patil
21.	Nanded	Shri Ravi KisanWaghmare
22.	Nanded	Shri MilindShankar RaoWaghmare
23.	Sangli	Shri PrakashNamdeo Tambe
24.	Jalgaon	Sagar PrakashPatil
25.	Jalgaon	Shri A.N.Bholerao
26.	Latur	Shri A.N. Bholerao
27.	Nashik	Srikrishna Bhalchandra Deshpande
28.	Nashik	Shri Shaikh Zesan Qadir
29.	Yavatmal	Shri Harishchandra Badrinath Rathod
30.	Aurangabad	Shri Hrishikesh Sudam Tupe
31.	Aurangabad	Shri Vijay Ram Das Borse
32.	Gadchiroli	Shri KiroseChandu Veladi
33.	Sindhudurg	Shri Rohan Gurunath Munj
34.	Sindhudurg	Shri Prathamesh Gajanan Sainant
35.	Sindhudurg	Shri Siddhivinayak Vikas Kubade
36.	Ratnagiri	Shri RohitRamakantKhadekar
37.	Ratnagiri	Shri Vinod Ramchandra Gopal

List of Disaster Management Master Trainers, selected by YASHADA

Sr. No.	Name of Candidate	District
1.	Shri Prafulla Shekhar Undakule	Pune
2.	Shri Chandan Subashchandra Desai	Pune
3.	Mrs. Sunita Anand Pawar	Satara
4.	Shri Onkar Rajiv Navalihalkar	Kolhapur
5.	Shri Ashish Kamalakar Wani	Nandurbar
6.	Shri Giri Narayan Gulab	Parbhani
7.	Shri Haragavkar Vikas Rajaram	Parbhani
8.	Shri Padmakar Shivcharan Tarone	Bhandara
9.	Shri Rajesh Sukhdeo Dongre	Chandrapur
10.	Shri Aniket Mangesh Patil	Raigad
11.	Shri Dattatray Balkrushna Urmude	Ahmednagar
12.	Shri Mugutmal Suresh K.	Ahmednagar
13.	Shri Amol R. Kulkarni	Nashik
14.	Shri Kishor Wasudeorao Sontakke	Wardha

ANNEXURE - V

S.No	Taluka	Base Location	Vehicle No#	Emso Mobile Number	Pilot Mobile Number
1	Satara	Satara District Hospital	MH-14 CL 0398	7774081857	7757061948
2		Aryangla Ayurved Rughalay	MH-14 CL 0469	7774081856	7757061947
3		Nagthane Primary Health center	MH-14 CL 0475	8378957075	8275999626
4		Parli Primary Health Center	MH 14 CL0557	8378957141	8275999661
5	Phaltan	Phaltan Sub District Hospital	MH-14 CL 0425	7774081907	7757061876
6		Barad Primary Health Center	MH-14 CL 0463	7774081903	7757061872
7	Karad	Malkapur Nagar Panchayat	MH-14 CL 0452	7774081901	7757061870
8		Karad Sub District Hospital	MH-14 CL 0427	7774081906	7757061875
9		Umbraj Primary Health Center	MH-14 CL 0462	7774081898	7757061867
10		Karad Krishna Charitable Hospital	MH-14 CL 0446	7774081900	7757061869
11		Undale Rural Hospital	MH-14 CL 0457	7774081891	7757061861
12	Man	Vaduj Rural Hospital	MH-14 CL 0476	7774081896	7757061865
13		Mhaswad Primary Health Center	MH-14 CL 0525	7774081892	7757061862
14		Pusegaon Primary Health Center	MH-14 CL 0453	7774081895	7757061864
15		Dahiwadi Rural Hospital	MH-14 CL 0428	7774081905	7757061874
16		Mayani Primary Health Center	MH-14 CL 0435	7774081893	7757061863
17	Patan	Dhebewadi Rural Hospital	MH 14 CL 1065	7774085996	8275999581
18		Patan Rural Hospital	MH 14 CL 1066	7774085962	8275999562
19		Tarale Primary Health Center	MH-14 CL 0436	7774081899	7757061868
20		Koyananagar Primary Health Center	MH-14 CW 2586	8378957140	9168601882
21	Koregaon	Koregaon Rural Hospital	MH-14 CL 0438	8378957142	8275999657
22		Rahimatpur Primary Health Center	MH-14 CL 0440	7774081897	7757061866
23	Jawali	Bamnoli Primary Health Center	MH-14 CL 0443	8275999790	8275999737
		Kelghar Primary Health center	MH-14 CL 0649	8378957218	9403770897
25	Wai	Kudal Primary Health Centre	MH-14 CL 0458	8378957237	8275999736
26		Wai Rural Hospital	MH-14 CL 0459	7774081902	7757061871
27		Bhuinj Primary Health Center	MH-14 CL 0472	7774081904	7757061873
28	Khandala	Khandala Rural Hospital	MH 14 CL 1106	8378957143	8275999656
29		Shirwal Primary Health Center	MH 14 CL 1161	8378957076	8275999627
30		Lonand Primary Health Center	MH-14 CL 0465	7774086003	8275999552
31	Mahabaleshwar	Mahabaleshwar Rural Hospital	MH 14 CL 0964	8378957074	8275999659
32		Tapola Primary Health Center	MH-14 CL 0461	8275999396	8275999658

