



**Government of Maharashtra  
Disaster Management  
Relief and Rehabilitation Department**

**District Disaster Management Plan  
Satara District  
2025-2026**

**District Disaster Management Authority  
Office of the District Collector, Satara  
Government of Maharashtra**

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## Message from the District Collector

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 district. It has been affected by almost every kind of hazard, like earthquakes, floods, drought, landslides, lightning, 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 initiative.



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 disaster prevention, mitigation and preparedness measures. The plan has been prepared as per the model framework for DDMP, set by the Disaster Management Department, Relief and Rehabilitation Department and National Disaster Management Authority (NDMA). The plan includes important information and the function of various departments in the field of disaster management. The plan is an inclusive document, and each chapter presented in the plan has its own value.

For the preparation of the plan, every stakeholder like the Revenue Department, Police Department, Health Department, and the PMU (Palladium Consulting Ind Ltd) to the DMU, Relief and Rehabilitation Department, Government of Maharashtra, etc. has collectively supported and made provisions for delivering their inputs to build the plan. I hope this document will prove useful to all the departments, industrial firms and even the people of Satara.

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

**Mr. Santosh Patil (IAS)**

Collector & Chairperson, DDMA  
Satara District

## **Message from the Resident Deputy Collector**

**Dear Citizens,**

As valuable members of our district, your safety and well-being remain our utmost priority. Natural calamities and unforeseen emergencies remind us of the importance of preparedness, awareness, and collective action in safeguarding lives and property.

The Satara District Disaster Management Plan (DDMP) is designed to enhance your resilience through concerted efforts by the district administration and various stakeholders, improve response to various disasters, ensuring efficient coordination between local authorities, emergency responders, and the public. However, its success depends on active participation from each one of you.

I encourage you to familiarize yourself with safety protocols, participate in every disaster preparedness and capacity building activities including drills, engage in disaster management related discussions and stay informed through official communication channels. Your awareness and timely action during emergencies can help minimize risks and protect our beloved district.

Together, we can build a resilient and prepared Satara. Let's stand united in our commitment to safety and disaster readiness.

**Mr. Nagesh Patil**

Residential Deputy Collector

Satara District

# **District Disaster Management Plan**

## **Satara District**

### **2025-2026**

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## **PREFACE**

Most of the disasters strike without warning, emphasizing the critical need for continuous monitoring and efficient allocation of human resources. Preparedness planning is vital, providing clear guidelines for all stakeholders involved in disaster management activities.

Considering the increasing frequency of natural and man-made hazards in Maharashtra state and our district, it is imperative, as mandated by the 2005 Act, that every district in India formulates a comprehensive District Disaster Management Plan. Under the provisions of the Disaster Management Act 2005, the District Disaster Management Authority of Satara has meticulously drafted this detailed plan.

The plan encompasses disaster risk reduction measures, officer training, public awareness initiatives, and coordination between government departments. Our overarching goal is to enhance human resource management and streamline interdepartmental cooperation in responding to emergencies, ensuring a secure and resilient support system for the people of Satara District.

This District Disaster Management Plan includes provisions for early warning systems, public awareness campaigns, capacity building, and sectoral coordination strategies. While the challenges posed by disasters are significant, collective effort, strategic planning, and timely action can minimize their adverse impacts and foster a safer, more resilient community.

We extend our heartfelt gratitude to all contributors to the development of this District Disaster Management Plan. Your dedication and commitment to our community's well-being are invaluable, and together, we can build a brighter, more sustainable future.

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# 1. Introduction

## 1.1. Rationale

The development of the District Disaster Management Plan in Satara is driven by the imperative need to effectively address multifaceted challenges posed by disasters. The 1967 Koynanagar earthquake (in Satara District) and the 1993 Latur earthquake are the two major seismic events that occurred in Maharashtra. The 2005 Maharashtra Floods significantly affected places like Raigad, Kalyan, Ratnagiri, Satara, and the city of Mumbai. Like many regions, Satara faces recurrent threats from natural calamities, including landslides, earthquakes, heavy rains, floods, and hailstorms. These events can disrupt daily life and cause significant financial losses for individuals and communities.

Given the local geographical conditions and weather patterns, there exists a continuous risk of disasters, necessitating a structured approach to mitigate their adverse impact and ensure the safety and well-being of the population. The District Disaster Management Plan serves as a strategic blueprint tailored to Satara specific vulnerabilities and resources. It outlines comprehensive measures for disaster preparedness, response, and recovery, with the aim of minimizing loss of life, property damage, and environmental degradation.

Furthermore, the plan recognizes the pivotal role of the District Collector and other local authorities in coordinating emergency response efforts and restoring order in affected areas. By integrating traditional response protocols with modern technologies and tools for early warning and communication, the plan seeks to enhance the efficiency and effectiveness of disaster management initiatives.

Moreover, the development of the District Disaster Management Plan reflects a proactive shift towards risk analysis, capacity assessment, and prevention strategies, recognizing that prevention is often more cost-effective than post-disaster rehabilitation. It underscores the importance of aligning development policies with disaster resilience objectives to mitigate risks.

## 1.2. Vision

*To create a resilient and disaster-ready district where communities are empowered to effectively mitigate, respond to, and recover from all forms of disasters, ensuring the safety and well-being of all residents.*

The vision of the District Disaster Management Plan (DDMP) closely mirrors the national vision outlined in the Disaster Management Act of 2005. It is meticulously developed to encompass measures related to prevention, mitigation, and preparedness. The DDMP serves as a multi-hazards and technology-driven guide for effective disaster management. Its primary focus is on the well-being and safety of the district's communities.

## 1.3. Aim and Objective

### Aim:

The aim of the District Disaster Management Plan is to establish a comprehensive framework for proactive disaster management, encompassing preparedness, response, and recovery measures. By fostering collaboration, enhancing capacity-building, and promoting community



engagement, the plan strives to minimize the impact of disasters and build a safer, more resilient district.

#### **Objectives:**

The District Disaster Management Plan (DDMP) is designed to protect lives and property by ensuring effective disaster preparedness and response. Its key objectives include:

- Disaster Assessment: Identifying and evaluating potential risks.
- Technology Integration: Using GIS and IT for disaster management.
- Preparedness & Early Warning: Enhancing readiness and issuing timely alerts.
- Damage Assessment & Relief: Coordinating efficient response efforts.
- Mapping Vulnerabilities: Pinpointing high-risk areas for intervention.
- Resource Evaluation: Assessing available emergency resources.
- Community Awareness: Educating citizens through media and training.
- Prevention & Mitigation: Strengthening disaster-resistant infrastructure.
- Response & Recovery: Ensuring swift action and post-disaster resilience.

By prioritizing proactive measures, the DDMP fosters a safe, prepared, and resilient community.

### **1.4. Terminology of Disaster Management**

**Disaster:** A severe disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

**Disaster Risk:** The potential loss of life, injury, or destroyed or damaged assets that could occur to a system, society, or a community in a specific period, determined probabilistically as a function of danger, exposure, vulnerability, and capacity.

**Disaster Risk Reduction (DRR):** Disaster risk reduction is aimed at preventing new and reducing existing disaster risks and managing residual risk, all of which contribute to strengthening resilience and, therefore, achieving sustainable development.

**Early warning system:** An integrated system of hazard monitoring, forecasting and prediction, Disaster risk assessment, communication and preparedness activities, systems and processes that enable individuals, communities, governments, businesses, and others to take timely action to reduce disaster risks in advance of hazardous events.

**Hazard:** A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption, or environmental degradation.

**Mitigation:** Measures taken to reduce or prevent the adverse effects of hazards, including structural and non-structural interventions.

**Preparedness:** Refers to the level of readiness to manage an impending disaster situation or disaster and its associated effects.

**Response:** The activities and measures are taken to address the immediate impacts of a disaster, including search and rescue, emergency medical care, shelter provision, and humanitarian assistance.

**Recovery:** The restoring or improving livelihoods and health, as well as economic, physical, social, cultural, and environment assets, systems, and activities, of a disaster-affected

community or society, aligning with the principles of sustainable development and “build back better”, to avoid or reduce future disaster risk.

**Resilience:** The ability of individuals, communities, and systems to withstand, adapt to, and recover from the impacts of disasters while maintaining essential functions and minimizing disruption and loss.

**Rehabilitation:** Refers to restoring or regaining the physical, mental, social, or economic well-being of individuals or communities affected by a disaster or other adverse event.

**Vulnerabilities:** The conditions determined by physical, social, economic, and environment Factors or processes that increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

## 1.5. Realigning the Plan

In response to evolving global frameworks and national mandates, there is a critical need to realign the District Disaster Management Plan (DDMP) with key strategic documents such as the Maharashtra State Disaster Management Plan (MSDMP 2023), the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, the Sustainable Development Goals (SDGs), the Paris Agreement under COP 21, and the Prime Minister's 10-Point Agenda for Disaster Risk Reduction.

The MSDMP 2023 serves as the overarching blueprint for disaster management in Maharashtra, outlining comprehensive strategies and priorities for disaster preparedness, response, and recovery. By aligning the DDMP with the MSDMP 2023, the district can ensure coherence and consistency in disaster management efforts, fostering synergy and collaboration across administrative levels.

Furthermore, integrating the principles and priorities of the SFDRR into the DDMP is essential for enhancing resilience and reducing disaster risk at the local level. This includes adopting a risk-informed approach to planning, strengthening early warning systems, and promoting community participation in disaster risk reduction activities.

The SDGs provide a holistic framework for sustainable development, emphasizing the interconnection of social, economic, and environmental dimensions. Aligning the DDMP with relevant SDGs can help to address underlying vulnerabilities and promote inclusive and sustainable development, thereby enhancing resilience to disasters.

The Paris Agreement, as part of COP 21, highlights the urgent need for climate action to mitigate the impacts of climate change and reduce greenhouse gas emissions. Integrating climate resilience measures into the DDMP can help to safeguard communities against climate-related disasters and contribute to global efforts to limit global warming.

Finally, the Prime Minister's 10-Point Agenda for Disaster Risk Reduction outlines key priorities for enhancing disaster resilience across various sectors, including infrastructure, healthcare, and education. Realignment of the DDMP with these priorities can ensure that local disaster management efforts are aligned with national objectives and priorities.

In summary, realigning the District Disaster Management Plan with the Maharashtra State Disaster Management Plan (MSDMP 2023), SFDRR, SDGs, COP 21, and the Prime Minister's 10-Point Agenda is essential for enhancing disaster resilience, promoting sustainable development, and achieving the overarching goal of building safer and more resilient communities.

## 2. District profile

### 2.1. District Profile

Satara district, located in the western region of Maharashtra, covers an area of approximately 10,480 square kilometers. It is bordered by Pune to the north, Raigad to the northwest, Solapur to the east, Sangli to the south, and Ratnagiri to the west. Geographically, it lies between 17.3753° north latitude and 73.9933° east longitude. The city of Satara, serving as the administrative headquarters, is a bustling urban center, complemented by significant towns such as Karad, Wai, and Mahabaleshwar.

Satara is a dynamic economic hub, celebrated for its rich cultural heritage and agricultural significance, particularly in sugarcane and dairy farming. The district possesses excellent connectivity through its extensive road and rail networks, facilitating efficient transportation and trade within the region and beyond, thereby playing a crucial role in Maharashtra's economic framework.

In terms of disaster profile, Satara is prone to various natural calamities, including floods, landslides, and droughts. The district has experienced significant landslides, particularly in the hilly regions near the Koyna reservoir. The District Disaster Management Plan (DDMP) emphasizes risk assessment, preparedness, and coordinated response to mitigate the impact of such disasters.

*Table 1 Satara District Profile*

<i>S.No.</i>	<i>Particulars</i>	<i>Details</i>
<i>1</i>	<i>Area</i>	<i>10,480 Sq.km</i>
<i>2</i>	<i>Latitude</i>	<i>17.3753° to 17.6914°N</i>
<i>3</i>	<i>Longitudes</i>	<i>73.9933° to 74.0009°E</i>
<i>4</i>	<i>Tehsils (Census 2011)</i>	<i>11</i>
<i>5</i>	<i>Towns (Including Census towns) &amp; (Census 2011)</i>	<i>22</i>
<i>6</i>	<i>Nagar Parishad</i>	<i>9</i>
<i>7</i>	<i>Nagar Panchayat</i>	<i>7</i>
<i>8</i>	<i>Panchayat Samiti</i>	<i>11</i>
<i>9</i>	<i>Gram Panchayat</i>	<i>1,496</i>
<i>10</i>	<i>Inhabited Villages</i>	<i>1,719</i>
<i>11</i>	<i>Uninhabited Villages</i>	<i>26</i>
<i>12</i>	<i>Police Stations</i>	<i>31</i>
<i>13</i>	<i>Fire Stations</i>	<i>9</i>

*Source: District Social and Economic Review 2024*

### 2.2. Area and Administrative Divisions

As per the census of 2011, the total geographical area of Satara district is 10480 sq.km. The district headquarters is Satara city. Administratively, Satara district is subdivided into eleven tehsils, which include prominent ones such as Satara, Karad, Wai, Mahabaleshwar, Phaltan, Maan, Khatav, Koregaon, Patan, Jawali, and Khandala.

Satara district is part of the Satara Lok Sabha constituency, which includes six Vidhan Sabha segments: Satara, Karad North, Karad South, Wai, Koregaon, and Patan. The district is home to numerous towns and villages, each playing a vital role in the socio-economic fabric of the

region. These urban and rural settlements are integral to the district's development and growth, contributing significantly to its cultural and economic landscape.

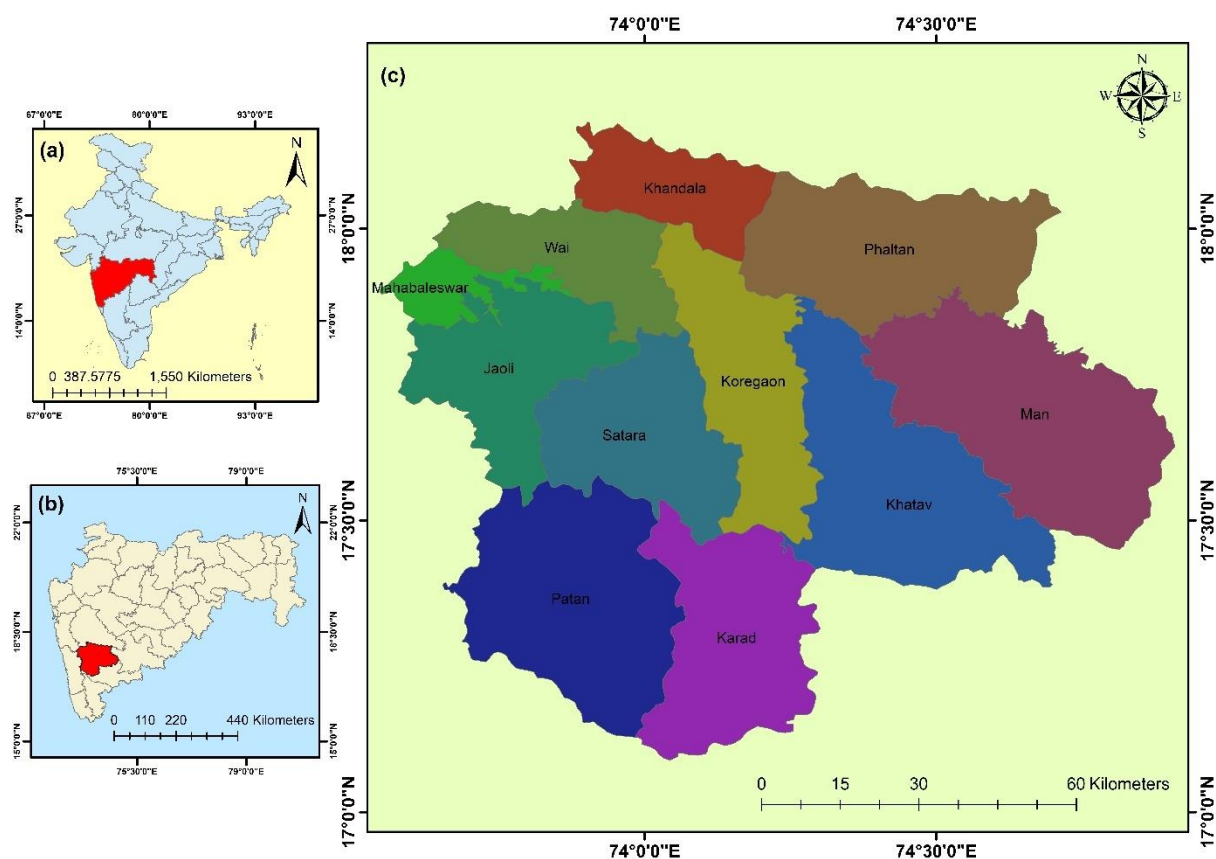


Figure 1(a) India (b) Maharashtra (c) Location and Administrative division map of Satara District

Prepared by: PMU, Palladium

Table 2 Satara Administrative Division

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	Jawali	125	251
		Satara	194	216
7.	Wai	Wai	99	121
		Khandala	63	67
		Mahabaleswar	79	113

Source: Satara District Official Website

## 2.3. Demographic Profile of District

According to the 2011 Census, Satara District in Maharashtra had a total population of 3,003,741, with 1,510,842 males and 1,492,899 females, resulting in a sex ratio of 988 females per 1000 males. The district exhibited a literacy rate of 82.87%, with male literacy at 89.42% and female literacy at 76.31%. The population density stands at 287 people per km<sup>2</sup>, with rural areas having a density of 242 and urban areas 1311. The district had a significant rural majority, comprising 81% of the population, while the remaining 19% resided in urban areas. Mention worthy, as per the Census 2011, the district's population grew by 1,94,747, reflecting a growth rate of 6.9%. This includes a 0.9% increase in rural areas and a significant 43.3% rise in urban areas. The district's workforce comprises 45.11% of the population, with 39.43% being main workers and 5.68% marginal workers. The work participation rate is 55.92% for males and 34.17% for females. The Scheduled Castes accounted for 6.88% and the Scheduled Tribes accounted for 14.38% of the district's population, reflecting the diverse demographic composition of the region.

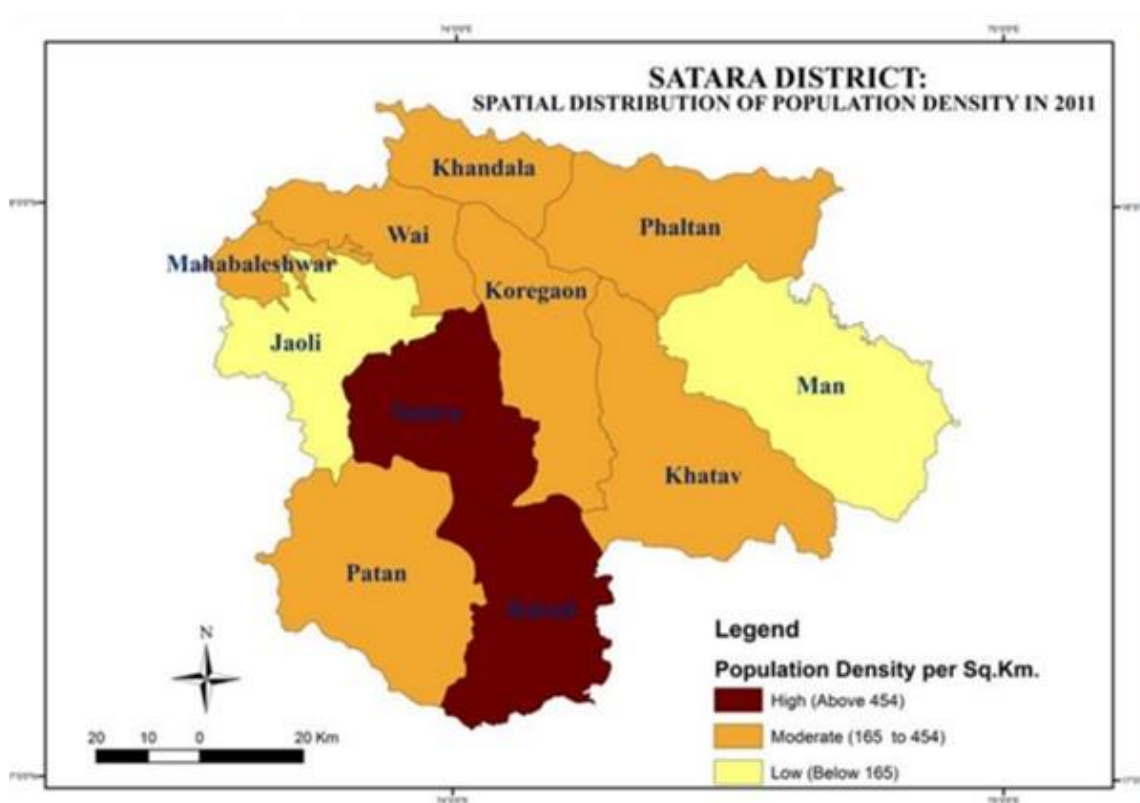


Figure 2 District Map Showing taluka wise population density

Source: Raosaheb 2018

Table 3 Demographic Profile of Satara District

S.No.	Particulars	Details
1.	Area (Sq.km.)	10,480
2.	Total Population (Census 2011)	3,003,741
3.	Male	1,510,842
4.	Female	1,492,899
5.	Urban	570,378
6.	Rural	2,433,363

7.	Population Density	287 per sq km
8.	Population Growth	6.93%
9.	Sex Ratio	988 females per 1000 males
10.	Child sex ratio (0-6 age)	895
11.	Riverbank Population	39,162
12.	Literacy Rate	82.87%
13.	Male literacy	89.42%
14.	Female literacy	76.31%
15.	Total Child population (0-6 age)	317885
16.	Proportion to Maharashtra population	2.67%
17.	Languages Spoken	Marathi: 89.62%, Hindi: 4.89%, Urdu: 4.70%, Others: 0.79%
18.	Livestock Population	12.31 Lakhs

Source: Census of India 2011 & District Social and Economic Review 2024

**Table 4 Taluka wise Demographic Profile of Satara District**

S.N o.	Taluka	Total Overall	Urban Population			Rural Population		
			Total	Male	Femal e	Total	Male	Female
1	Satara	460,289	240,590	127,108	113,482	219,699	112,866	106,833
2	Karad	546,374	276,590	145,108	131,482	269,784	138,590	131,194
3	Wai	311,070	160,000	84,000	76,000	151,070	75,000	76,070
4	Mahabaleshwar	35,375	18,211	9,500	8,711	17,164	8,211	8,953
5	Phaltan	246,686	127,108	66,000	61,108	119,578	63,554	56,024
6	Maan	163,444	84,599	44,000	40,599	78,845	42,299	36,546
7	Khatav	108,181	56,425	29,000	27,425	51,756	27,213	24,543
8	Koregaon	95,994	49,564	25,000	24,564	46,430	23,215	23,215
9	Patan	72,783	37,601	19,000	18,601	35,182	18,800	16,382
10	Jawali	59,820	31,078	15,500	15,578	28,742	15,539	13,203
11	Khandala	37,214	19,334	10,000	9,334	17,880	9,667	8,213
	<b>Total</b>	<b>3,003,741</b>	<b>1,240,100</b>	<b>644,716</b>	<b>595,384</b>	<b>1,763,641</b>	<b>1,510,842</b>	<b>1,492,899</b>

Source: Census of India 2011



## 2.4. Agriculture and Livestock

Satara District in Maharashtra has a thriving agricultural sector, characterized by the cultivation of diverse crops. Key crops include sugarcane, cereals, and pulses, which are central to the district's agricultural economy. Additionally, the district produces significant amounts of oilseeds, fruits, and vegetables, with irrigation primarily sourced from wells, rivers, and canals. According to the 2011 Census, the agricultural workforce is substantial, with cultivators making up about 27% and agricultural labourers around 25% of the total workforce.