*ALS : Advanced Life Support, BLS: Basic Life Support

ANNEXURE – VI

Do's and Don'ts(disaster-wise)

1. Earthquake

Do's	Don'ts
<ul style="list-style-type: none"> • Listen to the radio, television or any kind of public addressing system in advance for any kind of information and advice. • Attend any kind of mockdrills held in your area. • Teach all your family members of your family how to turn off the electricity, water or gas supply during an earthquake event. • Protect yourself by standing below the lintel of the inner door, the corner of a room, under the table or bed. • Try to stay away from old, tall and abandoned buildings, electricity wires, poles, slopes and walls, which are liable to collapse. • Store water, food items and prepare first-aid kit, as they may come handy anytime. 	<ul style="list-style-type: none"> • Donot run in haste and wander around the streets. • Stay away from high rise buildings, poles, walls as much as possible. • Donot use lifts or elevators during an earthquake incident. • Donot enter or re-enter badly damaged buildings or vulnerable buildings.

2. Landslide

Do's	Don'ts
<ul style="list-style-type: none"> • Donot construct houses below the slope. • Purchase home-supplies to protect the house. • Store emergency supplies before hand. • Listen to the radio or watch television for any kind of information and instructions. • Do get advice from a qualified geologist before buying a potentially unstable site for house construction. • Do grow plants and trees above or below slopes for protection. • Maintain drainage system in your 	<ul style="list-style-type: none"> • Donot irrigate or put drainfields on bluffs, as this can sometimes lead to slope failure. • Donot overlook slide hazards. • Donot dump garbage, debris or any kind of waste on steep slopes. • Donot change natural drainage system without proper investigation from a qualified geologist.

locality.	
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3. Flood

Do's	Don'ts
<ul style="list-style-type: none">• Raise furniture, electrical appliances on beds and tables.• Put sandbags in the toilet bowl and cover all drain holes to prevent sewage back flow.• Use bleaching powder and lime to disinfect surroundings.• Keep your mobile phones charged• Listen to radio/ watch television for latest weather forecast and flood warnings.• Keep strong ropes, torchlights, extra batteries ready.• Prepare a first-aid kit before hand.• Keep bamboo sticks and umbrellas with you for protection from snakes.• Stay in touch with local officers and follow any kind of instructions given for evacuation.• Keep cattle untied to ensure their safety.• Turn off power and gas connection before leaving the house.	<ul style="list-style-type: none">• Donot enter flood waters.• Donot walk through moving water. Use a stick to check the firmness of the ground.• Donot stand near electric poles and fallen wires as this might lead to electrocution.• Donot get near sewage lines, gutter, drains etc.• Donot leave safe shelter until local officials declare normalcy.• Donot allow children to play near flood waters.• Don't use toilet or tap water if sewage lines are damaged.• Donot drive in flooded areas, as there can be incidents of being swept away.

4. Drought

Do's	Don'ts
<ul style="list-style-type: none">• Save and store water. Recycle rain water.• Try to adapt to alternate cropping pattern.• Contact nearest agriculture office.• Store food and seeds before hand.	<ul style="list-style-type: none">• Stop misusing water.

5. Lightning

Do's	Don'ts
<ul style="list-style-type: none">• Stay inside a building or enclosed vehicle. You are safer inside a structure than outside in a thunderstorm and lightning will be grounded if it strikes your home.• Crouch down and touch as little of	<ul style="list-style-type: none">• Seek shelter under a tree or open structures as lightning is attracted to tall objects and may result in your electrocution.• Go swimming in a thunderstorm as lightning can travel though the

the ground as possible, if caught out in the open by thunderstorm, as this minimises the amount of damage that lightning can cause to the body.

- Seek shelter immediately if lightning is within 10km from your position as it may strike around your position next. The distance from the lightning and your position involves the person counting the number of seconds between the lightning flash and the sound of thunder. Every three seconds counted is equal to one kilometre.
- Avoid using or standing in/near objects which conduct electricity such as golf clubs, umbrellas, trees, puddles of water and metal fences. If these items are struck by lightning, then the person holding/standing near these pieces may be electrocuted.
- Apply CPR to a person who has been struck by lightning if it is safe to do so. A large majority of lightning strike victims survive and they will not retain an electrical charge. The person may be disorientated, unconscious or unable to speak. Dial 108 for any medical attention.

water and kill someone who is swimming in it. Lightning also poses a serious threat to people who are wet, as this water lowers their electrical resistance.

- Use electrical equipment and plumbing as it is connected to the exterior of the house. The electricity from lightning can travel along the wires or plumbing and electrocute you if the appliance is in use, especially if it is a phone.
- Touch the metal parts of a car when lightning is within a least 10km of your position. If the vehicle is struck by lightning, its metallic parts conduct the electrical energy and if someone is in contact with one of these parts, the energy will escape through the human body.