The livestock sector in Satara is equally diverse, featuring cattle, buffaloes, sheep, goats, and poultry. This sector is supported by a network of veterinary institutions and services, which play a crucial role in enhancing milk, meat, and egg production. The livestock industry not only significantly contributes to the local economy but also provides essential nutritional supplements to the district's population. As per the Animal Census 2019 data, there are 12.31 lakh livestock in the district, of which Cows/bulls constitute 28.62%, buffaloes/bulls constitute 26.54%, sheep constitute 15.09%, and goats constitute 29.58%. Other livestock include horses, buffaloes, donkeys, goats and camels, the share of which is 0.14%. Sheep rearing is a major agricultural activity in the low-income category like cattle and goats. As per the 2019 census, the total number of chickens is 39.04 lakh and the total number of poultry (chickens, ducks, turkeys, other poultry and poultry rearing centres) is 39.88 lakh. per sq. km. The density of poultry per sq km. area was 118. There has been a decrease of 5 poultry in the 2019 census from the 2012 census. During the year 2023-24, 426 lakh litres of milk was collected through 232 cooperative societies in the district. Further, there are 198 Veterinary institutions in Satara District including Veterinary Hospital, Veterinary clinics and Animal First Aid Centre.

*Table 5 Taluka wise Crop Distribution*

<b>Satara - Area under Different Crops</b>								
<b>Reference year: 2022-23 Area in Hector (approx.)</b>								
<b>Sr. No.</b>	<b>Taluka</b>	<b>Cotton</b>	<b>Jowar</b>	<b>Soybean</b>	<b>Sugarcane</b>	<b>Banana</b>	<b>Groundnut</b>	<b>Chilly</b>
1	Satara	68	11946	19967	11305	0	5648	0
2	Karad	2	11046	13768	37111	129	13111	0
3	Wai	16	10106	7380	4809	23	4809	0
4	Mahabaleshwar	2	151	132	167	0	682	0
5	Phaltan	1	22998	881	5767	20	3942	1
6	Maan	0	21339	262	1077	0	836	0
7	Khataav	0	28992	14878	1573	15	132	0
8	Koregaon	583	25682	19516	6956	41	14134	0
9	Patan	7	11392	6571	827	0	9173	0
10	Jawali	90	12142	1659	1378	4	2876	0
11	Khandala	0	14720	6	1021	28	983	0
	<b>District Total</b>	<b>769</b>	<b>170514</b>	<b>85020</b>	<b>71991</b>	<b>260</b>	<b>56326</b>	<b>1</b>

Source: Maharashtra Agriculture Department 2022-23

Table 6 Average yield per hectare of major crops

<i>S. No.</i>	<i>Name of Crop</i>	<i>Area “00” hectare</i>	<i>Production per hectare (Kg.)</i>	<i>Total production “00” metric ton</i>
1.	<i>Paddy- Kharif</i>	432.00	1284	555.00
2.	<i>Jowar/ Sorghum- Kharif</i>	77.00	620.00	48.00
3.	<i>Bajri</i>	342.00	187.57	64.00
4.	<i>Nachni</i>	44.00	730.00	32.00
5.	<i>Maize- Kharif</i>	169.00	815	137.00
6.	<i>Other Cereals</i>	3.09	350.00	1.00
7.	<i>Tur</i>	5.00	228.00	1.00
8.	<i>Moong</i>	76.00	143.00	11.00
9.	<i>Urid</i>	21.00	208	4.00
10.	<i>Other Pulses-Kharif</i>	385.00	1000	385.00
11.	<i>Groundnut- Kharif</i>	273.00	783	214.00
12.	<i>Sesame- Kharif</i>	0.33	200.00	0.00
13.	<i>Carle</i>	3.00	300.00	1.00
14.	<i>Sunflower kharif</i>	0.98	500.00	0.00
15.	<i>Soyabean</i>	858.00	1198	1028.00
16.	<i>Sugarcane</i>	1167.00	100	117050.00
17.	<i>Cotton</i>	5.00	487	16.00
18.	<i>Sorghum- Rabi</i>	1034.00	765	791.00
19.	<i>Wheat</i>	330.00	1945.00	641.00
20.	<i>Maize- Rabi</i>	141.00	2913.00	410.00
21.	<i>Gram</i>	213.00	664.00	142.00

Source: Maharashtra Agriculture Department 2022-23



*Table 7 Taluka wise Livestock Distribution*

<i>District: Satara</i>		<i>Reference year: 2019 (20th Animal Census)</i>			
<i>Sr. No</i>	<i>Taluka</i>	<i>Cattle</i>	<i>Buffaloes</i>	<i>Goat</i>	<i>Sheep</i>
1	Satara	22884	33405	21590	4505
2	Karad	34696	69433	30997	12392
3	Wai	20185	15889	17588	5558
4	Mahabaleshwar	6835	3273	1731	3499
5	Phaltan	98364	16898	85486	47089
6	Maan	48763	35252	89992	55008
7	Khatav	35555	56077	44380	14775
8	Koregaon	28503	27640	23362	10554
9	Patan	22677	52663	22694	2097
10	Jawali	9149	8319	6310	215
11	Khandala	24825	8047	20218	30213
	<b>District Total</b>	<b>352436</b>	<b>326896</b>	<b>364348</b>	<b>185905</b>

Source: 20th Animal Census, Department of Animal Husbandry, Government of Maharashtra

*Table 8 Taluka wise Poultry Distribution*

<i>District: Satara</i>		<i>Reference year: 2019 (20th Animal Census)</i>			
<i>Sr. No</i>	<i>Taluka</i>	<i>Chicken</i>	<i>Ducks</i>	<i>Others</i>	<i>Total Poultry</i>
1	Satara	282237	214	12	282463
2	Karad	224942	131	0	225073
3	Wai	614507	23	38000	652530
4	Mahabaleshwar	37131	27	0	37158
5	Phaltan	595098	173	33100	628371
6	Maan	300307	21	0	300328
7	Khatav	372767	70	0	372837
8	Koregaon	232143	192	12009	244344
9	Patan	283376	7	0	283383
10	Jawali	226960	1	0	226961
11	Khandala	734797	166	0	734963
	<b>District Total</b>	<b>3904265</b>	<b>1025</b>	<b>83121</b>	<b>3988111</b>

Source: 20th Animal Census, Department of Animal Husbandry, Government of Maharashtra 2019

## 2.5. Health Profile

As per the District Social and Economic Review 2024, by the end of the financial year 2023–24, Satara district had a total of 18 hospitals, 84 Primary Health Centres (PHCs), and 415 primary health sub-centres, collectively offering 1,017 beds. During the reference year, these institutions treated approximately 1.36 lakh inpatients and 24.27 lakh outpatients. According to data from the Health Management Information System, 33,554 births and 17,307 deaths were recorded in the district during the same period. The healthcare workforce in Satara

included 413 Auxiliary Nurse Midwives (ANMs), 64 Lady Health Visitors (LHVs), 5 female Extension Officers, 388 Multipurpose Workers (MPWs), 126 Health Assistants (HAs), and 16 male Extension Officers. Additionally, the district was supported by 2,642 Rural ASHA Workers and 131 Urban ASHA Workers.

*Table 9 Available Health Facilities of Satara District*

<b>Sr. No.</b>	<b>Taluka</b>	<b>General/Rural/Cottage Hospital</b>	<b>Primary Health Centres</b>	<b>Health Subcentres</b>	<b>Primary Health Teams</b>	<b>Zila Parishad Ayurvedic Dispensaries</b>
1	Satara	2	12	47	0	1
2	Jawali	2	5	25	0	2
3	Mahabaleswar	1	3	15	1	0
4	Wai	1	4	27	1	1
5	Khandala	1	4	25	1	3
6	Phaltan	1	7	37	0	3
7	Maan	2	6	35	1	2
8	Khatav	3	9	44	2	1
9	Koregaon	2	7	37	0	1
10	Karad	2	14	65	0	1
11	Patan	2	13	61	0	2
<b>Total</b>		<b>19</b>	<b>84</b>	<b>418</b>	<b>6</b>	<b>17</b>

Source: Health Department, Zila Parishad, Satara

*Table 10 Health infrastructure available in the district*

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

Source: DDMA, Satara

## 2.6. Educational Profile

Satara is renowned for its higher education institutions, offering diverse courses in arts, science,

commerce, engineering, medicine, and agriculture. Educational facilities in the area cover a broad spectrum, ranging from Anganwadi's to professional colleges.

*Table 11 Educational Profile of Satara District*

<i>Sr. No.</i>	<i>Particulars</i>	<i>Quantity</i>	<i>No. of Students (As on Sep 30, 2023)</i>
1	Anganwadi centers	4639	-
2	Primary Schools	3770	307248
3	Secondary Schools	791	82091
	Higher Secondary schools	236	67706
5	Colleges	68	50022
6	Vocational Training Institute	22	-

*Source: DDMA, Satara & District Social and Economic Review 2024*

## 2.7. Industry Profile

The Maharashtra Industrial Development Authority (MIDC) encompasses several key regions within Satara district, including Karad, Satara, Wai, Shirwal, Khandala, Phaltan, Koregaon, and Patan. From the fiscal year 2017–18 to 2023–24, the district's industrial sector has attracted potential investments amounting to ₹8,350.53 crore. Of this, 23 projects valued at ₹181.07 crore are currently being implemented across 68 industrial units.

In the sugar industry, Satara district hosts a total of 16 operational sugar factories, comprising 9 cooperative and 7 private sector units. During the 2023–24 crushing season, these factories processed approximately 103.67 lakh metric tonnes (MT) of sugarcane, resulting in the production of 30.45 lakh MT of sugar.

As of 2024, a total of 635 industries registered under the Sugar Factory Act were active in the district. Of these, 395 factories submitted operational data, collectively employing 61,226 workers.

## 2.8. Climate Profile

### 2.8.1 Rainfall and Temperature

The weather in Satara district, except during the rainy season, is generally hot and dry. The temperature is lowest in December and highest in May. Typically, the seasons in the district are as follows: winter from November to February, summer from March to May, and the rainy season from June to September. In April 2001, the highest recorded temperature was 42.2°C, while in December 2001, the lowest was 10.8°C. The average annual rainfall for the district during 1998–2023 was 1247 mm. The highest rainfall was recorded in Mahabaleshwar (5152.22 mm), followed by Jawali (1594.22 mm) and Patan (1578.22 mm). Moderate rainfall was observed in central regions, including Satara (993.58 mm), Wai (874.85 mm), Karad (702.65 mm), and Koregaon (669.56 mm), while eastern talukas like Khandala (575.96 mm), Khatav (584.34 mm), Phaltan (513.23 mm), and Maan (584.67 mm) recorded significantly lower rainfall. The eastern talukas like Maan, Khatav, Phaltan and Khandala receives the lowest rainfall which increases progressively towards the west and peaking in Mahabaleshwar

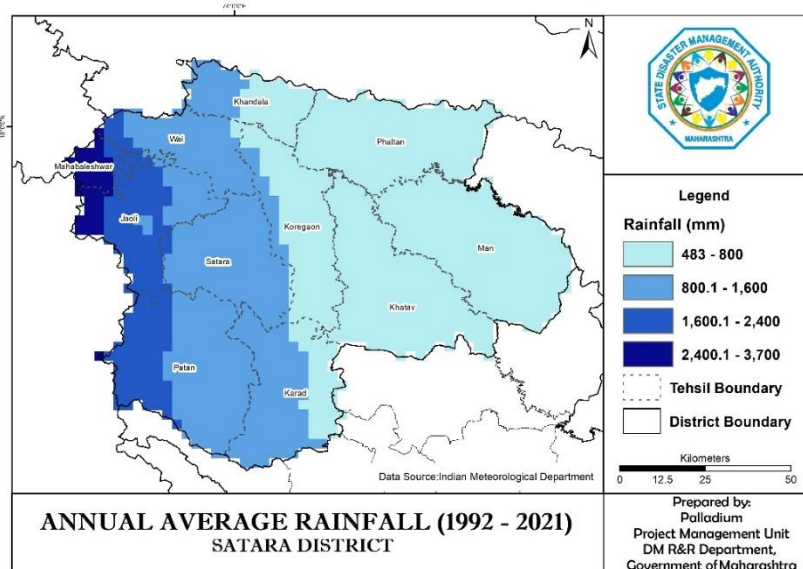


Figure 3 Average annual rainfall of Satara District

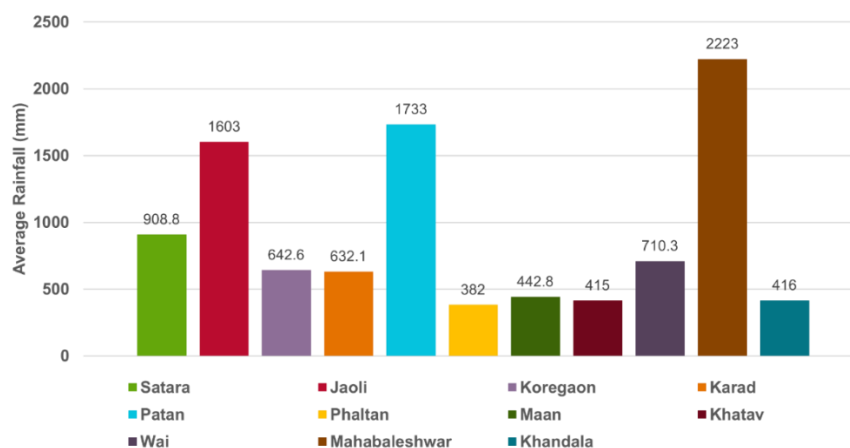


Figure 4 Taluka wise Average Rainfall of Satara District (2002-2016)

Data Source: Satara District Official Website

Table 12 Tehsil wise Actual Rainfall (mm) trend in Satara District

Year	Satara	Jaoli	Koregaon	Karad	Patan	Phaltan	Maan	Mahabaleshwar	Wai	Khandala	Khatav
2002	761.5	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	1058.6	879.8	704.3	1554.6	631.4	98.0	6374.6	1042.5	971.8	824.7
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	722.2	150	537.4	807.7	125	339.0	549	5660.4	797.7	439.8	374.7

08	5	2.0		9	1.0		.2		0		2
20	909.	144		131.	117		787		905.		779.
09	1	8.1	761.1	0	9.1	835.0	.0	4203.0	2	562.8	7
20	101	153		872.	151	1028.	761		102		814.
10	1.2	0.1	904.2	8	1.2	4	.5	4244.0	9.0	562.3	6
20	777.	173		593.	180		225		873.		373.
11	6	7.2	497.4	6	4.0	342.2	.8	6456.8	2	433.8	1
20	686.	125		550.	157		269		650.		272.
12	0	8.8	360.6	6	4.4	267.1	.0	3908.7	1	451.0	4
20	118	178		569.	151		407		881.		574.
13	2.8	7.0	596.0	5	0.3	469.0	.2	3812.0	4	633.2	9
20	103	163		663.	152		383		674.		552.
14	4.2	8.2	470.1	1	5.5	300.7	.2	5650.9	0	485.7	2
20	582.	117		317.	826.		302		402.		376.
15	1	5.4	360.7	4	1	317.9	.6	3449.7	7	418.0	0
20	981.	166		688.	149		396		812.		499.
16	4	1.7	564.9	5	3.0	395.6	.4	5583.7	4	540.1	1
20	760.	133		587.	161		420		706.		404.
18	6	4.6	625.5	6	0.3	373.8	.5	5438.0	2	396.3	4
20	223	278		136	246		566		124		852.
19	3.6	2.7	1073.5	3.6	7.4	572.6	.5	8128.1	9.8	910.3	9
20	122	176		985.	154		744		108		823.
20	3.2	1.9	870.3	3	3.4	625.0	.4	5362.3	6.5	712.6	
20	991.	156		837.	151		531		106		441.
21	6	7.5	644.9	2	2.3	394.8	.0	3939.3	0.0	552.7	5

Source: DDMA, Satara

## 2.8.2. Climate Change Projection

According to a recent study conducted by Centre for Study of Science, Technology and Policy (CSTEP), the climate projections indicate a significant shift in both temperature and rainfall patterns of Maharashtra. Noteworthy, the summer maximum and winter minimum temperatures are expected to rise by 1°C to 2°C, reflecting a consistent warming trend under various climate scenarios. Further, the rainfall is projected to increase by more than 15%. Additionally, the number of rainy days is expected to rise by 2 to 9 days per annum under the RCP 4.5 scenario and 2 to 8 days per annum under the RCP 8.5 scenario. It is expected to an increase of more than 5 rainy days per annum under both scenarios. Moreover, high-intensity rainfall events are projected to increase by 1 to 9 events per annum under the RCP 4.5 scenario and 2 to 8 events per annum under the RCP 8.5 scenario. Similarly, very high rainfall events are expected to rise by 1 to 5 events under the RCP 4.5 scenario and 1 to 9 events under the RCP 8.5 scenario. These changes suggest a notable shift towards more extreme weather conditions, which could have significant implications for agriculture, water resources, and overall living conditions in the district. The increased frequency and intensity of rainfall events may lead to challenges such as flooding, landslides, soil erosion, and water management issues, necessitating adaptive measures to mitigate potential adverse impacts.

## 2.9. Geomorphology

The district is part of the western Maharashtra plateau within the Sahyadri ranges and can be



categorized into four main units: (i) Hills and Ghats, (ii) Foothill zones, (iii) Plateaus, and (iv) Plains. It lies within the Deccan plateau of the Sahyadri hill range. The Sahyadri range, the primary range of the Western Ghats, runs north to south along the district's western edge, separating it from Ratnagiri District. The landscape features residual hill ranges and intermediate valleys, all well-developed on the tableland surface. In the west, the district includes the Sahyadri scarp with its major peaks, typically flat-topped with intervening saddles. The Mahadeo range, another significant range in the district, branches off from the Sahyadri in the northwestern part, starting about 10 km north of Mahabaleshwar and extending east and southeast across the district. The Mahadeo hills are prominent, showcasing bare scarps of Deccan Trap basalt. The district's elevation varies from 483 meters above mean sea level (amsl) along the Nira River to 1348 meters amsl at Mahabaleshwar.

## 2.10. Soil

The district's soils originate from the Deccan basalt formation. The western edge is characterized by laterite and lateritic soils, transitioning eastward to reddish to yellowish-brown soils of mixed origin on the hill slopes. Moving further east, coarse shallow soils are found on plateau flats, while the central region features medium black soils rich in clay content. Deep black soils are present in the valleys of the central and southern parts of the district. Along the major rivers and their tributaries, silty loam soils exceeding 100 cm in depth are observed.

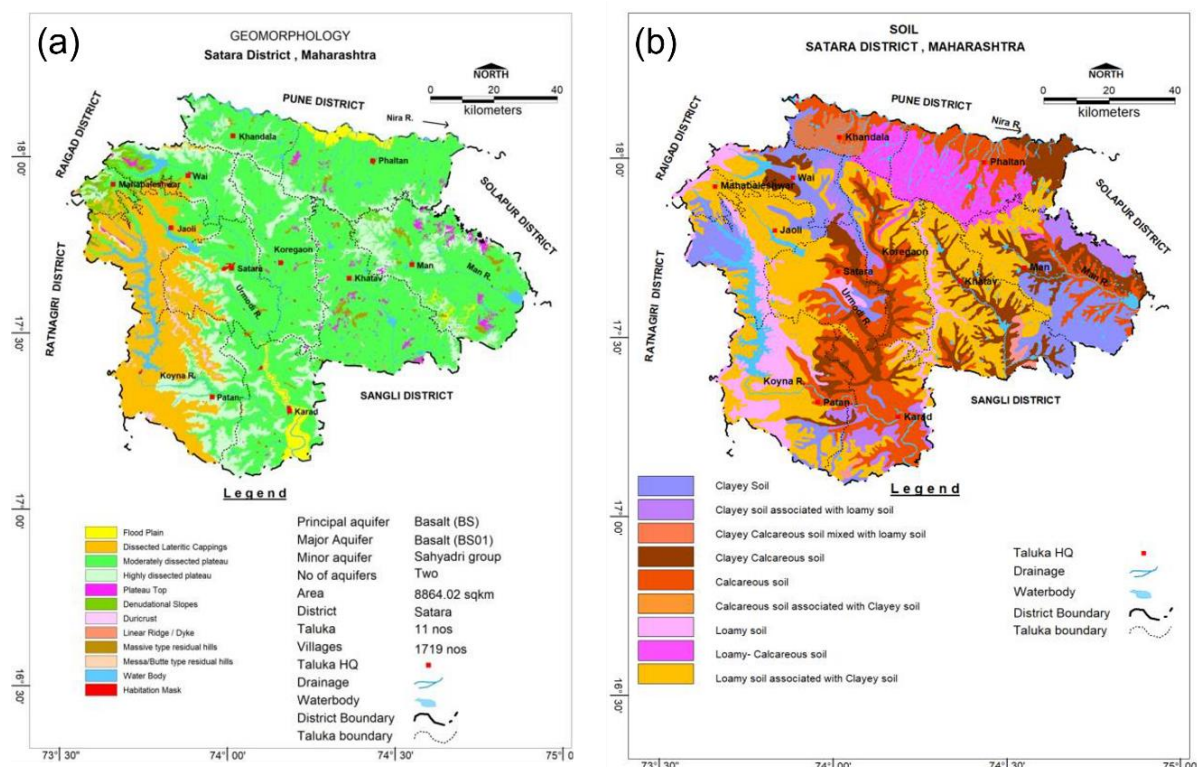


Figure 5(a) Geomorphology and (b) Soil map of Satara District

Source: CGWB, CR, Nagpur

## 2.11. Historical and Religious Centers

Satara, a district in Maharashtra, India, boasts a rich historical and cultural heritage. Dating back to 200 BC, it has seen the rule of several significant dynasties, including the Rashtrakutas, Mauryas, Satavahanas, Chalukyas, and Yadavas. The region gained prominence under Maratha

rule when Shivaji Maharaj conquered the Satara fort in 1663. It later became the seat of Chhatrapati Shahu Maharaj in 1708. Post the Third Anglo-Maratha War, Satara came under British control in 1818. The district played a crucial role in India's freedom struggle.

Satara is also known for its diverse tourist attractions, including religious sites like the Dholya Ganpati temple in Wai, Sangam Mahuli & Kshetra Mahuli, and the Natraj Mandir. The district is home to several historic forts such as Pratapgad, Sajjangad, Ajinkyatara, and Kalyangad, each offering a glimpse into Maharashtra's storied past. Natural wonders like Mahabaleshwar, Thoseghar Falls, Kaas Plateau, and Koyna Dam attract nature lovers and adventure enthusiasts alike. Additionally, Chalkewadi Windmill Farms, one of Asia's largest windmills farms, provides clean energy and offers a picturesque landscape perfect for photography and nature walks.

*Table 13 Historical and Religious centres of the district*

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

*Source: DDMA, Satara*

## 2.12. River System and Dams

Satara district is blessed with a rich and diverse river system that originates mainly from the Sahyadri ranges (Western Ghats) and significantly contributes to the district's agriculture, water supply, power generation, and ecological balance. The principal river flowing through the district is the Krishna River, one of the major rivers of peninsular India, which originates from the famous hill station of Mahabaleshwar in Satara. Several important tributaries of the Krishna flow through the district, including the Koyna, Venna, Urmodi, and Tarli rivers. These rivers are seasonal in nature but play a critical role in supporting the livelihood of the people by providing water for irrigation, drinking, and industrial use. Among these, the Koyna River stands out as it hosts the Koyna Dam, one of the largest dams in Maharashtra, known for the Koyna Hydroelectric Project, which generates a substantial portion of the state's electricity and has created the extensive Shivasagar Lake. In addition to the Koyna Dam, other key dams in the district include the Dhom Dam on the Krishna River near Wai, Kanher Dam on the Venna River, Urmodi Dam near Sajjangad, Kaas Dam near the biodiversity-rich Kaas Plateau, and the Tarli Dam on the Tarli River. These dams are essential not only for irrigation and water supply but also for flood control and maintaining regional biodiversity. The presence of these rivers and dams has transformed Satara into an agriculturally productive region and a source of clean

energy, while also supporting tourism in areas like Mahabaleshwar and Kaas. Thus, the river system and dams of Satara form the lifeline of the district, contributing immensely to its economic development, ecological health, and overall sustainability.



Figure 6 Map Showing Rivers & Water bodies of Satara District

Source: MaharashtraBoardSolutions.com

Table 14 Name of the Dams present in the district with their specifications

Sr. No	Name of Dams	Name of River	Capacity (in TMC)	Located in which Irrigation Office (Sub-division)
1.	Dhom	Krishna River	13.80	Wai
2.	Dhom Balkawadi	Krishna River	4.08	Wai
3.	Hateghar	Hateghar Nala	0.26	Jawali
4.	Kanher	Venna River	10.10	Satara
5.	Koyna	Koyna River	105.25	Patan
6.	Mahu	Kudali River	1.10	Jawali
7.	Mhaswad/Rajewadi	Man River	4.78	Man
8.	Morna Gureghar	Morna River	1.83	Patan
9.	Nagewadi	Local Nala	0.23	Wai
10.	Tarali	Tarali River	5.85	Karad
11.	Urmodi	Urmodi River	9.80	Satara
12.	Uttarmand	Uttarmand River	1.03	Patan
13.	Veer	Nira River	9.83	Khandala

Source: Water Resources Department, Government of Maharashtra



Table 15 Name of the Dams present in the district and their purpose

<i>Sr. No</i>	<i>Name of the Dam</i>	<i>Type of Dam</i>	<i>Purpose of the Dam</i>
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

Source: DDMA, Satara

## 2.13. Land Use Land Cover Patterns

Satara district exhibits a diverse land use and land cover (LULC) pattern shaped by its varied topography, climate, and socio-economic activities. The district is characterized by a combination of hilly terrain, fertile plains, forested areas, and river valleys, resulting in a mosaic of land use types. A significant portion of the land is used for agriculture, which remains the primary occupation of the population. Major crops grown include sugarcane, rice, wheat, jowar, and vegetables, supported by an extensive network of rivers and irrigation from dams like Koyna, Dhom, and Kanher. The hilly western region, part of the Sahyadri ranges, is covered with dense forests and grasslands, which are home to a rich variety of flora and fauna, especially near the protected areas and biodiversity hotspots like the Kaas Plateau. Urban and built-up land is concentrated around major towns such as Satara, Karad, Wai, and Mahabaleshwar, where increasing population and development have led to expansion in residential, commercial, and industrial areas. The district also includes fallow and uncultivated lands, particularly in areas with poor soil quality or difficult terrain. Additionally, the land cover includes water bodies such as rivers, reservoirs, and lakes formed by dams, which play a vital role in irrigation, drinking water supply, and hydroelectric power generation. The changing patterns of land use, especially due to urbanization, deforestation, and agricultural intensification, pose both opportunities and challenges for sustainable development. Conservation efforts are necessary to protect forest areas and biodiversity, while careful planning is required to balance agricultural expansion, urban growth, and ecological preservation in Satara's dynamic landscape. The percentage of different LULC classes are shown in Figure 8.

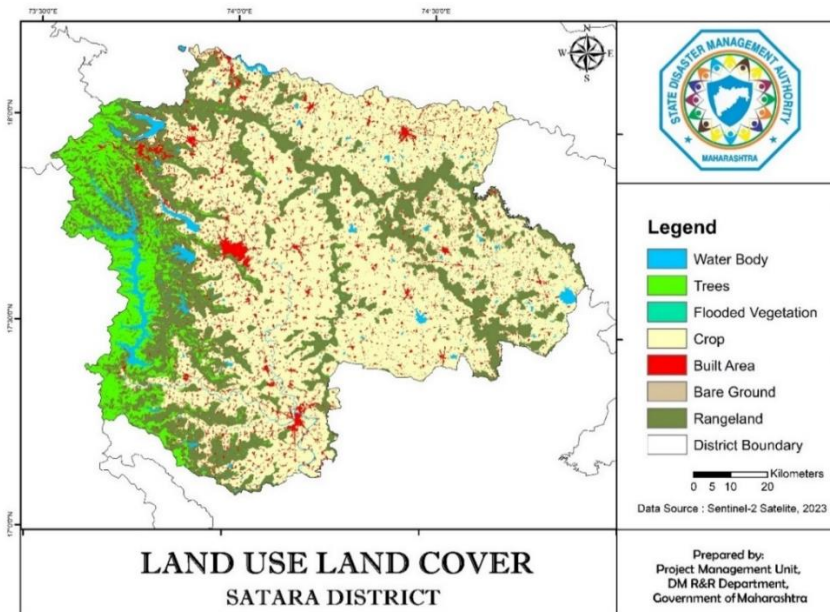


Figure 7 Land Use Pattern of Satara District (2023-24)

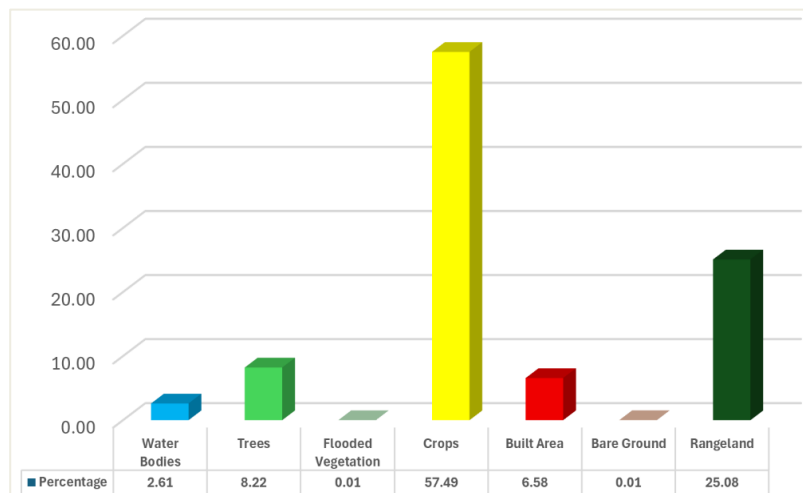


Figure 8 Percentage of different LULC classes in the District

## 2.14 Power Stations and Electricity Installations

Satara district in Maharashtra is a significant contributor to the state's energy production, particularly through its hydroelectric power installations, which are strategically located in the region's hilly terrain and river-rich landscape. The most prominent and nationally important power project in the district is the Koyna Hydroelectric Project, located on the Koyna River. This multi-stage hydroelectric power plant is one of the largest of its kind in India and plays a vital role in Maharashtra's electricity supply. It comprises several powerhouses, including Stage I, II, III, and IV underground stations, which together generate over 1,900 MW of electricity. The Koyna Dam, which forms the massive Shivasagar Lake, provides the water necessary for this project and is a marvel of engineering, harnessing the natural elevation and flow of the Western Ghats. Apart from Koyna, the district also hosts smaller hydroelectric installations and mini-hydel projects on rivers like the Venna, Urmodi, and Tarli, which contribute to localized power generation and help in meeting the rural energy demand. Additionally, the region has several sub-stations and transmission lines managed by the Maharashtra State Electricity

Distribution Company Limited (MSEDCL), which distribute electricity to urban and rural areas across the district. These include installations in Satara city, Karad, and other talukas, ensuring the supply of power for domestic, agricultural, and industrial use. In recent years, there has also been an increasing focus on renewable energy, with the installation of solar power plants and wind turbines, particularly in the plateau regions with high wind potential. This shift towards sustainable energy sources is in line with broader state and national goals for clean energy. Overall, the power stations and electricity infrastructure in Satara not only support the district's development but also make a substantial contribution to the energy grid of Maharashtra, reflecting a blend of traditional hydroelectric strength and emerging renewable initiatives.

## **2.15. Transport and Communication Network**

Satara district in Maharashtra is well-connected through a robust and expanding transport and communication network that plays a vital role in its economic and social development. The district's strategic location between Mumbai and Bengaluru has made it a key transit region, particularly along National Highway 48 (NH-48), formerly known as NH-4, which runs through major towns like Karad and Satara city. This highway is a crucial corridor for trade, travel, and industrial connectivity, linking the district to major urban centers such as Pune, Kolhapur, and Belgaum. In addition to NH-48, several state highways and district roads connect rural areas and talukas like Wai, Phaltan, Mahabaleshwar, and Patan, enhancing mobility and access to markets, education, and healthcare. The railway network also serves Satara well, with important railway stations in Satara, Karad, and Koregaon on the Pune–Miraj–Londa route, facilitating passenger and freight movement across the state and to neighboring regions. Although Mahabaleshwar and other hill stations are not directly connected by rail, they are accessible via well-maintained hill roads. Public and private bus services operated by the Maharashtra State Road Transport Corporation (MSRTC) provide extensive road connectivity, especially to rural and hilly regions. In terms of air connectivity, while Satara does not have a commercial airport, it is well-served by nearby airports in Pune and Kolhapur. Communication infrastructure in the district has also seen rapid development in recent years. Mobile networks cover almost the entire district, including rural and remote areas, supported by major telecom operators offering 4G services. Internet connectivity is increasingly available, with fiber optic networks expanding under government schemes aimed at improving digital access in villages and schools. Post offices, courier services, and local cable networks also form part of the communication landscape. Together, the efficient transport and communication networks in Satara district not only facilitate smooth movement of people and goods but also support economic growth, education, healthcare, tourism, and overall connectivity in an increasingly digital and mobile society.

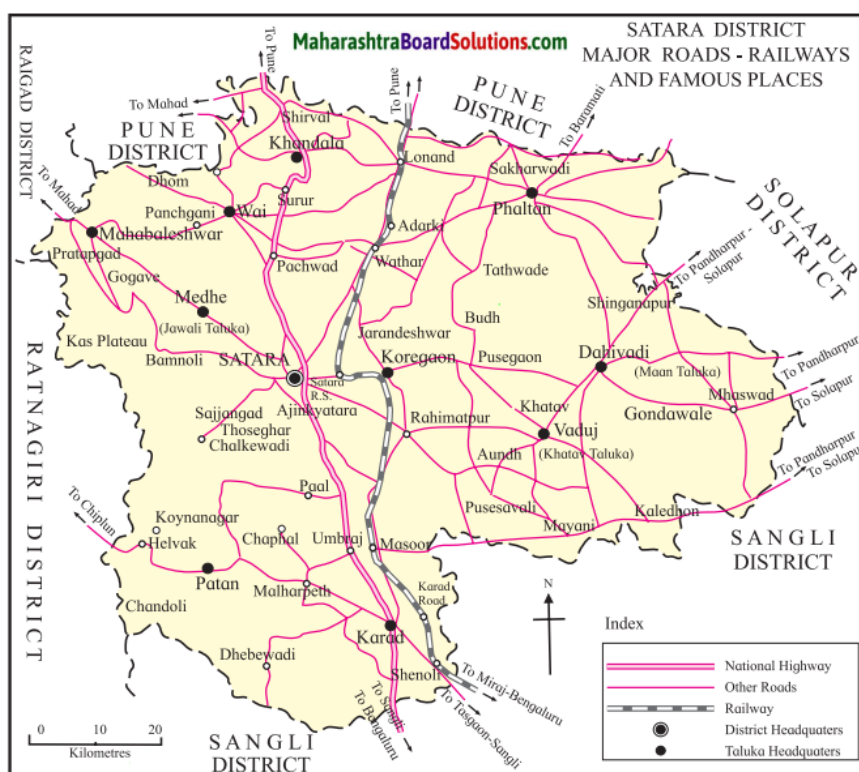


Figure 9 Major Road and railways shows transport and communication system of Satara district

Source: Maharashtrastateboardsolution.com

## 2.16. Mass Gathering

Satara district in Maharashtra is renowned for its vibrant cultural and religious gatherings, locally known as yatras. These events are deeply embedded in the local traditions and attract large crowds from various regions. Here are some notable yatras in Satara as mentioned in Table 16.

Table 16 List of mass gatherings held every year in the district

Sr. No.	Name of the Yatra / Mass Gathering	Time of the year	Location	Expected People
1.	Aundh (Yamai Devi)	January / February	Khatav	25000
2.	Banpuri (Naikba )	March / April	Patan	50000
3.	Bavdhan (Bagad)	February / March	Wai	25000
4.	Chafal (Ram Yatra)	March / April	Patan	30000
5.	Mhaswad (Siddhanath)	November / December	Dahiwadi	300000
6.	Pusegaon (Sevagiri)	December / January	Khatav	400000
7.	Pal (Khandoba)	December / January	Karad	400000
8.	Kshetra (Mahabaleshwar)	February / March	Mahabaleshwar	30000
9.	Mandhardevi (Kaleshwari)	December / January	Wai	450000

<b>10.</b>	<i>Gondavale</i>	<i>November / December</i>	<i>Dahiwadi</i>	<i>250000</i>
<b>11.</b>	<i>Sant Dnyaneshwar Palkhi Sohala</i>	<i>June / July</i>	<i>Khandala and Phaltan</i>	<i>500000</i>
<b>12.</b>	<i>Sajjangad (Ram Navami)</i>	<i>February</i>	<i>Satara</i>	<i>25000</i>
<b>13.</b>	<i>Phaltan (Sri Ram)</i>	<i>November / December</i>	<i>Phaltan</i>	<i>40000</i>
<b>14.</b>	<i>Ghataidevi</i>	<i>January / February</i>	<i>Satara</i>	<i>20000</i>
<b>15.</b>	<i>Shikhar Singnapur (Shambhu Mahadev)</i>	<i>March / April</i>	<i>Dahiwadi</i>	<i>350000</i>

*Source: DDMA, Satara*

### 3. Hazard Vulnerability and Risk Analysis

#### 3.1. Hazard History and Impact in the Last 15 Years

Over the past 15 years, Satara district has experienced a series of natural hazards, including floods, droughts, and landslides, significantly impacting its communities and infrastructure. The district's diverse topography, encompassing the Western Ghats and the Deccan Plateau, contributes to its vulnerability to these events.

Flooding has been a recurrent phenomenon, with notable incidents such as the 2019 and 2021 Maharashtra floods, which affected multiple districts including Satara. These floods, caused by intense monsoon rains, led to widespread displacement and damage to property and agriculture. In 2025, unprecedented pre-monsoon rainfall resulted in severe flooding in areas like Phaltan, where the Banganga River overflowed, submerging roads and destroying agricultural land. Droughts have also posed significant challenges, particularly in the eastern parts of Satara. The district was among the worst hit during the 2013 drought in Maharashtra, which was considered the region's most severe in 40 years. These droughts have led to water scarcity, affecting both drinking water supplies and agricultural activities.

Landslides are another hazard, especially in the hilly terrains of the Western Ghats. Heavy rainfall has triggered landslides in regions like Karul Ghat, disrupting transportation and posing risks to nearby communities. These recurring natural hazards underscore the need for comprehensive disaster management strategies in Satara district. Efforts such as early warning systems, sustainable land use planning, and community awareness programs are essential to mitigate the impacts of these events and enhance the district's resilience.

*Table 17 Major Hazard History and Its Impacts*

Sr. No.	Hazard	Date/Year of Occurrence	Category <sup>1</sup> / Intensity	Duration (No. of days)	Frequency	Area Affected (Location) (Ex. Village name, river basin etc.)
1.	Floods	2005	High	5 to 6 days	Once or twice	Tehsils: • Patan, • Karad, • Wai, • Satara
		2006	High	4 to 5 days	1 or 2 times	Tehsils: • Patan, • Karad, • Wai, • Satara
		2019	High	4 to 5 days	1 or 2 times	Tehsils: • Patan, • Karad, • Wai,

<sup>1</sup> Category – 1) High; 2) Moderate; 3) Low (according to national standards)



						<ul style="list-style-type: none"> <li>Satara</li> </ul>
2.	<b>Extreme Heavy Rainfall / Cloud Burst</b>	2021	High	2 to 3 days	1 or 2 times	Tehsils: <ul style="list-style-type: none"> <li>Patan,</li> <li>Mahableshwar</li> <li>Wai,</li> <li>Satara &amp; Jawali</li> <li></li> </ul>
3.	<b>Drought</b>	2012	Moderate	4 to 5 months	Once or twice	Tehsils: <ul style="list-style-type: none"> <li>Phaltan</li> <li>Man</li> <li>Khatav</li> <li>Koregaon</li> <li>Eastern parts of Khandala</li> </ul>
		2013	Moderate	5 to 6 months	Once or twice	Tehsils: <ul style="list-style-type: none"> <li>Phaltan</li> <li>Man</li> <li>Khatav</li> <li>Koregaon</li> </ul>
4.	<b>Earthquake</b>	11 <sup>th</sup> December, 1967	High	5 to 10 seconds	More than 10 times in a year (above 3 Richter scale)	<ul style="list-style-type: none"> <li>Koynanagar Township,</li> <li>Areas near Koyna Dam and Patan Taluka</li> <li>Karad Taluka affected partially</li> </ul>
5.	<b>Landslides</b>	1993	Not available	Not available	Not available	<ul style="list-style-type: none"> <li>Borgewadi,</li> <li>Tolewadi,</li> <li>Gheradatewadi</li> </ul>
		1 <sup>st</sup> July, 2005	High	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> <li>Bhilar village,</li> <li>Kaswand</li> </ul>
		20 <sup>th</sup> July, 2005	Moderate	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> <li>Mahabaleshwar (Hotel Gautam),</li> <li>Panchgani,</li> <li>Metgulad village,</li> <li>Gadalwadi,</li> <li>Metalled Road to Tapola</li> </ul>
		26 <sup>th</sup> July, 2005	Moderate	Few Minutes	1 to 3 times in a year	<ul style="list-style-type: none"> <li>Panchgani</li> </ul>
		17 <sup>th</sup> September,	Moderate	Few Minutes	1 to 3 times in a	<ul style="list-style-type: none"> <li>Dhebewadi-Salve,</li> <li>Patan Taluka</li> </ul>

		2008			year	
		2015	Moderate	Few Minutes	1 to 2 times a year	<ul style="list-style-type: none"> <li>Bhekawli Taluka,</li> <li>Mahabaleshwar (shifted 11 families for temporary shelter)</li> </ul>
		21 to 23 july 2021	High	Few Minutes	1 to 2 times a year	Mirgaon, Ambeghar (Khalche), Dhokawal e, Humrali Tal. Patan and Devrukhwadi , Jor in Wai Taluka

Source: DDMA, Satara

Table 18 List of anthropogenic hazards in the district

Sr. No.	Hazard	Date/ Year of Occurrence	Category <sup>2</sup> / Intensity	Duration (No. of days)	Frequency	Area Affected (Location) (Ex. Village name, river basin etc.)
1.	Road Accidents	13 <sup>th</sup> January, 2014	Moderate	-	High	Bengrutwadi (Khandala Taluka, NH4)
		3 <sup>rd</sup> February, 2014	High	-	High	Bengrutwadi (Khandala Taluka, NH4)
		16 <sup>th</sup> November, 2014	Moderate	-	High	State Transport Bus Stop (Khandala, NH4)
2.	Railway Accidents	22 <sup>nd</sup> April, 2015	Low	5:45 AM	Less	Pune-Satara-Kolhapur railway line
3.	Communal Violence	17 <sup>th</sup> November, 2003	Moderate	1 day	Less	Wai Taluka
4.	Stampede	25 <sup>th</sup> January, 2005	High	2 to 3 hours	Rare (Once)	Mandher Devi Temple (Wai)
5.	Other, if any Covid-19	March 2020 to June 2021	High	1 to 2 Year	Rare	Entire District

Source: DDMA, Satara

<sup>2</sup> Category – 1) High; 2) Moderate; 3) Low (according to national standards)



Table 19 List showing damages and losses of some specific disasters

Date/year of Occurrence	Human Life Loss		Cattle Loss		Land Affected	
	Dead	Injured	Dead	Injured	Land Specification <sup>3</sup>	Area (No./Acers/Hectares)
1967 (Koyna Earthquake)	161	-	-	-	<ul style="list-style-type: none"> <li>Damaged Houses - 88,000</li> </ul>	-
2005/2006 (Floods)	26	-	675	-	<ul style="list-style-type: none"> <li>Damaged Houses – 7857</li> <li>No. of affected villages – 1419</li> <li>No. of damaged shops – 581</li> <li>No. of damaged property - 1880</li> </ul>	<ul style="list-style-type: none"> <li>No. of damaged cropland – 117477.76</li> </ul>
25 <sup>th</sup> January 2005 (Mandher Devi Temple Stampede)	291	20000	-	-	<ul style="list-style-type: none"> <li>50 shops got burnt</li> </ul>	-
2021 Landslide (21 to 23 July )	34	-	-	-	-	-

Source: DDMA, Satara

### 3.1.1. Flood

Satara district is increasingly vulnerable to flood hazards, especially during the monsoon season. The district's geography includes river basins such as those of the Krishna, Koyna, and Urmodi rivers, which originate in the Western Ghats. Intense and prolonged rainfall, often associated with climate variability, has led to frequent river overflows and flash floods. Low-lying areas in Talukas such as Karad, Satara, and Phaltan are particularly susceptible. In recent years, especially during the 2021 and 2025 monsoons, the district experienced significant flood events, causing widespread damage to homes, roads, and agricultural land. The overflow of rivers like the Banganga and Urmodi inundated villages and disrupted transportation and daily life. While major dams such as Koyna and Dhom help to regulate water flow, sudden heavy

<sup>3</sup> Land Specification – Land specification Table in chapter 1

rainfall can exceed their storage and release capacity, increasing flood risk downstream. Effective flood management in Satara requires improved drainage systems, early warning mechanisms, and better land-use planning to reduce vulnerability and enhance community resilience.

### 3.1.2. Drought:

Satara district faces significant drought hazards, particularly in its eastern and central parts such as Phaltan, Man, and Khatav talukas, which lie in the rain shadow region of the Western Ghats. These areas receive low and irregular rainfall, making them highly vulnerable to water scarcity. Droughts in Satara have had serious impacts on agriculture, drinking water supply, and livelihoods. One of the most severe droughts occurred in 2013, when the district, along with much of Maharashtra, experienced extreme water shortages and crop failures. Repeated droughts have led to groundwater depletion and increased dependency on tankers for water in rural areas. Despite the presence of large dams like Koyna and Urmodi, uneven rainfall distribution and limited irrigation infrastructure in drought-prone zones continue to pose challenges. Addressing drought in Satara requires a combination of water conservation practices, sustainable farming, rainwater harvesting, and efficient irrigation systems to reduce the impact of water scarcity and build long-term resilience.

Here is a list of notable drought years in Satara District, Maharashtra, over the past few decades, along with their impacts on agriculture, water resources, and livelihoods:

*Table 20 Previous Droughts in Satara District*

<i>S. No.</i>	<i>Year of Drought</i>	<i>Impact</i>
1.	2002	<ul style="list-style-type: none"> <li>➤ Rainfall deficit affected most parts of Satara, especially Man and Khatav talukas.</li> <li>➤ Crop production dropped sharply; farmers struggled with debt.</li> <li>➤ Water supply through tankers increased in rural regions.</li> <li>➤ Migration of laborers in search of work outside the district.</li> </ul>
2.	2009	<ul style="list-style-type: none"> <li>➤ Weak monsoon affected sowing of kharif crops like jowar and bajra.</li> <li>➤ Groundwater levels dropped; wells and borewells dried up.</li> <li>➤ Irrigation-dependent areas fared slightly better, but unirrigated regions were severely hit.</li> </ul>
3.	2012-13	<ul style="list-style-type: none"> <li>➤ One of the worst droughts in Satara and Maharashtra in the last 40 years.</li> <li>➤ Phaltan, Man, and Khatav talukas declared drought-hit.</li> <li>➤ Crop failure led to severe agrarian distress and farmer suicides in some areas.</li> <li>➤ Large-scale water tanker supply initiated; many reservoirs dried up or reached dead storage levels.</li> <li>➤ State and central government launched relief packages and employment schemes.</li> </ul>
4.	2015	<ul style="list-style-type: none"> <li>➤ Erratic and delayed rainfall caused distress among farmers.</li> </ul>

		<ul style="list-style-type: none"> <li>➤ Rabi crop output fell; drinking water scarcity re-emerged.</li> <li>➤ Continued overextraction of groundwater worsened the situation.</li> </ul>
5.	2018	<ul style="list-style-type: none"> <li>➤ Satara was among the districts officially declared drought-affected by the Government of Maharashtra.</li> <li>➤ Rainfall was over 40% below normal in parts of the district.</li> <li>➤ Livestock suffered due to lack of fodder and water; cattle camps were set up.</li> <li>➤ Educational and economic activities were disrupted in rural areas due to migration and economic hardship.</li> </ul>

Source: DDMA, Satara

Table 21 Daily report on water supply through tankers to alleviate drinking water shortage (05-05-2025)

S.No.	Taluka	Villages	No. of starting tankers			Approved consignments	Current well acquisition	
			Govt.	Private	Total		Well	Bore
1	Man	45	4	43	47	104	14	6
2	Patan	1	0	3	3	4	0	0
3	Wai	4	2	3	5	9	3	0
4	Koregaon	4	0	3	3	5.5	4	0
5	Karad	0	0	0	0	0	3	0
6	Khandala	0	0	0	0	0	1	1
7	Khatav	7	0	8	8	15	7	4
Total		61	6	60	66	137	32	11

Source: Dept. of Rural Water Supply

### 3.1.3. Earthquakes:

Satara district lies in a seismically active zone of western Maharashtra, mainly due to its proximity to the Deccan Plateau fault system and the Koyna region, which is known for reservoir-induced seismicity. The Koyna Dam area has been a significant source of earthquakes over the decades. While Satara is not in the highest seismic zone, parts of it fall under Seismic Zone III and IV, indicating moderate to high earthquake risk. The most prominent cause of seismic activity here is believed to be the massive Koyna Dam and its associated reservoir, Shivasagar Lake. Earthquakes in the region have resulted in property damage, landslides, and public fear, although loss of life has generally been limited due to relatively low population density in the epicentral zones. Continued monitoring by the Geological Survey of India and installation of seismographs have helped in tracking seismic events. Earthquake preparedness, stricter building codes, and structural retrofitting in vulnerable areas are essential to mitigate future risks.

Table 22 Past Earthquake in Satara District

Year	Magnitude	Epicenter / Region	Impact
1967 (Dec 11)	6.5	Koynanagar	One of the strongest earthquakes in Maharashtra's history; over 200 people killed, thousands injured, and widespread damage to

			<i>buildings. Believed to be caused by reservoir-induced seismicity from the Koyna Dam.</i>
1973	5.1	Koyna region	<i>Moderate tremor caused fear; minor damage to buildings and homes in the area.</i>
1993	5.4	Koyna region	<i>Part of a series of aftershocks; triggered landslides and structural cracks in villages near the dam.</i>
2000–2010	Multiple tremors (3.0–5.0)	Koyna and Patan talukas	<i>Frequent minor to moderate quakes; no major damage but raised concerns about dam safety and local infrastructure.</i>
2012	4.9	Koyna area	<i>Shaking felt across the district; some schools and homes developed structural cracks. No casualties.</i>
2020 (March)	4.5	Near Patan	<i>Minor tremor, widely felt, but no major damage or injuries. Emphasized the need for preparedness in the region.</i>
2023	4.3	Koyna region	<i>Mild tremor, felt in surrounding talukas; no reported damage, but led to temporary panic.</i>

Source: USGS, ISC and NCS

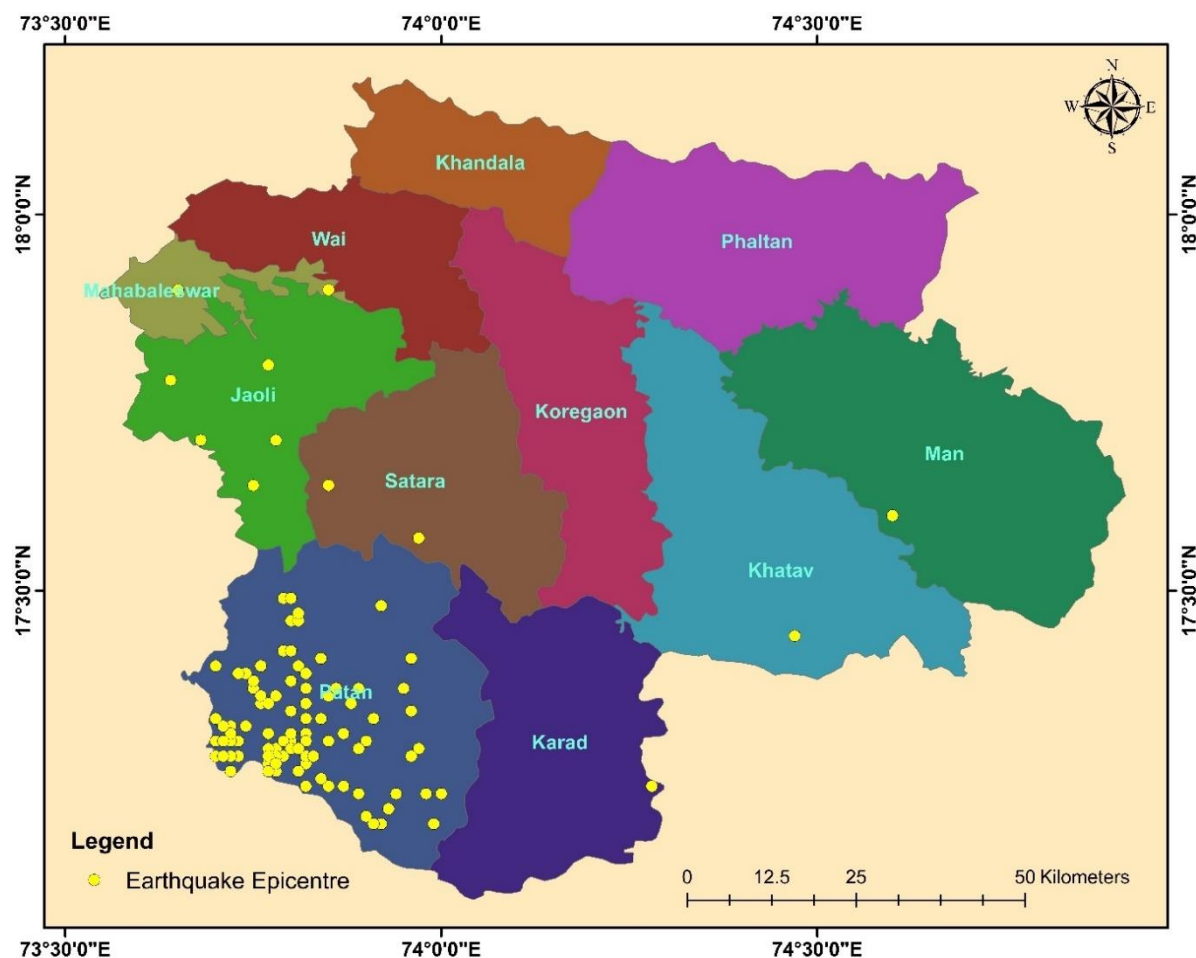


Figure 10 Historical Earthquake Events in Satara

Prepared by: PMU, Palladium; Data source: GSI

### 3.1.4. Landslide:

Satara district, especially its western part which lies in the Sahyadri (Western Ghats) mountain range, is prone to landslide hazards, particularly during the heavy monsoon season. Areas like Mahabaleshwar, Panchgani, Patan, and Jawali talukas are vulnerable due to steep slopes, loose lateritic soil, deforestation, and intense rainfall. Landslides in the region are often triggered by prolonged or extreme rain events, leading to slope failure, soil erosion, and rockfalls. Human activities such as unplanned construction on hill slopes, road widening, and hill cutting for tourism and development have increased the risk in recent years. While landslides in Satara are generally localized, they pose serious threats to life, disrupt road transport (especially on ghats and hill roads like Mahabaleshwar–Panchgani and Karul Ghat), damage agricultural land, and cause temporary isolation of rural and hilly communities.

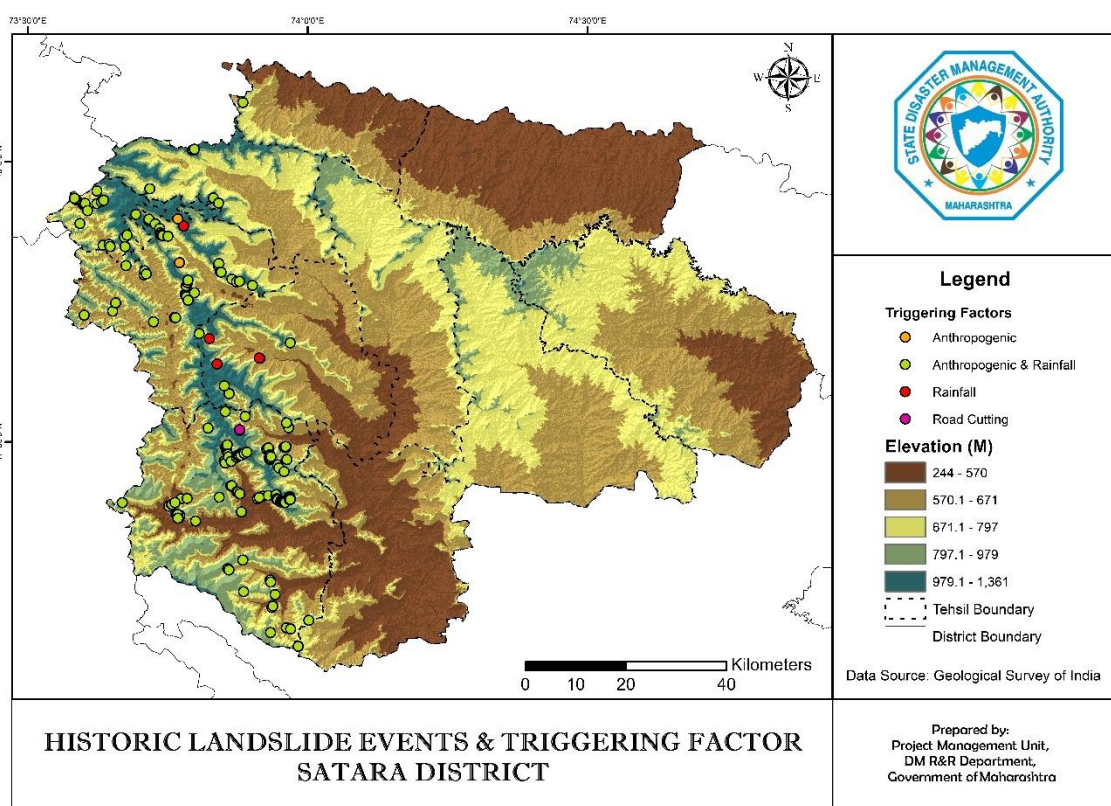


Figure 11 Spatial distribution of historical landslides in Satara District

Table 23 Information about loss of life due to landslides in 2021

S. No.	Taluka	Village	Persons Died
1	Patan	Ambeghar	14
		Mirgaon	11
		Dhokawale	04
		Humberli	01



		<i>Mandrul Kole</i>	<i>01</i>
<i>2</i>	<i>Mahabaleshwar</i>	<i>Ghavri</i>	<i>01</i>
<i>3</i>	<i>Wai</i>	<i>Kondhavale</i>	<i>02</i>
		<i>Jor</i>	<i>02 Missing</i>

*Source: DDMA, Satara*

### 3.1.5.Cyclone:

Satara district is not directly situated on the coastline, but it can still be impacted by cyclonic systems that move inland from the Arabian Sea. Although the risk of direct cyclone landfall is minimal, the post impact of cyclones, such as intense rainfall, strong winds, and flooding, can significantly affect the district. In recent years, climate change has led to an increase in the frequency and intensity of cyclones affecting the western coast of India, and their residual impact often reaches inland districts like Satara. These events can disrupt agriculture, cause waterlogging, landslides in hilly regions, and damage infrastructure. The hilly western parts of Satara (Mahabaleshwar, Patan, Jawali) are particularly vulnerable to secondary effects like landslides due to saturated soils.

*Table 24 List of Cyclones & its Impact on Satara District*

<i>Year</i>	<i>Cyclone Name</i>	<i>Type</i>	<i>Impact on Satara</i>
<i>2019</i>	<i>Cyclone Kyarr</i>	<i>Very Severe Cyclonic Storm</i>	<i>Brought heavy rains to Satara, especially in Mahabaleshwar and Wai; minor flooding and road damage reported.</i>
<i>2020</i>	<i>Cyclone Nisarga</i>	<i>Severe Cyclonic Storm</i>	<i>Though it made landfall near Alibag (Raigad), it brought strong winds and moderate to heavy rains in Satara; trees uprooted, power outages in some rural areas.</i>
<i>2021</i>	<i>Cyclone Tauktae</i>	<i>Extremely Severe Cyclonic Storm</i>	<i>Caused heavy rainfall across western Maharashtra; Satara received intense downpours, triggering localized landslides and affecting agriculture.</i>
<i>2023</i>	<i>Cyclone Biparjoy (remnant)</i>	<i>Deep Depression (inland)</i>	<i>Resulted in continuous rain in Satara for 2–3 days; some roads damaged, and farm fields were waterlogged.</i>

<b>2024</b>	<i>Unnamed Cyclonic System</i>	<i>Depression</i>	<i>Brought unusual pre-monsoon showers and gusty winds in Phaltan and Karad; early crop damage reported.</i>
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Source: India Meteorological Department (IMD) - Cyclone Information

### 3.1.6. Heatwave:

Satara district generally experiences a moderate climate due to its proximity to the Western Ghats. However, eastern and central talukas like Phaltan, Man, and Khatav fall in the rain-shadow region and are increasingly prone to heat wave conditions, particularly in the pre-monsoon months (March to May). In recent years, rising global temperatures and shifting weather patterns have intensified the frequency and duration of heat waves in the district. These heat waves cause extreme discomfort, increase the risk of heatstroke, especially among outdoor workers, and lead to water scarcity due to rapid evaporation. Agricultural activities, livestock health, and school attendance are also adversely affected during prolonged heat spells. While the hilly western talukas such as Mahabaleshwar and Jawali remain relatively cooler, the eastern plains experience temperatures often exceeding 42°C during severe heat wave periods.

Table 25 History of Heatwave events in Satara District

<i>Year</i>	<i>Month(s)</i>	<i>Location(s) Affected</i>	<i>Impact</i>
<b>2014</b>	<i>April–May</i>	<i>Phaltan, Man, Khatav</i>	<i>Temperatures rose to 44°C; multiple cases of heatstroke; water sources dried up early.</i>
<b>2016</b>	<i>March–May</i>	<i>Entire district, mainly eastern talukas</i>	<i>Severe heat wave across Maharashtra; school timings changed; reduced agricultural labor activity.</i>
<b>2019</b>	<i>April</i>	<i>Phaltan and Karad</i>	<i>High temperatures (~43°C); water scarcity in villages; power consumption surged due to fans and coolers.</i>
<b>2022</b>	<i>May</i>	<i>Maan and Koregaon talukas</i>	<i>Prolonged dry spell and heat; impact on livestock and fodder availability; wells and borewells ran dry.</i>
<b>2024</b>	<i>March–April</i>	<i>Eastern Satara</i>	<i>Recorded one of the hottest early summers in recent years; heat advisory issued by district administration; schools closed early.</i>

Source: DDMA, Satara

### 3.1.7. Fire

Satara district experiences fire hazards in both urban and rural areas, with incidents occurring due to forest fires, electrical faults, crop residue burning, and accidental fires in residential and market areas. Forested regions in Mahabaleshwar, Jawali, and Patan talukas, which are rich in dry deciduous vegetation, are particularly vulnerable to forest fires during the dry summer months (March to May). In agricultural areas, post-harvest stubble burning and accidental grass fires can spread rapidly in dry, windy conditions. Urban and semi-urban centers like Satara

city, Karad, and Phaltan also witness fire outbreaks due to short circuits, LPG leaks, or improper storage of inflammable materials. Though most incidents are localized, some have caused significant damage to property, crops, livestock, and forest cover, and in rare cases, loss of life. Fire services in the district are responsive but stretched, particularly in remote hilly areas where access is challenging.

### **3.1.8. Epidemic**

Satara district, like many parts of Maharashtra, has experienced periodic outbreaks of epidemic diseases, especially during the monsoon and post-monsoon seasons when poor sanitation, waterlogging, and vector breeding conditions prevail. The most reported epidemics include dengue, malaria, chikungunya, gastroenteritis, swine flu (H1N1), and more recently, COVID-19. Urban centers like Satara city, Karad, and Phaltan, along with densely populated rural areas, are more vulnerable due to issues such as unplanned urbanization, inadequate drainage, and limited access to public health infrastructure. The district health department has been proactive in managing outbreaks through public awareness campaigns, vaccination drives, and rapid response teams, but recurring outbreaks indicate the need for better sanitation, water quality monitoring, and healthcare accessibility.

### **3.1.9. Railways Accident:**

Satara district is served by important railway routes like the Mumbai–Miraj–Kolhapur line and branches connecting towns like Karad, Satara, and Koregaon. Though not a major railway hub, the district plays a vital role in regional passenger and freight movement. While railway operations in Satara are generally safe, occasional accidents and incidents have occurred due to reasons such as human error, technical failure, track obstructions, or adverse weather conditions. These incidents, though infrequent, have led to delays in services, injuries, and logistical disruptions. The Railways and district administration have worked jointly to improve safety through surveillance, maintenance, and community awareness programs near railway crossings and tracks.

### **3.1.10. Road Accident:**

Satara district, located on the busy Mumbai–Bangalore National Highway (NH-48) and connected by numerous state and rural roads, has witnessed a rising number of road accidents in recent years. Factors contributing to road mishaps include over speeding, poor road conditions in rural areas, overloading, rash driving, stray animals, and inadequate signage. Highways passing through Karad, Satara city, and Phaltan are accident-prone zones due to heavy traffic and mixed-use roads. Though the government and traffic authorities have improved infrastructure and increased patrolling, road accidents continue to pose a major safety and public health issue, leading to loss of life, injuries, property damage, and psychological trauma. The district administration conducts awareness drives, enforces helmet and seatbelt rules, and encourages safe driving practices to reduce such incidents.

### **3.1.11. Industrial and chemical accident**

Satara district has witnessed steady industrial development, especially in areas like Satara MIDC, Phaltan MIDC, and Lonand industrial zones. These regions host a range of small and



medium-scale industries, including chemical, pharmaceutical, plastic, engineering, and agro-processing units. While the district does not have a high concentration of hazardous industries, the presence of chemical storage, handling of inflammable materials, and lack of advanced safety infrastructure have led to occasional industrial and chemical accidents. Most incidents are caused by boiler failures, chemical spills, fires, or gas leaks, often triggered by negligence, equipment failure, or inadequate safety protocols. Though most accidents are localized, some have resulted in worker injuries, temporary evacuations, pollution risks, and disruptions in industrial operations. The District Disaster Management Authority (DDMA), along with the Maharashtra Pollution Control Board (MPCB) and factory inspectorate, monitors and responds to such incidents, though challenges remain in enforcing regular safety audits and emergency preparedness.

### 3.2. Seasonality of Disasters

Disaster	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Earthquake												
Floods												
Cyclones												
Landslide												
Heatwave												
Epidemics												
Industrial and chemical accidents												
Fires												
Road accidents												
Lightning												
Drought												

Source: DDMA Satara

### 3.3. Hazard Profile of the District

Damage	Earthquake	Flood	Storm	Epidemic Diseases	Industrial and Chemical Accidents	Fire	Road Accidents
Loss of Life	Low	Low	Low	Medium	Low	Low	Medium
Property Damage	Low	High	Low	Low	Medium	Low	Low
Wounded	Low	Low	Low	Low	High	High	High
Animal Damage	Low	High	Low	Medium	low	High	Low
Public Life Disrupted	Low	High	Low	Low	low	Low	Low

<i>Crop Damage</i>	<i>Low</i>	<i>Medium</i>	<i>Low</i>	<i>Medium</i>	<i>low</i>	<i>Low</i>	<i>Low</i>
<i>Social Harm</i>	<i>Low</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>low</i>	<i>Low</i>	<i>Low</i>
<i>Disruption of Livelihoods</i>	<i>Low</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
<i>Service Disruption</i>	<i>Low</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
<i>Impact on National Economy</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>
<i>Social and Psychological Influences</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>

Source: DDMA Satara

### 3.4. Hazard Assessment

#### 3.4.1. Flood

Flood hazard assessment in Satara district, Maharashtra, is crucial due to the region's susceptibility to flooding, particularly in areas like Karad, Patan, Wai, and Satara talukas. These areas are prone to floods owing to their proximity to rivers such as the Krishna and Koyna, combined with factors like high rainfall, varied topography, and dense drainage networks. The District Disaster Management Plan (DDMP) for Satara highlights specific flood-prone villages, especially in Patan taluka, which are affected by the Koyna River. The plan emphasizes the need for preparedness and outlines strategies for effective disaster response. In recent events, such as in May 2025, Satara experienced unusual flooding, a phenomenon typically seen in July. These assessments and events underscore the importance of continuous monitoring, effective urban planning, and community awareness to mitigate flood risks in Satara district. Flood hazard assessment in Satara district, is a critical component of the region's disaster management strategy, given its vulnerability to both floods and landslides. The district's varied topography, encompassing the Western Ghats and river basins, contributes to its susceptibility.

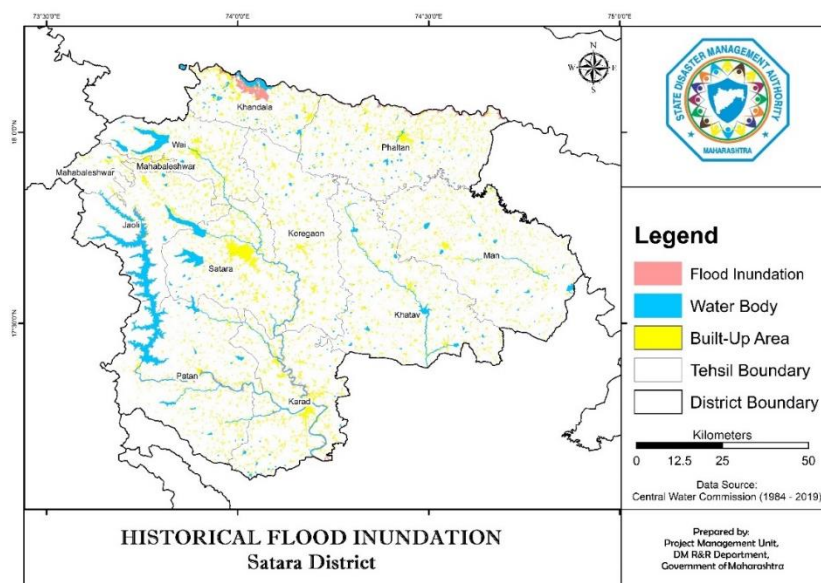


Figure 12 Flood Inundation Map of Satara District (2023-24)

Table 26 Number of potentially flood-prone villages in the district by river

S. NO.	Name of the Dam	Name of the River	Taluka	Number of potentially flood-prone villages
1.	Koyna	Koyna	Patan	16
2.	Koyna	Morana	Patan	17
3.	Koyna	Koyna	Karad	13
4.	Dhom	Krishna	Karad	35
5.	Tarli	Tarli	Karad	7
6.	Dhom	Krishna	Wai	12
7.	Dhom / Balkawadi	Krishna	Wai	5
8.	Kanher	Venna	Satara	5
9.	Dhom	Krishna	Satara	14
10.	Urmodi	Urmodi	Satara	16
11.	Dhom	Krishna	Koregaon	5
12.	Veer	Nira	Khandala	9
13.	Veer	Nira	Phaltan	16
<b>Total</b>				<b>172</b>

Table 27 Taluka wise no. of flood-prone villages of Satara District

S.No.	Taluka	Revenue Circle	Number of rain gauges	Number of potentially flood-prone villages	Number of villages potentially prone to landslides
1.	Satara	14	14	33	10
2.	Jawali	6	6	-	10
3.	Koregaon	10	10	11	-
4.	Karad	14	14	55	-
5.	Patan	14	14	31	50
6.	Wai	7	7	17	18
7.	Mahabaleshwar	4	4	-	36
8.	Khandala	4	4	9	-
9.	Phaltan	10	10	16	-
10.	Khatav	11	11	-	-
11.	Man	9	9	-	-
<b>Total</b>		<b>103</b>	<b>103</b>	<b>172</b>	<b>124</b>

Table 28 Taluka wise Flood Prone Villages

S. No.	Taluka	Flood prone/ River bank Village
1.	Satara	Pateghar, Navali, Venekhol, Katwade Bu, Limnekhhol, Parli, Ambawade Bu, Chafal, Nagthane, Majgaon, Nanegaon Bu, Nanegaon khu, Kelwali, Borgaon, Nagthane, Mazgaon, Nisrale, Kashil, Angapur, Nandgaon, Kameri, Venegaon, Koparde Kelambe, Nane, Kidgaon, Nele Chinchner, Limb Mahagaon, Tasgaon, Jaitapur, Jihe, Mundewadi, Hamdabad, Mhaswe, Marde, Gove, Limb, Vangal, Arle, Vaduth, Patkhal, Borkhal,

		<i>Vade</i>
2.	<i>Mahabaleshwar</i>	<i>Velapur, Ategaon towards Vanavali, Ategaon towards Pali, Tapola, Solashi towards Vanavali, Rameghar</i>
3.	<i>Jawali</i>	<i>Mah, Karhar, Kharshibaramure, Sanpane, Akhade Hamgaon, Kudal towards Bamnoli, Sharjapur, Kudal, Nijre, Dhankawadi, Kairandi, Ganje, Kusambi, Sangvi, Malchaundi, Dand Medha, Ritkavali, Bibhavi, Ozare, Bhanang, Wagheshwar, Kenjal, Agalewadi, Jalawadi, Karanj, Mamurdi, Gawadi, Ambeghar, Dangregghar, Kedambe, Naloshi, Pabjwadi, Bahule, Mhate Bu, Mhatu khurd, Mohat, Wagdare, Asani Kelghar, Bhokawadi, Bhogwali, Varoshi, Chorambe</i>
4.	<i>Phaltan</i>	<i>Gokhali, Sathe, Dhawlewadi, Asu, Rawdi Khu, Marum, Khamgaon, Hol, Jinti</i>
5.	<i>Wai</i>	<i>Ahl, Bhuij, Chindhavali, Khadki, Pachwad Pirachiwadi, Bhogaon, Menavali, Kadegaon, Golewadi, Jor, Kadwali, Akoshi, Paratvadi, Balkavadi, Dhom, Abhepuri, Vasole, Vashivali, Kondhavale, Bargaon, Vyahali</i>
6.	<i>Karad</i>	<i>Rethare Bu, Khubi, Rethare khu, Malkhed, Kasar, Shirambe, Karve, Kodoli, Dushere, Gondi, Kapil, Koregaon, Goleshwar, Shere- Koparde, Shirvade, Nadshi Wadgaon H, Shirgaon, Indoli, Hingole, Chore, Daphalwadi, Chorjwadi, Mhasakarwadi, Sakharwadi, Janghwadi, Marli, Koriwale, Parle, Bhuyachiwadi, Yerwale, Saidapur, S. Gad, Goware, Tembhu, Ghonshi, Khodshi, Wahagaon, Korti Tambarve, Mhopre, Aike, Kale, Undale, Khandare Tulsan, Salshirambe, Manav, Ond, Latkewadi, Kalgaon, Konegaon, Helgaon, Padli, Gaikwadwadi, Kavathe, Kharade</i>
7.	<i>Khandala</i>	<i>Hartali, Wing, Shirwal, Wathar colony, Shindewadi, Pisalwadi Tondal, Bhade, Bholi, Lond, Padegaon, Pimpre bu</i>
8.	<i>Khatav</i>	<i>Goregaon, Chitali, Mardwak, Madhewadi, Mol, Diskal, Shindewadi, Lalgun, Nagnathwadi, Ranshingwadi, Khatgun, Pusegaon, Bhandewadi, Khatav, Walkeshwar,</i>
9.	<i>Koregaon</i>	<i>Takle, Targaon, Durgalwadi, Kaloshi, Bargaon, Dhamner, Katapur,</i>
10.	<i>Patan</i>	<i>Khale, Kaadhne, NaavdiMudul Haveli, Vihegaon, Murud, Digewadi, Gorewadi, Larwadi, Dhamakwadi, Bhambe, Kushi, Karanjoshi, Boposhi, Tandoshi, Kalambe, Nivede, Savarghar, Sundarnagar, Amble, Kalkutwadi, Bambavade, Shivpuri, Chafal, Majgaon, Nanegaon khu, Kalewali, Belwade, Ambule, Tripadi, Sulewadi</i>

Source: DDMA, Satara

### 3.4.2. Landslide

Landslides are a recurrent phenomenon in the western part of Satara district, particularly

affecting the talukas of Patan, Jawali, and Mahabaleshwar. These areas frequently experience landslides following incessant rainfall, which significantly impacts the local communities and infrastructure. Based on reported incidents, a comprehensive list of affected villages has been compiled, identifying the most vulnerable locations. In addition to identifying the affected villages, major roads impacted by landslides have been marked to ensure a swift response. Key routes such as the Medha - Mahabaleshwar Ghat, Pasrani Ghat, Chiplun - Karad Road, Sajjan Gad - Thoseghar Road, Mahabaleshwar - Poladpur Road and Shendre to Bamanoli Road, necessitating immediate attention and clearance efforts. These measures are crucial for maintaining connectivity and ensuring the safety of residents and travelers.

*Table 29 Taluka wise no. of landslide prone villages*

<i>S.No.</i>	<i>Taluka</i>	<i>Number of villages potentially prone to landslides</i>
1.	Satara	10
2.	Jawali	10
3.	Koregaon	-
4.	Karad	-
5.	Patan	50
6.	Wai	18
7.	Mahabaleshwar	36
8.	Khandala	-
9.	Phaltan	-
10.	Khatav	-
11.	Man	-
<b>Total</b>		<b>124</b>

*Table 30 Taluka wise landslide prone villages*

<i>S.No.</i>	<i>Taluka</i>	<i>Name of villages potentially prone to landslides</i>
1.	Satara	Bondarwadi, Sandavali, Kelavali, Bhairavgad (Tolewadi) Morewadi, Kaloshi, Petri, Alawadi, Dhali, Pangare
2.	Jawali	Watambe, Mukawli, Rengadi, Bahule, Mayani, Taldev, Manti, Ranjani, Valanjwadi, Taloshi, Wahite, Divdev, Bondarwadi, Narfdev, Morghar (Dhanagarpedha), Bhuteghar
3.	Koregaon	-----
4.	Karad	-----
5.	Patan	Ambeghar Tarf Marli (Upper), Ambeghar Tarf Marli (Lower), Dhokavale, Humbarli (Katewadi), Mirgaon, Jitkar Wadi, Shidruk Wadi, Kahir, Humbarli Varandewadi, Dhadamwadi, Jotibachi Wadi, Gunjali (Manyachiwadi), Dikshi, Borgewadi (Mendoshi), Jugai Wadi, Khudupalewadi, Jitkarwadi (Jinti), Joshewadi, Baglewadi, Chopdewadi (Davari), Palsari (Kuswade), Dhanwadewadi- Shindewadi (Nigde), Jhakde, Dhajgaon, Masugadewadi, Tamine, Padloshi, Jalava, Pabalwadi, Lendori (Dhanagarwada), Lugdewadi (Keral), Miraswadi (Shiral), Gujarwadi (Mhavshi), Kalgaonchafoli Aral, Morgiri June Gavthan, Vihe, Dafalwadi, Kenjalwadi, Kalambe, Gaimukhwadi, Kusrund (Shindevasi), Ambavane, Bondri (Gojegaonvasti),

		<i>Tamine, Jaichiwadi (Bondri), Bhatdewadi (Jinti), Kavdewadi (Jungdi), Ghot Borgewadi, Tolewadi, Aral (Nivakne) Koknewadi, Baje Var Sarkoon, Gokulnala (Kamargaon B), Kille Morgiri, Natoshi (Shirkevasti), Chavanvasti, Bahirewadi (Dhoroshi), Vitthalwadi (Dhanagarvasti), Shiral Vitthalwadi (Sabanur) Batewadi,</i>
6.	<i>Wai</i>	<i>Ohli, Jambhali, Kirunde, Vasole, Gherakenjal, Duichiwadi Vashivali, Gundewadi, Pirachiwadi, Kochlewadi, Devrukh Wadi (Kondawale), Jor, Golegaon, Borgaon Khu., Wadkarwadi, Vaygaon, Dahayat</i>
7.	<i>Mahabaleshwar</i>	<i>Dhawli, Ghavri, Chikhli, Bhekavaliwadi, Erandal, Nawli, Dare, Dudhoshi, Chaturbet, Asli, Yerne Budruk, Yerne Khurd, Shindola, Kamtwadi, Jawli, Birwadi, Shirvali, Hotlot, Janjwad, Bivar, Machutar, Adal, Dhardev, Parut, Maghar, Devsare, Warsolikoli, Warsolidev, Malusar, Manjrewadi, Lamaj</i>
8.	<i>Khandala</i>	-----
9.	<i>Phaltan</i>	-----
10.	<i>Khatav</i>	-----
11.	<i>Man</i>	-----

### 3.4.3.Heatwave

Satara district in Maharashtra has been experiencing increasing heatwave conditions, attributed to climate change and rising temperatures. While traditionally not among the most heatwave-prone regions, recent data indicates a growing concern. According to the India Meteorological Department (IMD), Satara has recently experienced hot and humid conditions. For instance, on April 23, 2025, Satara was among the districts in Madhya Maharashtra reporting such conditions. These events, though not classified as severe heatwaves, indicate a trend towards increasing heat stress in the region. In response to increasing heat stress, communities in Satara have adopted traditional methods for resilience. For example, the use of earthen pots for storing drinking water helps in maintaining cooler temperatures, providing relief during hot conditions. While Satara has not historically been a hotspot for heatwaves, recent trends suggest a need for proactive measures. Implementing state-level action plans and promoting traditional adaptive practices can enhance the district's resilience to heat stress.



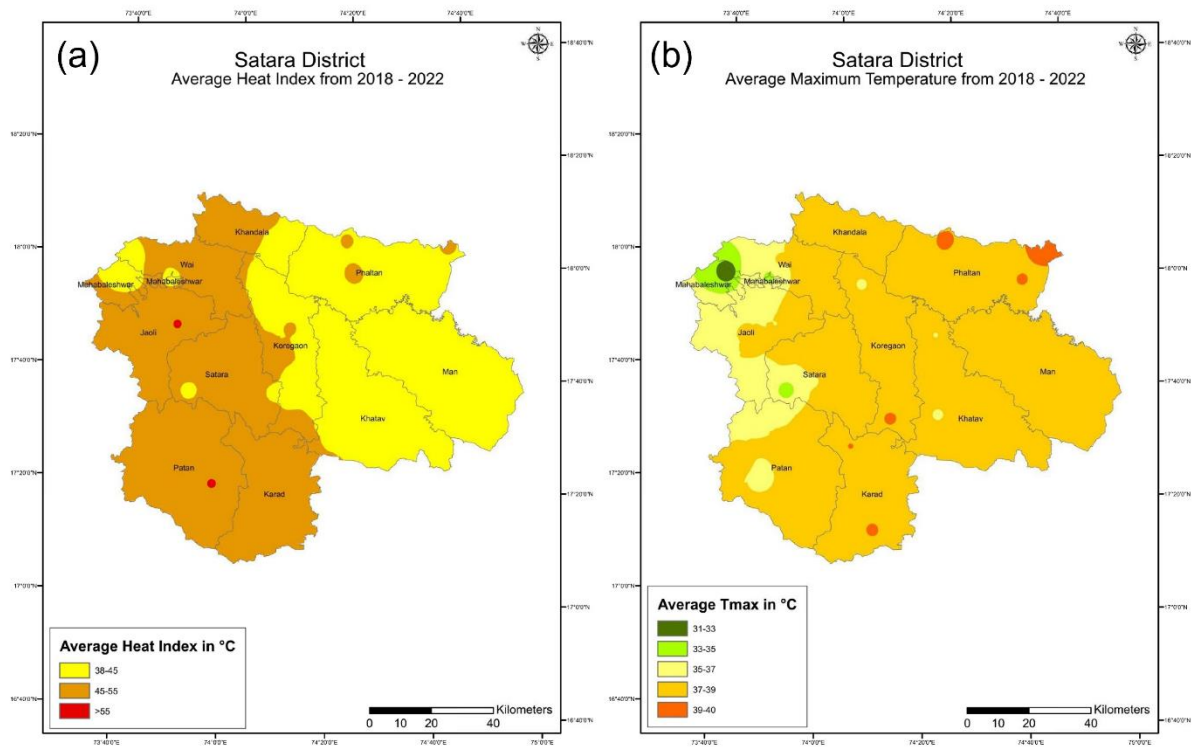


Figure 13 (a) Showing Average Heat Index from 2018-2022 of Satara District (b) Average temperature of Satara District from 2018-2022

Source: PMU, DM R&R, Govt of Maharashtra

### 3.4.4.Lightning:

Lightning hazard assessment in Satara district, Maharashtra, has become increasingly important due to the rising frequency and severity of lightning incidents, particularly during the pre-monsoon and monsoon seasons. Satara has witnessed notable lightning-related incidents. In May 2024, a tragic event occurred in Phaltan tehsil, where three students riding an electric scooter were struck by lightning, resulting in one fatality and two injuries. Such incidents underscore the district's vulnerability, especially in open areas and during agricultural activities. The district's location in the Western Ghats contributes to its susceptibility. Elevated terrains like the Kas Plateau and Ambenali Ghat are prone to thunderstorms due to orographic lift, where moist air ascends the slopes, leading to cloud formation and lightning. The monsoon season, spanning June to September, further exacerbates the risk with increased thunderstorm activity.

Lightning flash density is a crucial parameter for assessing the frequency and intensity of lightning strikes in the region. The assessment utilized lightning data collected from Meteorological stations and satellite-based lightning detection systems covering the Satara district. Lightning flash density, defined as the number of lightning flashes per unit area over a specific period, was calculated for different seasons and years. Spatial mapping techniques were employed to visualize the distribution of lightning flash density across the region. Lightning flash density in Satara exhibits seasonal variation, with the highest frequency of Lightning strikes occurring during the pre-monsoon and monsoon seasons (April to

September). The onset of the monsoon brings increased convective activity, contributing to the generation of thunderstorms and lightning. Lightning flash density varies spatially across Satara, with certain areas experiencing higher lightning activity than others.

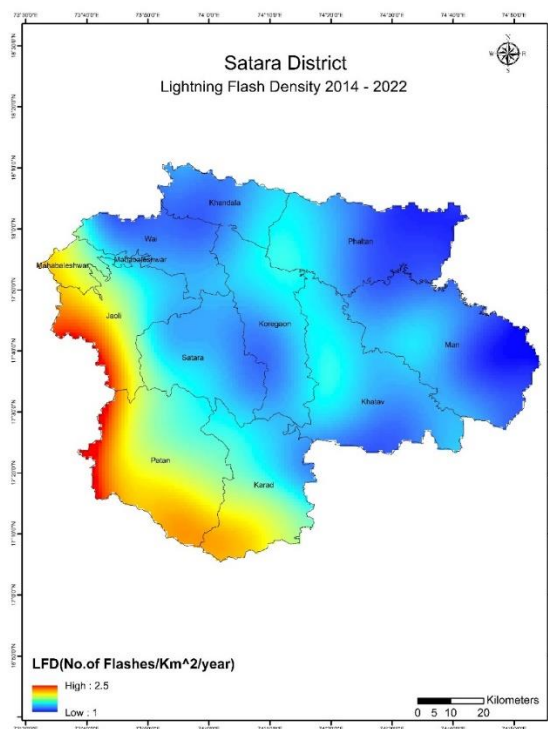


Figure 14 Lightning Flash Density in Satara District

Source: PMU, DM R&R, Govt of Maharashtra

Table 31 Lightning Arrestor Installation Locations in the District

S.No.	Taluka	Address	Year of installation
1	Satara	District Collector Office, Satara	2017
2	Khatav	Tehsilder Office, Khatav	2023
3	Man	Tehsilder Office, Man	2023
4	Phaltan	Tehsilder Office, Phaltan	2023
5	Wai	Tehsilder Office, Wai	2025
6	Koregaon	Tehsilder Office, Koregaon	2025
7	Khandala	Tehsilder Office, Khandala	2025

### 3.5. Social, Economic, and Environmental Vulnerability Analysis

#### 3.5.1. Social Vulnerability

Satara district in Maharashtra exhibits significant social vulnerability due to a combination of environmental, economic, and infrastructural factors. The district's geography includes both drought-prone areas in the east and landslide-prone hilly regions in the Western Ghats, exposing different communities to varying types of hazards. A large portion of the population



depends on agriculture for livelihood, making them highly sensitive to climate variability such as erratic rainfall, prolonged dry spells, and extreme weather events. Recurrent droughts lead to water scarcity and crop failures, resulting in financial instability, migration, and food insecurity among rural and marginalized communities. In the hilly western parts of the district, frequent landslides during the monsoon season threaten homes, roads, and livelihoods, especially in villages with limited access to early warning systems and emergency services. Social indicators such as poverty, illiteracy in some pockets, and unequal access to healthcare and education further compound vulnerability. Infrastructure in remote areas remains underdeveloped, with inadequate road connectivity, water supply systems, and disaster preparedness facilities. Although the district administration and community-based organizations have implemented some resilience-building measures such as awareness campaigns, temporary shelters, and water supply interventions, these efforts are often reactive rather than preventive. As a result, Satara's social vulnerability is a complex issue that requires sustained, multi-sectoral planning with a focus on inclusive development, climate adaptation, and disaster risk reduction.

### 3.5.2. Environmental Vulnerability

Satara district in Maharashtra faces considerable environmental vulnerability due to its diverse topography, climatic conditions, and land use patterns. The district encompasses both the drought-prone plateau regions in the east and the ecologically sensitive Western Ghats in the west, each presenting unique environmental challenges.

Here is a detailed explanation of the environmental vulnerability of Satara district, Maharashtra:

- **Diverse Topography:** Satara's geography includes both drought-prone plains in the east and the ecologically fragile Western Ghats in the west, making the district vulnerable to a range of environmental hazards.
- **Drought-Prone Eastern Region:** The eastern parts frequently suffer from low rainfall and recurring droughts, leading to groundwater depletion, crop failures, and increased desertification risk.
- **Deforestation and Land Use Change:** Expanding agriculture, unregulated development, and deforestation, especially in the Western Ghats, disturb natural ecosystems and increase susceptibility to soil erosion and landslides.
- **Landslide Risk in Western Ghats:** The hilly western belt is prone to landslides during the monsoon season due to fragile slopes, heavy rainfall, and human activities like road construction and deforestation.
- **Soil Degradation:** Intensive farming practices, poor soil conservation, and overgrazing in many parts of the district contribute to declining soil fertility and erosion.

- **Climate Change Impact:** Rising temperatures, shifting rainfall patterns, and extreme weather events like unseasonal rain and heatwaves further increase the district's environmental vulnerability.
- **Pressure on Water Resources:** Overuse of groundwater for irrigation and lack of sustainable water management practices have led to water scarcity in several regions, especially during summer.
- **Loss of Biodiversity:** Habitat fragmentation and pollution in forested areas threaten local flora and fauna, particularly in ecologically sensitive zones like Kaas Plateau, a UNESCO World Natural Heritage site.
- **Impact of Infrastructure Development:** Dams, roads, and expanding urbanization, while aiding development, often disrupt ecosystems, alter river flows, and increase the risk of environmental degradation.
- **Need for Sustainable Practices:** Although conservation programs exist, there is a pressing need for more robust and community-driven efforts in afforestation, watershed management, eco-friendly tourism, and climate resilience.

### 3.5.3. Economic Vulnerability

Satara district in Maharashtra experiences notable economic vulnerability stemming from its heavy dependence on agriculture, unequal development across regions, and exposure to climatic and market fluctuations. A large portion of the population relies on farming, with major crops including sugarcane, jowar, rice, and pulses. However, the agriculture sector is highly sensitive to irregular monsoon patterns, droughts, and declining soil and water quality, which directly impact crop yields and farmer incomes. In eastern Satara, recurring droughts have led to frequent crop failures and increasing rural indebtedness, pushing some farmers into distress and migration to urban areas in search of work. While the western region, especially areas around Mahabaleshwar and Panchgani, benefits from tourism and horticulture (like strawberries), these sectors are seasonal and susceptible to environmental shocks such as landslides or water shortages. The district also has limited industrial development, and most small-scale industries lack resilience to external economic pressures, including changes in demand, supply chain disruptions, or raw material shortages. Inadequate infrastructure, especially in remote and hilly areas, further hinders economic diversification and access to markets. Additionally, youth unemployment and underemployment remain concerns, partly due to skill mismatches and limited opportunities beyond agriculture and tourism. Though government schemes and cooperatives play a role in supporting livelihoods—particularly in sugar production and dairy—many communities still lack the financial literacy, institutional support, or technological resources needed to sustain and grow their economic activities. Addressing Satara's economic vulnerability thus requires a combination of climate-resilient agriculture, improved infrastructure, skill development, and expanded livelihood options beyond traditional sectors.

## 3.6. Capacity Assessment

### 3.6.1. Identification of district stakeholders

Satara district has made significant strides in building its capacity for effective disaster management, given its exposure to various natural hazards such as floods, landslides, droughts, and lightning. The district administration has developed a comprehensive disaster management framework that includes early warning systems, community awareness programs, and coordinated response mechanisms. Key initiatives involve training local government officials, aapda mitra volunteers, and emergency responders in disaster preparedness and response techniques. The district has also established temporary shelters and evacuation plans, particularly in vulnerable areas prone to landslides and floods. Integration of technology, such as GIS and remote sensing, aids in hazard mapping and risk assessment, enhancing preparedness. Collaboration with state agencies like the Maharashtra State Disaster Management Authority ensures alignment with broader policies and access to resources. Despite these advances, challenges remain in terms of infrastructure gaps, resource constraints, and the need for continuous capacity building at the grassroots level. Overall, Satara's capacity assessment reflects a growing institutional readiness, supported by both government efforts and community participation, aimed at reducing disaster risks and improving resilience.

*Table 32 Officials list of Collector's office, Satara*

<i>S.No.</i>	<i>Officials</i>	<i>Office</i>	<i>Residence</i>	<i>Mobile</i>
1.	Mr. Santosh Patil, District Collector Satara	232750	232751	7720073456
2.	Mr. Mallikarjun Mane, Additional District Collector Satara	230138	233750	9822366999
3.	Mr. Nagesh Patil, Resident Deputy Collector	236133		9850504189
4.	Mr. Vikrant Chavan, Deputy Collector (Revenue)	232349		9763212813 9049914000
5.	Mr. Bhagwan Kamble, Deputy Collector (Election)	229605		8975337722
6.	Mrs. Nutan Patil Deputy District Collector, (Ro.H.Yo.)	233842		7397 839 614
7.	Mr. Shashikant Mali, District Planning Officer Satara	234843	239414	8275596101
8.	Mr. Manohar Gawhad, District Rehabilitation Officer	234292		8149107336
9.	Mrs. Vaishali Rajmane, District Supply Officer	234840		9423271681
10.	Mrs. Rajshree More, Deputy District Collector Land Acquisition No. 2	230433		9422132279
11.	Mr. Pravin Salunkhe, Deputy District Collector Land Acquisition No. 21	230433		9975532173
12.	Deputy District Collector Land Acquisition No. 09			
13.	Abhishek Deshmukh, Deputy Collector Land Acquisition No. 4			7719955599
14.	Shri Abhijit Patil, Deputy Collector Land Acquisition No. 16			7719955855

15.	Deputy Collector Land Acquisition No.			
16.	Shri. Shashikant Jadhav, Tehsildar (Revenue)	236133		9923593063
17.	Shri. Chandrashekhar Shitole, Tehsildar (General)	232175		9881304874
18.	Bharat Kumar Tumbde, Sec. District Supply Officer	234292		80105 54658
19.	Shri Vaibhav Pilare, Special Executive Officer	234840		8551842612
20.	Mrs. Maimunnisa Sande, Tahsildar (Rehabilitation)	234292		8275257516
21.	Mrs. Smita Pawar, Tahsildar (S. Village)	232175		74474 83440
22.	Mr. Abhijit Bapat, N. Pa. Administrative Officer	233034		7588586688
23.	Mr. Sanjay Kulkarni, District Information Officer	231103		9420171914
24.	Mr. Devidas Tamhane, District Disaster Management Officer	232349		9657521122 9890719745
25.	Mr. Sanjay Badekar, Naib Tehsildar (Revenue)	236133		511903403 573717155
26.	Mrs. Rituja Kadam, Deputy Tehsildar (Criminal)	232175		8104971170
27.	Mrs. Sharda Khade, Deputy Tehsildar (Criminal)	232349		9881854875
28.	Mr. Milind Amte, Deputy Tehsildar (Criminal)			9403683994
29.	Mr. Chandrakant Gaware, PA to the Hon'ble District Collector	232750		9604700355
30.	Mrs. Shendre, PA to the Additional District Collector	230138		9637488265
31.	Mrs. Lakhapati, PA to the Resident Deputy District Collector	236133		9403167262

### 3.6.2. Assessment of Existing Capacity

Table 33 District infrastructure

<b>Community Resources</b>		
<b>Sr. No.</b>	<b>Specification</b>	<b>Availability</b>
1.	Primary Health Centre (PHC)	84
2.	Hospitals	Civil Hospital : 1 Rural Hospital : 18
3.	Schools	3947

4.	Colleges	57
5.	Municipal Units	Satara, Karad, Phaltan, Mhaswad, Rahimatpur, Mahabaleshwar, Panchgani, Wai, Malkapur, Medha, Khandala, Lonand, Koregaon, Dahiwadi, Waduj, Patan
6.	S.T Depots	11
7.	National Highway	1 (NH4)
8.	State Highways (in kms)	939 kms.
9.	Z.P Roads	7721 kms
10.	Bridges	48
11.	Kutcha Road	All roads in the village

Source: DDMA, Satara

Table 34 showing equipment used during emergencies

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

		<ul style="list-style-type: none"> <li>HDMI port and Multiple USB port</li> </ul>		
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"> <li>Intra and Inter Office connectivity</li> <li>Value added services</li> <li>24 extensions</li> </ul>	-	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	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.	5	Satara, Karad, Wai, Phaltan, Mahabaleshwar
13.	Lifebuoys	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.	200	Satara, Karad, Wai, Patan, Jawali, Mahabaleshwar
14.	Life Jackets	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.	200	Satara, Karad, Wai, Patan, Jawali, 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 workers, fire-fighters and others to provide breathable air in a toxic atmosphere.</i>	5	Nagarpalika - Satara, Karad, Mahabaleshwar, Wai and Phaltan
17.	Rubber Boats	<i>These are inflatable boat, which can be used in flood affected areas to rescue people.</i>	8	Wai, Karad, Patan, Mhaswad & Police Head Quarter
18.	Megaphones	<i>This is a portable, usually a hand-held, cone-shaped acoustic horn used to amplify an individual's voice to direct a community or to spread awareness through announcements during an emergency situation.</i>	50	Line Departments
19.	Search Lights	<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>	40	SDO, Tahsildar Office, Police Department, Nagarpalika
20.	Mini Fire Pumpers	<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>	1	Nagarpalika (Satara)
21.	Wood/Steel Cutter	<i>Device useful in cutting trees, wooden objects or steel or metal objects that act as an obstruction.</i>	16	Each Nagarpalika
22.	Solar Torch	<i>It is a portable device used in areas where power supply is unavailable or discontinued.</i>	4	Nagarpalika (Satara)
23.	Oxygen Cylinder with Mask	<i>Equipment which helps in supply of oxygen and helps in easy breathing.</i>	1	Nagarpalika (Satara)
24.	Hydraulic Jack	<i>Used to open shutters which are jammed due to various reasons</i>	1	Nagarpalika (Satara)

25.	Metal + Concrete Cutter	Used to cut Iron or Steel and Concrete in any Disaster	12	All Nagarpalika (Satara)
26.	Floating Pump	Used to remove the excess water of flood very quickly 700 litre per minute	24	All Nagarpalika (Satara)& NGO 4
27	Aluminium Foldable Stretchers	For Search and Rescue and in Accidental case	57	All Line dept.
28	Nylon Rope (75 mtr)	Used in For Flood prone villages and to restrict people big Fare	400	All Line dept.

Source: DDMA, Satara

Table 35 Information about sheds available for temporary relocation

S.No.	Taluka	Temporary shed location	Numbers of Shed
1	Satara	Mandve	12
		Morewadi	02
2	Jawali	Ghoteghar Ranjani	03
		Narfdev (Meruling)	02
		Dhanagarpedha (Morghar)	02
3	Patan	Jimanwadi	07
		Kalambe	01
		Sawarwadi	02
		Mharwand	07
		Borgewadi	01
		Kenjalwadi	02
		Masgudewadi	04
		Pabalwadi	01
		Batewadi	01
		Bhairewadi	01
		Koyna Nagar	152 *





Figure 15 Sheds for temporary relocation

Table 36 Information on available resources

No.	Equipments Details	Place
1	Inflatable Rubber boat (2+6+2) =10	Wai, Karad(3) ,Patan(2),Mhaswad NP, Police dept., Khandala, Mahabaleshwar
2	Floating Pump (2)	Karad and Satara NP
3	Mega Phone (50)	All SDO, Tahsildar, Police Dept, NP, & Health Dept.
4	Search Light ( 40 )	All SDO, Tahsildar off. Police Dept. NP
5	Life Boys & Life Jacket ( 40)	Patan, Karad, Satara, Mahabaleshwar, Wai, Jawli
6	B A (Breathing Apparatus) set ( 5 )	Nagarpalika
7	Rope Launcher ( 5)	NP: Satara, Karad, Wai, Phaltan, Mashwar

Table 37 Equipment Purchased in 2020 – 21

No.	Equipments Details	Place
1	Inflatable Rubber boat with OBM (6)	1. Rubber Rescue Boat with OBM (6) a) Karad – 02 Boats b) Patan – 02 Boats c) Police Head Quarter - 01 d) Mhaswad NP - 01  2.Sr. No. 2 to 14 – Equipments have been distributed to Revenue,Police, PWD,
2	Floating Pump (24)	
3	Mega Phone(66)	
4	LED Rechargeable Battery ( 180 )	
5	Life Jacket (180)	

6	<i>Aluminium Foldable Stretcher (57)</i>	<i>Nagarpalika, Highway Police of District Admin. and NGO's who are helping in Disaster to the District Administration.</i>
7	<i>Nylon Rope ( 400 Nos.75 Mtr each)</i>	
8	<i>Gum Boot (128)</i>	
9	<i>Fireman Helmet ( 145)</i>	
10	<i>Reflective Batton &amp; Jacket (125)</i>	
11	<i>Fire Resistance FR Suit (128)</i>	
12	<i>Floatable Stretcher ( 20 )</i>	
13	<i>Wood Cutter (15)</i>	
14	<i>Metal + Concrete Cutter (12)</i>	

*Table 38 Distribution of materials purchased at the district level in the year 2022-23*

<b>S.No.</b>	<b>Taluka</b>	<b>Villages prone to flooding</b>	<b>Villages prone to landslides</b>	<b>Multistretcher (8 each of the villages prone to landslides)</b>	<b>Floatable Stretcher ( 6 each of the villages prone to floods)</b>	<b>Leak Proof Multi Purpose Luggage Bag (each 2)</b>
1	BDO, Patan	32	50	400	192	164
2	BDO, Karad	54	0	54	324	108
3	BDO, Wai	16	18	144	96	68
4	BDO, Satara	35	10	80	210	90
5	BDO, Koregaon	5	0	5	30	10
6	BDO, Khandala	9	0	9	54	18
7	BDO, Phaltan	15	0	15	90	30
8	BDO, Mahabaleshwar	0	36	288	15	72
9	BDO, Jawali	0	10	80	15	20
10	Chief Officer, Patan Municipality	1	0	25	30	0
11	Chief Officer, Karad	1	0	25	40	0

	<i>Municipality</i>					
12	<i>Chief Officer, Wai Municipality</i>	1	0	10	20	0
13	<i>Chief Officer, Phaltan Municipality</i>	1	0	10	20	0
14	<i>Mahabaleshwar Trekkers</i>	0	0	8	10	2
15	<i>Sahyadri Trekkers</i>	0	0	8	10	2
16	<i>Shivendrasingh Raje Trekkers</i>	0	0	8	10	2
17	<i>Khandala/Shirval Rescue Team</i>	0	0	7	10	2
	<i>Total</i>	170	124	1176	1176	588

*Table 39 Material distribution details received from Maharashtra State Disaster Management Authority (SDMA) for Satara district in the year 2023 & 2024*

<i>S. No.</i>	<i>Items descriptions</i>	<i>No.</i>	<i>Place</i>
1	<i>Satellite Phone</i>	15	<i>Patan and Wai Subdivision</i>
2	<i>Beamless Inflatable tents</i>	12	<i>Police department</i>
3	<i>Inflatable tents</i>	15	<i>Fire department</i>
4	<i>Fire blanket</i>	9	

## 4. Institutional Arrangement for Disaster Management

Disaster management in Satara operates primarily under the state and district-level authorities, with the central government stepping in when the scale of a disaster exceeds local response capabilities. In such high-impact scenarios, the central government may deploy specialized emergency response teams, technical personnel, equipment, and logistical support. However, this national-level intervention is typically initiated only after a formal declaration of a national disaster.

To ensure a structured and coordinated response, the Disaster Management Act of 2005 (DM Act, 2005) provides the legal and institutional framework for disaster preparedness, mitigation, and response across all administrative levels.

### **Institutional Structure under the DM Act, 2005**

The Act establishes a three-tiered disaster management system:

#### **National Level:**

The National Disaster Management Authority (NDMA), chaired by the Prime Minister, formulates national policies and guidelines for disaster risk reduction and response.

#### **State Level (Maharashtra):**

The State Disaster Management Authority (SDMA), led by the Chief Minister, is responsible for implementing national guidelines and developing state-specific disaster management plans.

#### **District Level (Satara):**

The District Disaster Management Authority (DDMA) is chaired by the District Collector and co-chaired by an elected representative from the local governing body. The DDMA is the key authority for planning, coordinating, and executing disaster management activities within the district.

### **4.1. District Disaster Management Authority (DDMA)**

The District Disaster Management Authority (DDMA) of Satara has been constituted under the provisions of the Disaster Management Act, 2005, to ensure a structured and efficient approach to disaster preparedness, mitigation, response, and recovery at the district level.

The DDMA serves as the apex planning and coordinating body for disaster management in the district. It is responsible for formulating policies, overseeing implementation, and ensuring inter-departmental coordination during emergencies.

*Table 40 Structure of DDMA in Satara District*

<b>Sr. No.</b>	<b>Members</b>	<b>Designation</b>
<b>1</b>	<i>District Collector</i>	<i>Chairperson</i>
<b>2</b>	<i>President, Zilla Parishad</i>	<i>Co-chairpersons</i>
<b>3</b>	<i>Additional District Magistrate</i>	<i>Member Secretary</i>
<b>4</b>	<i>Chief Executive Officer, ZP</i>	<i>Member</i>
<b>5</b>	<i>Superintendent of Police</i>	<i>Member</i>
<b>6</b>	<i>District Civil Surgeon</i>	<i>Member</i>
<b>7</b>	<i>Executive Engineer PWD</i>	<i>Member</i>

<b>8</b>	<i>Executive Engineer Irrigation</i>	<i>Member</i>
<b>9</b>	<i>Home guard</i>	<i>Member</i>

## 4.2. Nodal departments for various hazards

*Table 41 Nodal Departments for different hazards*

<i>Department</i>	<i>Disaster Type</i>
<i>Revenue &amp; Disaster Management</i>	<i>Hydro-meteorological, geological &amp; biological disasters</i>
<i>Police</i>	<i>Road accidents, stampede, law and order</i>
<i>Irrigation</i>	<i>Flood, dam break</i>
<i>Health &amp; Family Welfare</i>	<i>Heat waves, chemical, biological, radiological &amp; nuclear disasters</i>
<i>Factories &amp; Boilers Department</i>	<i>Industrial accidents</i>
<i>Agriculture</i>	<i>Pest attacks, drought, flood, cyclone</i>
<i>Animal Husbandry</i>	<i>Cattle epidemics, biological disaster, flood, cyclone</i>
<i>Water Resources</i>	<i>Dam break</i>
<i>Public Works</i>	<i>Building and road collapse</i>
<i>Forests</i>	<i>Forest fire, landslides</i>
<i>Airport</i>	<i>Air accidents</i>
<i>Industrial Accidents</i>	<i>Directive of Industrial Safety and Health (DISH)</i>
<i>Port/Fisheries</i>	<i>Cyclone, storm surge, tsunami, boat accident, oil spill</i>
<i>Zilla Parishad</i>	<i>Flood, cyclone, landslide</i>
<i>Railway Division</i>	<i>Rail accidents</i>

## 4.3. District Disaster Management Committee (DDMC)

The District Disaster Management Committee (DDMC) of Satara, formed under the Disaster Management Act, 2005, plays a pivotal role in ensuring coordinated disaster preparedness and response. Chaired by the District Collector, the DDMC brings together key officials from various departments, local bodies, and civil society to assess disaster risks, evaluate vulnerabilities, and review the district's readiness. The committee is mandated to meet at least once a year to review ongoing mitigation efforts and recommend updates to the District Disaster Management Plan (DDMP). It also supports the formation of sub-committees and task forces at multiple levels to ensure decentralized planning and effective on-ground response. This structured approach ensures that Satara remains proactive and resilient in the face of diverse disaster threats.

*Table 42 Structure of District Disaster Management Committee in Satara District*

<i>The District Collector</i>	<i>Chairman</i>
<i>The District Superintendent of Police</i>	<i>Member</i>
<i>The Chief Executive Officer, Zilla Parishad</i>	<i>Member</i>
<i>The Additional Collector</i>	<i>Member</i>

<i>The Resident District Collector</i>	<i>Member-Secretary</i>
<i>The Chief Fire Officer</i>	<i>Member</i>
<i>The District Health Officer</i>	<i>Member</i>
<i>The District Agriculture Officer</i>	<i>Member</i>
<i>The District Animal Husbandry Officer</i>	<i>Member</i>
<i>The Civil Surgeon</i>	<i>Member</i>
<i>The Executive Engineer, PWD</i>	<i>Member</i>
<i>The Executive Engineer, Irrigation Department</i>	<i>Member</i>
<i>The Executive Engineer, Minor Irrigation Division</i>	<i>Member</i>
<i>The Executive Engineer, MSEDCL</i>	<i>Member</i>
<i>The Executive Engineer, MWSSB</i>	<i>Member</i>
<i>The District Education Officer</i>	<i>Member</i>
<i>The Divisional Manager, Railways</i>	<i>Member</i>
<i>The Regional Transport Officer</i>	<i>Member</i>
<i>The Regional Manager, MSRTC</i>	<i>Member</i>
<i>The District Publicity Officer</i>	<i>Member</i>
<i>The District Supply Officer</i>	<i>Member</i>
<i>The Local Station Director, AIR</i>	<i>Member</i>
<i>The Local Station Director, Doordarshan</i>	<i>Member</i>
<i>Asst. commissioner, Fisheries</i>	<i>Member</i>

#### 4.4. Coordination Structure at district level

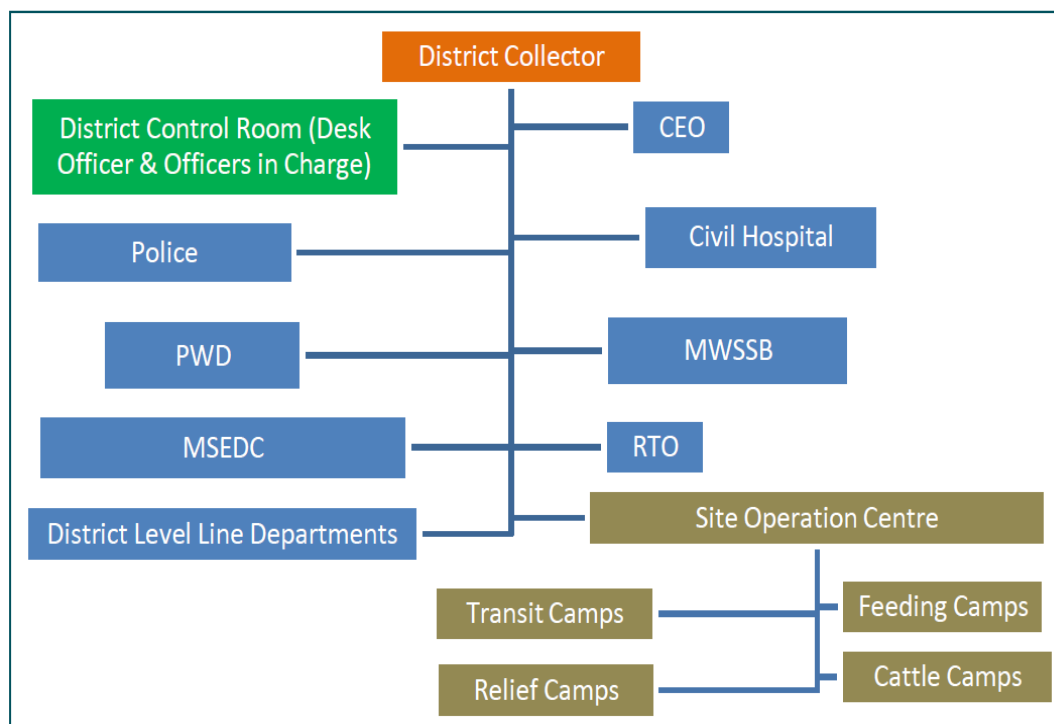


Figure 16 Coordination structure

## 4.5. Agencies competent for disseminating warnings/alerts

*Table 43 List of Agencies Competent for Disseminating Warnings/Alert in Satara District*

<b><i>Disaster</i></b>	<b><i>Agencies</i></b>
<b><i>Earthquakes</i></b>	<i>IMD, MERI</i>
<b><i>Floods</i></b>	<i>Meteorology Department, Irrigation Department</i>
<b><i>Drought</i></b>	<i>Meteorology Department, Irrigation Department</i>
<b><i>Cyclones</i></b>	<i>IMD, Fisheries, Port</i>
<b><i>Epidemics</i></b>	<i>Public Health Department</i>
<b><i>Road Accidents</i></b>	<i>Police</i>
<b><i>Industrial and Chemical Accidents</i></b>	<i>Industry, Police</i>
<b><i>Fires</i></b>	<i>Fire Brigade, Police</i>

In the event of a disaster or emergency in Satara, all warnings and notifications are promptly communicated to key authorities to ensure swift and coordinated action. These include the Chief Secretary, Relief Commissioner, and the Emergency Operations Centre at the state level, as well as the Divisional Commissioner's Office. At the district level, alerts are shared with all relevant officials, Municipal Councils, and central government representatives stationed in the district. Additionally, important non-official stakeholders such as the Guardian Minister, Mayor, Zilla Parishad President, Members of Parliament (MPs), and local defence services are also informed. This comprehensive communication strategy ensures that all critical decision-makers and responders are aware and can act without delay.



## 5. Prevention and Mitigation Measures

### 5.1. Prevention Measures

Preventing disasters or minimizing their impact is a cornerstone of effective disaster management in Satara. The District Disaster Management Plan (DDMP) outlines a comprehensive set of strategies aimed at reducing risks and strengthening community resilience:

- **Risk Identification and Hazard Mapping:** Conducting detailed assessments to pinpoint vulnerable zones and potential hazards across Satara, supported by GIS-based mapping tools.
- **Early Warning Mechanisms:** Establishing reliable and accessible early warning systems to alert communities in advance of impending disasters.
- **Regulated Construction and Land Use:** Enforcing building codes and land-use policies to prevent unsafe development in high-risk areas such as floodplains and landslide-prone zones.
- **Resilient Infrastructure Development:** Investing in disaster-resilient infrastructure, including roads, bridges, drainage systems, and public buildings, to withstand extreme events.
- **Environmental Protection:** Promoting afforestation, soil conservation, and sustainable land management to reduce the risk of landslides, droughts, and forest fires.
- **Community Education and Capacity Building:** Raising awareness through public outreach, school programs, and training workshops to empower citizens with knowledge and preparedness skills.
- **Emergency Preparedness Planning:** Developing and regularly updating emergency response plans that define roles, responsibilities, and coordination mechanisms among stakeholders.
- **Structural and Non-Structural Risk Reduction:** Implementing measures such as retrofitting critical infrastructure, identifying evacuation routes, and conducting regular mock drills.
- **Collaborative Governance:** Encouraging coordination among government departments, NGOs, private sector, and community groups to foster a unified approach to disaster risk management.
- **Ongoing Monitoring and Review:** Continuously evaluating risk scenarios and updating strategies based on new data, experiences, and technological advancements.

By prioritizing these proactive measures, Satara district aims to significantly reduce disaster risks, safeguard lives and livelihoods, and build a more resilient and prepared community.

### 5.2. Mitigation Measures

Mitigation refers to proactive measures taken to reduce the potential impact of natural and human-induced hazards. These actions aim to lower the vulnerability of communities, infrastructure, and ecosystems, thereby minimizing the severity and consequences of future disasters. The focus is on addressing not only the physical risks but also the economic and social vulnerabilities that make certain areas more susceptible to harm.



### 5.2.1. Structural Measures

Structural mitigation measures are vital for strengthening the disaster resilience of Satara district, particularly in reducing the impact of hazards on infrastructure, buildings, and communities. These measures involve the construction and reinforcement of physical structures designed to withstand natural disasters. Line departments in Satara should consider the following key strategies when planning and implementing structural mitigation:

- **Engineering-Based Solutions:** Adopt advanced engineering practices to design and build disaster-resilient infrastructure such as roads, bridges, public buildings, and flood control systems. These structures should be capable of withstanding hazards like floods, earthquakes, and landslides, which are relevant to Satara's terrain and climate.
- **Enforcement of Building Codes:** Ensure strict adherence to updated building codes and safety standards. This includes earthquake-resistant construction, flood-proofing, wind-resistant designs, and compliance with zoning regulations, especially in urbanizing areas of Satara.
- **Flood Management Infrastructure:** Construct and maintain flood mitigation structures such as levees, embankments, check dams, and stormwater drainage systems. Regular inspections and upkeep are essential to ensure these systems function effectively during heavy rainfall events.
- **Seismic Retrofitting:** Strengthen existing vulnerable buildings and infrastructure through retrofitting techniques. This may involve reinforcing foundations, adding bracing systems, and installing shock-absorbing devices to improve earthquake resilience.
- **Landslide Risk Reduction:** Implement slope stabilization measures in hilly regions of Satara, including retaining walls, rockfall barriers, and vegetation cover. Conduct landslide hazard mapping and integrate findings into land-use planning to avoid construction in high-risk zones.
- **Resilient Infrastructure Design:** Design critical infrastructure with built-in resilience features such as modular construction, flexible utility systems, and redundant lifelines to ensure continuity of services during and after disasters.
- **Community Involvement:** Engage local communities in the planning and implementation of structural mitigation projects. Their participation ensures that solutions are locally appropriate and widely accepted. Awareness campaigns can also promote safer construction practices and disaster preparedness.
- **Coastal and Environmental Protection:** While Satara is not a coastal district, environmental conservation remains crucial. Measures such as afforestation, watershed management, and soil erosion control help reduce the risk of secondary disasters like landslides and droughts.

By prioritizing these structural mitigation strategies, Satara can significantly reduce its vulnerability to natural hazards, protect critical infrastructure, and enhance the safety and resilience of its communities. However, these efforts must be complemented by non-structural measures such as early warning systems, land-use planning, and emergency preparedness to ensure a holistic approach to disaster risk reduction.

### 5.2.2. Non-Structural Measures

Non-structural mitigation measures are a vital component of Satara district's disaster risk reduction strategy, focusing on reducing vulnerabilities and enhancing resilience through policy, planning, education, and community engagement—without relying on physical infrastructure. These measures address the social, economic, environmental, and institutional dimensions of disaster management. Key considerations for implementation in Satara include:

- **Risk Assessment and Strategic Planning:** Conduct detailed risk assessments to identify hazard-prone areas, vulnerable populations, and exposure levels. Develop risk maps and hazard profiles to guide land-use decisions, development controls, and emergency planning.
- **Land-Use Regulation:** Enforce zoning laws and land-use plans that discourage development in high-risk zones such as floodplains, landslide-prone slopes, and seismic fault lines. Promote sustainable development practices that reduce exposure to hazards.
- **Public Awareness and Education:** Launch awareness campaigns and educational initiatives to inform residents about local risks, evacuation procedures, and preparedness actions. Empower communities to take ownership of their safety through knowledge and participation.
- **Early Warning Systems:** Establish and maintain multi-channel early warning systems using sirens, SMS alerts, social media, and local networks to ensure timely dissemination of alerts to at-risk populations.
- **Capacity Building and Training:** Organize training programs for government officials, first responders, community leaders, and volunteers. Equip them with the skills and tools needed for effective disaster preparedness, response, and recovery.
- **Livelihood Protection and Economic Resilience:** Encourage economic diversification and support alternative livelihoods to reduce dependence on climate-sensitive sectors. Promote small-scale enterprises and agricultural resilience to cushion the impact of disasters.
- **Environmental Management:** Conserve and restore natural ecosystems such as forests, watersheds, and wetlands that act as natural buffers against disasters. Promote eco-friendly practices to reduce environmental degradation and disaster risk.
- **Community-Based Disaster Risk Management (CBDRM):** Involve local communities in identifying risks, planning solutions, and implementing preparedness measures. Integrate traditional knowledge and local practices into formal disaster management plans.
- **Social Protection and Inclusion:** Implement targeted support programs for vulnerable groups including the elderly, children, persons with disabilities, and marginalized communities. Address social inequalities that heighten disaster vulnerability.
- **Institutional Coordination and Partnerships:** Strengthen collaboration among government departments, NGOs, academic institutions, private sector entities, and community organizations. Foster integrated and inclusive approaches to disaster risk reduction.

By emphasizing non-structural mitigation, Satara can build a culture of preparedness, reduce long-term vulnerabilities, and complement structural efforts to create a safer, more resilient

district.

### 5.3. Mitigation Strategy

The disaster risk reduction strategy for Satara district focuses on building a robust policy framework that emphasizes prevention, mitigation, and preparedness during the pre-disaster phase. The key initiatives include:

- **Establishment of a Mitigation Fund:** Creating a dedicated financial mechanism to support disaster mitigation projects and long-term risk reduction efforts within the district.
- **Awareness Generation:** Promoting widespread awareness of disaster risks and safety practices among citizens, institutions, and local governance bodies to foster a culture of preparedness.
- **Strengthening Preparedness through ICT:** Enhancing disaster readiness by improving access to and use of Information and Communication Technology (ICT) tools for early warning, coordination, and information dissemination.
- **Legislative and Regulatory Strengthening:** Developing and enforcing legal and regulatory instruments to ensure compliance with safety norms and disaster management protocols at all administrative levels.
- **Capacity Building and Risk Assessment:** Investing in training programs, vulnerability assessments, and post-disaster evaluations to build local capacity and improve response effectiveness.
- **Promotion of Disaster-Resilient Construction:** Encouraging the adoption of safe construction practices and enforcing building codes that support earthquake, flood, and landslide resistance across public and private infrastructure.
- **Support for Scientific Research:** Facilitating research on local hazards and disaster trends to build comprehensive databases, improve risk understanding, and guide evidence-based planning and mitigation.

By implementing these strategic actions, Satara district aims to significantly reduce disaster risks, enhance the resilience of its communities, and create a safer, more sustainable environment for all residents.

### 5.4. Disaster-Specific Mitigation Measures

#### 5.4.1.Flood

##### Pre-Flood Actions

- **Issuing Alerts:** Upon receiving flood warnings, the District Collector must immediately alert all police stations to initiate preparedness protocols.
- **Community Notification:** Tahsildars are responsible for informing residents in low-lying and vulnerable areas about potential flood threats.
- **Public Communication:** Use public address systems, SMS alerts, and local cable TV to disseminate timely and accurate information to the public.
- **Interdepartmental Coordination:** The Additional District Magistrate should coordinate with the Chief Medical Officer, District Health Officer, Rural Development Department, and District Education Authorities to ensure readiness.

- **Evacuation Measures:** Ensure complete evacuation of at-risk populations from flood-prone zones.
- **Relief Center Readiness:** Tahsildars must ensure that relief shelters are equipped with basic amenities, sanitation, and first aid to prevent disease outbreaks.

#### **Key Actions During Floods**

- **Road Safety:** Close roads that are prone to waterlogging and mark entry points from highways with names of affected villages and inundated areas.
- **Traffic Management:** Issue traffic suspension alerts to neighboring districts and provide advance warnings to prevent congestion on highways and district roads.
- **Railway Coordination:** Notify authorities, including the Divisional Railway Manager, about potential disruptions due to flooding, bridge damage, or submerged tracks.
- **Electrical Safety:** Disconnect power supply in flooded areas to prevent electrocution risks.
- **Real-Time Monitoring:** Maintain contact with Konkan Railway and other relevant agencies for real-time updates on the situation.

#### **Post-Flood Actions**

- **Debris and Sanitation:** Clear debris and dispose of animal carcasses to prevent the spread of disease.
- **Restoration of Services:** Re-establish communication networks, electricity, and transportation services as quickly as possible.
- **Health Interventions:** Launch vaccination drives to protect against waterborne diseases in affected communities.
- **Infrastructure Inspections:** Conduct thorough inspections of bridges and railway lines before reopening them to the public or allowing relief trains to operate.
- **Psychosocial Support:** Partner with NGOs and community-based organizations (CBOs) to provide psychological support to affected individuals.
- **Post-Disaster Review:** Carry out detailed post-disaster assessments to identify gaps, document lessons learned and improve future preparedness and mitigation strategies.

### **5.4.2.Drought**

#### **Pre-Drought Actions:**

- **Risk Assessments:** Conduct comprehensive risk assessments to identify areas prone to drought and their potential impacts.
- **Water Conservation:** Implement water conservation measures, such as rainwater harvesting, to ensure sustainable water use and storage.
- **Public Awareness:** Conduct awareness campaigns to educate residents about drought risks, water-saving practices, and emergency preparedness measures.
- **Drought-Resistant Crops:** Promote the cultivation of drought-resistant crops and sustainable agricultural practices to reduce vulnerability.
- **Infrastructure Development:** Develop and maintain infrastructure for water storage and distribution, such as reservoirs and irrigation systems.

- **Early Warning Systems:** Establish early warning systems to provide timely alerts about potential drought conditions.

#### **Actions During a Drought:**

- **Water Rationing:** Implement water rationing measures to ensure equitable distribution of available water resources.
- **Public Communication:** Use various communication channels to inform the public about water conservation measures and drought conditions.
- **Emergency Response Teams:** Mobilize emergency response teams to provide support and resources to affected communities.
- **Support for Farmers:** Provide assistance to farmers, such as subsidies for drought-resistant seeds and access to alternative water sources.
- **Monitoring and Reporting:** Continuously monitor drought conditions and report on water availability and usage to ensure effective management.

#### **Post-Drought Actions:**

- **Damage Assessment:** Conduct a comprehensive assessment of the damage caused by the drought to agriculture, water resources, and livelihoods.
- **Restoration of Water Sources:** Restore and replenish water sources, such as wells and reservoirs, to ensure long-term water availability.
- **Support for Recovery:** Provide financial and technical support to affected communities to aid in recovery and rebuilding efforts.
- **Review and Improve Plans:** Review the effectiveness of drought management plans and make necessary improvements based on lessons learned.
- **Community Engagement:** Engage with communities to develop long-term strategies for drought resilience and sustainable water management.

### **5.4.3.Landslide**

#### **Pre-Landslide Actions:**

- **Risk Mapping and Assessment:** Conduct detailed assessments to identify drought-prone areas in Satara and evaluate potential impacts on agriculture, water supply, and livelihoods.
- **Water Conservation Initiatives:** Promote sustainable water use through rainwater harvesting, watershed development, and efficient irrigation practices to build long-term water security.
- **Public Awareness Campaigns:** Educate communities about drought risks, water-saving techniques, and emergency preparedness through local outreach programs and media.
- **Promotion of Drought-Resilient Agriculture:** Encourage farmers to adopt drought-tolerant crop varieties and sustainable farming methods to reduce agricultural vulnerability.
- **Infrastructure Strengthening:** Develop and maintain water storage and distribution systems, including check dams, reservoirs, and irrigation canals, to ensure reliable water access.

- **Early Warning Systems:** Set up monitoring systems to detect early signs of drought and issue timely alerts to farmers and local authorities.

#### **Actions During a Landslide:**

- **Water Rationing and Management:** Implement equitable water distribution policies to ensure fair access to limited water resources across communities.
- **Public Communication:** Use local media, mobile alerts, and community networks to inform residents about drought conditions and conservation measures.
- **Emergency Response Mobilization:** Deploy response teams to provide immediate support, including water tankers, medical aid, and relief supplies to affected areas.
- **Farmer Support Programs:** Offer subsidies for drought-resistant seeds, access to alternative irrigation sources, and technical guidance to help farmers cope with crop stress.
- **Monitoring and Reporting:** Continuously track water availability, usage patterns, and drought severity to guide decision-making and resource allocation.

#### **Post-Landslide Actions:**

- **Impact Assessment:** Evaluate the extent of damage to agriculture, water sources, and livelihoods to inform recovery planning and compensation efforts.
- **Replenishment of Water Sources:** Restore and recharge wells, tanks, and reservoirs to rebuild water reserves for future use.
- **Recovery Assistance:** Provide financial aid, agricultural inputs, and technical support to help affected communities recover and rebuild.
- **Plan Review and Improvement:** Analyze the effectiveness of drought response efforts and update the district's drought management plan based on lessons learned.
- **Community Engagement for Resilience:** Involve local communities in developing long-term drought resilience strategies, including sustainable water management and climate adaptation practices.

### **5.4.4.Cyclone**

#### **Pre-Cyclone Actions**

- **Risk Assessment:** Identify cyclone-prone areas in Satara through detailed risk assessments, evaluating potential impacts on communities, infrastructure, and agriculture.
- **Early Warning Systems:** Establish and maintain reliable early warning systems to issue timely alerts to vulnerable populations using multiple communication channels.
- **Public Awareness Campaigns:** Educate residents about cyclone risks, evacuation procedures, and safety measures through local outreach, schools, and media.
- **Evacuation Planning:** Prepare evacuation plans by identifying safe shelters, mapping evacuation routes, and ensuring transportation readiness.
- **Infrastructure Reinforcement:** Retrofit critical infrastructure—such as public buildings, bridges, and communication towers—to withstand high winds and heavy rainfall.
- **Emergency Stockpiling:** Pre-position essential supplies including food, drinking water, medical kits, fuel, and emergency lighting in strategic locations.



- **Coordination Framework:** Set up coordination mechanisms among district departments, emergency services, and community organizations for unified action.

#### **Actions During a Cyclone**

- **Evacuation Execution:** Swiftly evacuate residents from high-risk zones to designated shelters using pre-identified routes and transport arrangements.
- **Alert Dissemination:** Activate early warning systems using sirens, loudspeakers, SMS, social media, and local networks to issue real-time updates and instructions.
- **Emergency Response Deployment:** Mobilize search and rescue teams, medical personnel, and first responders to assist affected individuals and manage emergencies.
- **Utility Shutdowns:** Temporarily suspend electricity, gas, and water supply in affected areas to prevent accidents and secondary hazards.
- **Traffic Control:** Close vulnerable roads and highways to ensure public safety and facilitate emergency operations.
- **Public Information Updates:** Provide continuous, accurate updates on cyclone status, safety instructions, and available support services.

#### **Post-Cyclone Actions**

- **Damage Evaluation:** Conduct a thorough assessment of damage to infrastructure, homes, utilities, and natural resources to guide recovery efforts.
- **Restoration of Services:** Prioritize the restoration of electricity, water supply, communication networks, and transportation routes.
- **Debris Removal:** Clear roads and public spaces of debris to enable relief operations and restore mobility.
- **Medical Support:** Deliver emergency medical care to the injured and facilitate their transfer to healthcare facilities.
- **Psychosocial Assistance:** Collaborate with NGOs and community groups to provide psychological support and counseling to affected individuals and responders.
- **Community Involvement:** Engage local communities in recovery planning to identify needs, set priorities, and build long-term resilience.
- **Post-Disaster Review:** Conduct evaluations to identify lessons learned, address preparedness gaps, and improve future cyclone response strategies.

### **5.4.5.Industrial Accidents**

#### **Pre-Accident Preparedness**

- **Hazard Identification and Risk Assessment:** Conduct detailed assessments to identify potential industrial hazards and vulnerable zones within Satara, especially near industrial clusters and densely populated areas.
- **Safety Protocol Enforcement:** Develop and strictly implement safety protocols for all industrial operations, including routine safety audits, inspections, and mock drills.
- **Workforce Training:** Organize regular training sessions for workers, supervisors, and plant managers on safety procedures, emergency response, and the proper use of personal protective equipment (PPE).
- **Emergency Response Planning:** Prepare site-specific emergency response plans that

include evacuation routes, communication protocols, and coordination mechanisms with local authorities.

- **Safety Infrastructure:** Ensure all industrial units are equipped with essential safety gear such as fire extinguishers, first aid kits, gas detectors, and emergency exits.
- **Public Awareness Initiatives:** Conduct awareness drives in nearby communities to educate residents about potential industrial risks and safety measures.

#### **Actions During an Industrial Accident**

- **Immediate Evacuation:** Quickly evacuate workers and residents from the danger zone to pre-identified safe shelters.
- **Activate Emergency Services:** Deploy fire brigades, medical teams, and hazardous material (HAZMAT) units to contain the situation and assist victims.
- **Hazard Containment:** Implement containment strategies to prevent the spread of toxic substances and minimize environmental damage.
- **Utility Shutdowns:** Temporarily suspend gas, electricity, and water supply in the affected area to prevent secondary incidents.
- **Public Communication:** Provide real-time updates and safety instructions to the public through loudspeakers, SMS alerts, and local media.
- **Medical Response:** Offer immediate medical care to the injured and transport them to nearby hospitals for further treatment.

#### **Post-Accident Recovery**

- **Damage and Impact Assessment:** Evaluate the extent of damage to infrastructure, the environment, and public health to guide recovery efforts.
- **Cleanup and Decontamination:** Initiate cleanup operations to safely remove hazardous materials and restore the area to a safe condition.
- **Restoration of Services:** Re-establish essential services such as electricity, water, and transportation in the affected zones.
- **Support for Affected Individuals:** Provide financial aid, rehabilitation support, and psychological counselling to affected workers and families.
- **Review and Improvement:** Analyze the incident response to identify gaps and update safety protocols and emergency plans accordingly.
- **Community Engagement:** Involve local communities in recovery planning, address their concerns, and promote long-term safety improvements.

### **5.4.6. Heatwave**

#### **Pre-Heatwave Actions**

- **Risk Identification:** Conduct detailed assessments to map heatwave-prone areas in Satara and evaluate their potential impact on health, infrastructure, and livelihoods.
- **Early Warning Systems:** Establish reliable early warning mechanisms to issue timely alerts to vulnerable communities using SMS, radio, and local networks.
- **Public Awareness Campaigns:** Launch educational initiatives to inform residents about heatwave risks, symptoms of heat-related illnesses, and preventive actions.



- **Cooling Centers:** Designate and prepare public buildings such as community halls and schools as cooling centers where people can find relief during extreme heat.
- **Hydration Facilities:** Set up hydration points in public spaces like markets, bus stands, and parks to ensure access to clean drinking water.
- **Health Surveillance:** Monitor the health of high-risk groups—such as the elderly, children, and those with chronic illnesses—through local health workers and clinics.
- **Heat-Resilient Infrastructure:** Promote the design and retrofitting of buildings and public spaces to improve ventilation, reduce heat absorption, and enhance thermal comfort.

#### **Actions During a Heatwave**

- **Public Communication:** Disseminate real-time information about the heatwave, safety tips, and available services through various media and community channels.
- **Hydration and Cooling Support:** Encourage people to stay indoors, stay hydrated, and use cooling centers. Distribute water and provide shaded rest areas in public zones.
- **Medical Response:** Activate health services to monitor and treat heat-related conditions. Set up temporary medical camps if needed.
- **Utility Management:** Ensure uninterrupted electricity and water supply to support cooling systems, fans, and hydration needs.
- **Community Outreach:** Mobilize local volunteers and support networks to check on vulnerable individuals and provide assistance where necessary.

#### **Post-Heatwave Actions**

- **Health Impact Review:** Conduct health assessments to identify and treat individuals affected by the heatwave and document health trends.
- **Plan Evaluation and Updates:** Review the effectiveness of the heatwave response and update preparedness plans based on feedback and observed gaps.
- **Community Feedback:** Collect input from residents to understand their experiences and improve future response strategies.
- **Infrastructure Enhancements:** Invest in long-term improvements such as green spaces, reflective roofing, and shaded public areas to reduce urban heat.
- **Ongoing Engagement:** Continue community education on heatwave preparedness and promote climate-resilient practices to build long-term resilience.

## **5.5. Risk insurance and Financing**

Incorporating risk financing and insurance mechanisms into Satara's disaster management framework is essential for ensuring financial resilience and enabling swift recovery after disasters. These tools help reduce the economic burden on communities and public systems by providing timely financial support.

#### **Key Components:**

- **Risk Financing Framework:** Satara district should develop a structured risk financing strategy that includes setting up dedicated contingency funds or risk pooling mechanisms to ensure immediate availability of resources for disaster response, relief,

and recovery.

- **Insurance for Public and Private Assets:** The district administration should explore insurance coverage for critical public infrastructure such as government offices, schools, hospitals, and utilities. Additionally, promoting insurance for farmers, small businesses, and households can protect livelihoods and reduce post-disaster economic stress.
- **Catastrophe Bonds and Reinsurance:** For large-scale disasters that exceed local financial capacity, Satara can collaborate with insurance and reinsurance companies to access catastrophe bonds and reinsurance arrangements, transferring part of the risk to global financial markets.
- **Risk-Based Premiums:** Conducting vulnerability assessments and using risk modeling tools will help determine appropriate insurance premiums and coverage limits, ensuring that policies are both affordable and effective.
- **Public-Private Partnerships (PPPs):** Strengthening partnerships between the district administration, private insurers, and financial institutions can lead to the development of customized insurance products that address local risks and community needs.
- **Community Awareness and Education:** Launching awareness campaigns to educate residents about the benefits of insurance and available risk financing options will encourage greater participation and preparedness at the grassroots level.
- **Efficient Claims Processing:** Establishing clear and streamlined procedures for filing claims, assessing damages, and disbursing payouts is crucial for ensuring timely financial assistance to affected individuals and businesses.

## 6. Preparedness Strategies

Preparedness plays a vital role in reducing disaster risks and minimizing the loss of life and property. It is a key component of the disaster management cycle, which also includes mitigation, response, and recovery. The District Disaster Management Plan (DDMP) for Satara is designed to safeguard the lives and assets of its residents by implementing a comprehensive, long-term safety framework. This plan outlines specific objectives and strategies aimed at building resilient communities capable of effectively responding to and recovering from disasters. The goal is to reduce casualties, injuries, and damage to infrastructure when hazards occur.

Preparedness involves a range of proactive measures that enable individuals, households, organizations, and communities to respond efficiently during emergencies. It ensures that essential resources are available and that responders are trained to use them effectively. In Satara, hazard analysis has revealed that the district, being a commercial and medium-scale industrial hub with major highways and a railway line, is particularly vulnerable to earthquakes, fires, and chemical explosions. While the district administration has taken several steps to enhance preparedness, there remains a pressing need for increased public awareness and community-level training. Strengthening community engagement and expanding training initiatives will help establish a more organized and responsive disaster management system. By focusing on these preparedness measures, Satara can build a robust and resilient framework that protects its people and infrastructure from potential hazards.

### 6.1. Administrative Preparedness:

A fully operational 24/7 District Control Room has been established at the Satara Collectorate, equipped with a communication system that connects directly to all Talukas. This setup ensures real-time coordination and rapid information flow during emergencies.

To strengthen community-level preparedness, local NGOs in Satara are actively engaged in disaster risk reduction and recovery initiatives. These organizations work closely with the district administration, particularly during emergencies, by assisting in search and rescue operations, shelter management, and the distribution of essential supplies to affected populations. Their grassroots presence and community trust make them vital partners in disaster response.

Furthermore, all district-level departments and relevant agencies regularly report their preparedness measures to the District Collector. This information is used to assess the overall readiness of each department and to coordinate effectively with the Emergency Operations Center, Relief Commissioner, and Divisional Commissioner. Such inter-agency coordination ensures a unified and efficient disaster response system across Satara.

### **Preparedness Checklist for Police**

(Filled in by the Department Head and submitted to the District Collector each six months)

Preparedness Checklist for Police Department in Satara

<b>Preparedness measures taken</b>	<b>Details/Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with the disaster response plan, and disaster response procedures are obviously defined.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills required during emergency operations are imparted to the officials and the staff.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment</li><li>• The post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>• Adequate warning mechanisms established for evacuation</li></ul>	
<ul style="list-style-type: none"><li>• An officer has been designated as a Nodal Officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of Materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

### **Preparedness Checklist for Public Health Department**

(Filled in by the Civil Surgeon and District Health Officer and submitted to the DCR every six months)

Preparedness Checklist for Public Health Department in Satara

<b>Preparedness measures taken</b>	<b>Details/Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with the disaster response plan, and disaster response procedures are obviously defined.</li></ul>	
<ul style="list-style-type: none"><li>• A plan for that private hospital's facilities, equipment and staff based on "The Guide to Health Management in Disasters has been developed.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken.</li><li>• Special skills required during disaster situations are imparted to the officials and the staff.</li></ul>	
<ul style="list-style-type: none"><li>• Hospital staff are aware of which hospital rooms/ buildings are damage -proof.</li></ul>	
<ul style="list-style-type: none"><li>• It was reviewed and updated. Preventive measures and procedures. The precautions that must be taken to protect equipment The post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>• All hospital staff have been informed about the possible disasters in the district, probably damages and effects and information about ways to protect life, equipment and property.</li></ul>	
<ul style="list-style-type: none"><li>• An area of the hospital was identified for receiving large numbers of casualties.</li></ul>	
<ul style="list-style-type: none"><li>• Emergency admission procedures with adequate record keeping developed.</li></ul>	
<ul style="list-style-type: none"><li>• Field staff oriented about DDMP &amp; Standards of services</li></ul>	
<ul style="list-style-type: none"><li>• Procedures for tagging</li></ul>	
<ul style="list-style-type: none"><li>• An officer has been designated as a Nodal Officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for response operations have been identified</li></ul>	

Reported by:

Designation:

Signature:

Date:

**Preparedness Checklist for MSEB**

(Filled in by the Department Head and submitted to the District Collector every six months.)

**Preparedness Checklist for MSEB in Satara**

<b>Preparedness measures taken</b>	<b>Details/Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with the disaster response plan, and disaster response procedures are clear.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills required during emergency operations are imparted to the officials and the staff.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment</li></ul>	
<ul style="list-style-type: none"><li>• An officer has been designated as Nodal Officer for Disaster Management</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for operations have been identified</li></ul>	

Reported by:

Designation:

Signature:

Date:

**Preparedness Checklist for Maharashtra Jeevan Pradhikaran (MJP)**

(Filled in by the Department Head and submitted to the District Collector each six months)

Preparedness Checklist for Maharashtra Jeevan Pradhikaran (MJP) in Satara

<b>Preparedness Measures Taken</b>	<b>Details / Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with disaster response, and</li><li>• disaster response procedures are clear.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills required during emergency operations are imparted to the officials and the staff.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment</li></ul>	
<ul style="list-style-type: none"><li>• Adequate warning mechanisms for informing people to store an emergency drinking water supply have been developed.</li></ul>	
<ul style="list-style-type: none"><li>• Procedures established for the emergency distribution of water if the existing supply is</li></ul>	
<ul style="list-style-type: none"><li>• An Officer has been designated as a Nodal officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:



### Preparedness Checklist for Irrigation Department

(Filled in by the department and submitted to the District Collector each six months)

Preparedness Checklist for Irrigation Department in Satara

Preparedness measures taken	Details /Remarks
<ul style="list-style-type: none"><li>The department is familiar with the disaster response plan, and disaster response procedures are obviously defined.</li></ul>	
<ul style="list-style-type: none"><li>Orientation and training for disaster response plans and procedures undertaken</li><li>Special skills required during emergency operations are imparted to the officials and staff.</li></ul>	
<ul style="list-style-type: none"><li>Reviewed and updated</li><li>Preventive measures and procedures</li><li>The precautions to be taken to protect equipment the post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>Flood monitoring mechanisms can be activated in all flood-prone areas starting on the first of June.</li></ul>	
<ul style="list-style-type: none"><li>All staff are aware of precautions to protect their lives and personal property.</li></ul>	
<ul style="list-style-type: none"><li>Each technical assistant has instructions and knows operating procedures for disaster conditions.</li></ul>	
<ul style="list-style-type: none"><li>The method of monitoring and impounding the levels in the tanks evolved.</li><li>Methods of alerting officers on other dam sites and the district control room established forewarning settlements in the downstream evacuation coordination with other dam authorities.</li></ul>	
<ul style="list-style-type: none"><li>An officer has been designated as a Nodal Officer for Disaster Management</li></ul>	
<ul style="list-style-type: none"><li>Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

### **Preparedness Checklist for Telecommunications**

(Filled in by the Department Head and submitted to the District Collector each six months)

Preparedness Checklist for Telecommunications in Satara

<b>Preparedness measures taken</b>	<b>Details/Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with disaster response, and disaster response procedures are clear.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills required during emergency operations are imparted to the officials and the staff.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment the post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>• An officer has been designated as Nodal Officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

### **Preparedness Checklist for PWD**

(Filled in by the Department Head and submitted to the District Collector every six months)

Preparedness Checklist for PWD in Satara

<b>Preparedness Measures taken</b>	<b>Details/ Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with the disaster response plan, and disaster response procedures are clearly defined.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills required during emergency operations are imparted to the officials and staff.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment</li><li>• The post-disaster procedures to be followed.</li></ul>	
<ul style="list-style-type: none"><li>• All officers are familiar with pre-disaster precautions and post-disaster procedures for road clearing and defining safe evacuation routes where necessary.</li></ul>	
<ul style="list-style-type: none"><li>• An officer has been designated as a Nodal Officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

### **Preparedness Checklist for the Agriculture Department**

(Filled in by the Department Head and submitted to the District Collector every six months)

Preparedness Checklist for Agriculture Department in Satara

<b>Preparedness Measures taken</b>	<b>Details/Remarks</b>
<ul style="list-style-type: none"><li>• The department is familiar with the disaster response plan, and disaster procedures are obviously defined.</li></ul>	
<ul style="list-style-type: none"><li>• Orientation and training for disaster response plans and procedures undertaken</li><li>• Special skills are required for the officials and the staff during emergency operations.</li></ul>	
<ul style="list-style-type: none"><li>• Reviewed and updated</li><li>• Preventive measures and procedures</li><li>• The precautions to be taken to protect equipment the post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>• Information was provided to all concerned about the</li><li>• disasters, probably damages to crops and plantations, and information about ways to protect the same.</li></ul>	
<ul style="list-style-type: none"><li>• The NGOs and other relief organizations are informed about the</li><li>• department's resources</li></ul>	
<ul style="list-style-type: none"><li>• An Officer has been designated as a Nodal Officer for</li><li>• Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>• Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

### Preparedness Checklist for Animal Husbandry Department

(Filled in by the Department Head and submitted to the District Collector each six months)

Preparedness Checklist for Animal Husbandry Department in Satara

Preparedness measures taken	Details / Remarks
<ul style="list-style-type: none"><li>The department is familiar with disaster response plans, and disaster response procedures are obviously defined.</li></ul>	
<ul style="list-style-type: none"><li>Orientation and training for disaster response plans and procedures undertaken</li><li>Special skills are required for the officials and staff during emergency operations.</li></ul>	
<ul style="list-style-type: none"><li>Reviewed and updated</li><li>Preventive measures and procedures</li><li>The precautions to be taken to protect equipment</li><li>The post-disaster procedures to be followed</li></ul>	
<ul style="list-style-type: none"><li>Hospital staff are aware of which hospital rooms /buildings are damage-proof.</li></ul>	
<ul style="list-style-type: none"><li>All veterinary hospitals and centers staff have been informed about the possible disasters, likely damages and effects and information about ways to protect life, equipment and property</li></ul>	
<ul style="list-style-type: none"><li>An area of the hospital was identified for receiving large numbers of livestock.</li></ul>	
<ul style="list-style-type: none"><li>Emergency admission procedures with adequate recordkeeping were developed.</li></ul>	
<ul style="list-style-type: none"><li>An officer has been designated as a Nodal Officer for Disaster Management.</li></ul>	
<ul style="list-style-type: none"><li>Sources of materials required for response operations have been identified.</li></ul>	

Reported by:

Designation:

Signature:

Date:

## **6.2. Inventory and Evaluation of Resources**

An accurate inventory and regular evaluation of resources are fundamental to ensuring effective disaster preparedness and response in Satara district. This process involves systematically identifying, cataloguing, and assessing all available resources—ranging from personnel and emergency equipment to medical supplies and shelter facilities. By maintaining a clear understanding of what is available and where it is located, the district can respond more efficiently during emergencies.

Key actions include resource mapping, which involves a comprehensive survey of all critical assets such as emergency response teams, hospitals, ambulances, relief shelters, and stockpiles of essential supplies. In addition, regular audits must be conducted to verify the condition, accessibility, and operational readiness of these resources. This ensures that they can be deployed without delay when needed. Finally, the district should develop and routinely update resource mobilization plans that outline procedures for the rapid deployment and coordination of resources during disaster situations. These plans should be integrated with the District Disaster Management Plan (DDMP) to ensure a cohesive and timely response.

## **6.3. Community Awareness and Education**

In Satara district, local NGOs are actively involved in strengthening disaster preparedness and recovery at the grassroots level. These organizations play a crucial role in community capacity building, focusing on equipping residents with the knowledge and tools needed to respond effectively during crises. Their collaboration with the district administration is particularly strong during disaster events, where they contribute significantly to response management activities such as search and rescue operations, shelter coordination, and the distribution of essential supplies to affected populations.

To further enhance community resilience, the District Disaster Management Authority (DDMA) has implemented a range of awareness and preparedness programs. These initiatives are conducted not only at the community level but also in schools and colleges, aiming to instill a culture of safety and preparedness among students and youth. This multi-stakeholder approach ensures that disaster risk reduction efforts are inclusive, sustainable, and deeply rooted in local communities.

## **6.4. District-wise IEC plan based on hazard calendar**

Information, Education, and Communication (IEC) is a powerful and essential component of disaster management in Satara district. It serves as a key tool for raising public awareness, shaping attitudes, and promoting responsible behavior before, during, and after disasters. Through targeted IEC campaigns, communities are better informed about potential hazards, safety protocols, and preparedness measures. These efforts encourage active participation from all stakeholders, including local residents, schools, institutions, and civil society organizations. The overarching goal of IEC is to minimize the loss of life, protect property and livelihoods, and reduce environmental damage by fostering a culture of preparedness and resilience across the district.

### 6.4.1.Key Focus Areas for the effectiveness of IEC material

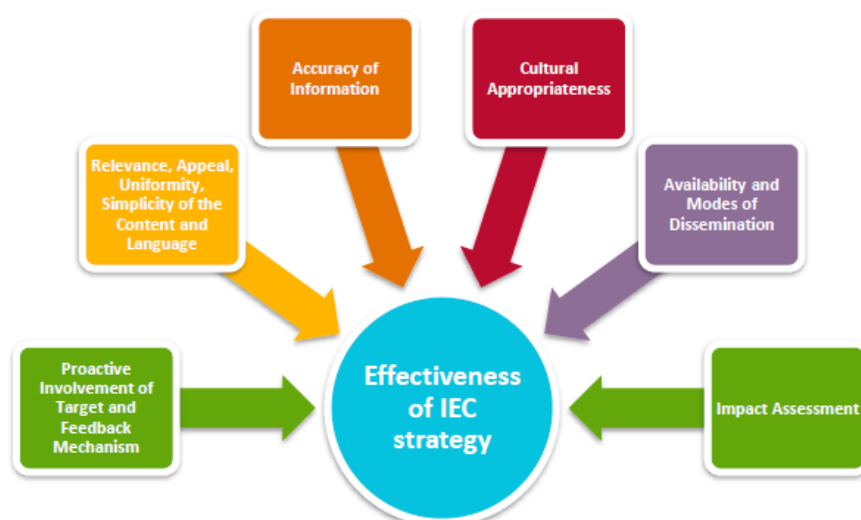


Figure 17 Effectiveness of IEC materials

### 6.4.2.Vulnerable Individuals/Groups and Alternative IEC

Table 44 List of Vulnerable Groups & Related Issues

No.	Vulnerable Group	Barrier (generally multiple barriers)	Alternatives
1	Illiterate	Cannot access IEC in literary form	Audio-visual content like videos, audio, and pictorial material
2	People with visual impairment	Cannot access IEC in literary and visual formats	Audio, Braille Handbook, screen reading software, audio description, DAISY
3	Gender-based (women, LGBTQ+)	Social, technological, literary	Specialized human interactions
4	Children (different age groups: 1-6, 7-12 yrs)	Physical and psychological	Specialized human interactions
5	Communities with special needs (intellectual, speech, & hearing impairments)	Multiple barriers	Specialized human interactions
6	People living in remote and inaccessible locations	Technological, infrastructural	Specialized human interactions
7	Linguistic & cultural groups	Language	IEC in the local language
8	Nomadic/Migratory groups	Unstable routine and other barriers (cultural, linguistic, literary)	Specialized human interactions



### 6.4.3.Important Days in Maharashtra

Table 45 List of Important Days in Maharashtra

No.	Day	Date	Significance	Tentative Topic
1	Balika Din	03-Jan	Birth anniversary of Savitribai Phule	Gender Inclusive Disaster Management
2	Patrakar Din	06-Jan	Birth anniversary of Balshastrri	Role of Media in Disaster Management
3	Sinchhan Din	26-Feb	In memory of	Water security, Drought, Sustainable Water Management
4	Marathi Rajbhasha Din	27-Feb	Birth Anniversary of Kusumagraj (VV Shirvadkar)	Language access in emergency and disaster preparedness Language as a Tool for Disaster Management Importance of IEC in Local Language
5	Udyog Din	10-Mar	In memory of Laxmanrao Kirloskar	Entrepreneurship in Disaster Management The Role of Disaster Entrepreneurship in Disaster Risk Reduction Role of Businesses, MSMEs in DRM Disaster Risk Management and the Role of the Corporate Sector BCM, ESG, CSR role in DRM
6	Samata Din	12-Mar	Birth anniversary of Yashwantrao Chavan	Diversity, equity-focused DRM Inclusive Disaster Risk Management
7	Shikshak Hakk Din (Teacher's Rights Day)	11-Apr	Birth anniversary of Mahatma Phule	Role of Teachers and Educators in DRM
8	Dyan Diwas (knowledge day)	14-Apr	Birth anniversary of Dr. B. R. Ambedkar	Role of Education in DRM Role of Research and Dissemination in Strengthening DRM Role of Educational Institutions in Disaster Knowledge Creation
9	Maharashtra Day	01-May	Also, an international Labor Day	Resilient Maharashtra: from present to future for all Labor Safety Industrial Disasters, including mining

10	Samajik Nyay Din (Social Justice Day)	26-Jun	Birth anniversary of Shahu Maharaj	Role of Leadership in Disaster Management Grassroots leadership and DRM Social and Environmental Justice Disaster Justice Social Inclusion and DRM
11	Krishi Din	01-Jul	Birth anniversary of Vasantrao Naik	Agriculture-related disasters and relevant topics, soil erosion, Sustainable Agriculture, natural farming, Climate-resilient farming, etc
12	Shetkari Din	29-Aug	In memory of Karmavir Bhaurao Patil Vitthalrao Vikhe Patil	Empowering farmers for DRM Relevant schemes, programmes and interventions
13	Shram Pratishtha Din	22-Sep	In the memory of Karmavir Bhaurao Patil	
14	Rajya Mahiti Adhikar Din	28-Sep	Awareness about the Right to Information	EWS, EWDS, Database management and mapping.
15	Rangbhumi Din	05-Nov	Birth anniversary of Vishnudas Bhawe	Indigenous community, culture, traditions and DRR Role of Dance, Drama and other cultural activities in disaster Awareness Role of Art in Disaster mental Health and providing Psycho-social Support
16	Vidyarthi Din (Student Day in Maharashtra)	07-Nov	In memory of Dr. B. R. Ambedkar	Child Centric DRR, School Safety, Role of School Students in Disaster Management Disaster Management in Schools
17	Jaiv Tantradyan Din	14-Nov	Biotechnology Day	Biohazards, pest attacks, pandemics, etc

#### 6.4.4. Fiesta: Fostering Fortitude- A campaign to implement IEC interventions on festivals, reducing the risk of disasters.

Festivals in Maharashtra, including those in Satara district, carry cultural importance but also pose specific risks such as fires, stampedes, and traffic congestion. Disseminating IEC materials during these events can raise awareness and promote safety, helping to reduce disaster risks while preserving the festive spirit.

Table 46 List of Festival & Related IEC

No.	Festival	The focus of IEC Material
1	Ganesh Chaturthi	Drowning, Fire, Stampede
2	Navratri and Dussehra or Vijayadashami	Fire, Stampede
3	Diwali	Fire
4	Janmashtami	Stampede
5	Ram Navami and Hanuman Jayanti	Stampede
6	Gudi Padua or Chaitra Pratipada: The Harvest Festival of Maharashtra	Stampede
7	Ramzan-Id (Id- Ul -Fitr), Bakri-Id (Id- Ul -Zuha)	Stampede
8	Narali Purnima	Drowning
9	Makar Sankranti	Accidents
10	Ashadhi Ekadashi	Stampede, Landslide, flood
11	Holi	Water-related

### 6.4.5. Special events can be organized on significant dates

List of Previous Major Disaster in Maharashtra and India (Not a complete list)-

- Malin Landslide, 2014
- 26/11 Terrorist Attack
- Mumbai Flood 2005
- Latur Earthquake 1993
- Cyclone Nisarga, Tauktae, Phailin, etc.
- Mandhera Devi temple stampede, 2005
- Kumbh Mela Stampede, 2003
- Irshalwadi Landslide, 2023
- Marathwada drought, 1972
- Bhopal Gas Tragedy, 1984
- Jammu and Kashmir Earthquake, 2015
- Balasore Train accident, 2023
- Chasnala mining disaster, 1975

## 6.5. Go-NGO Coordination

In accordance with Sections 35 and 38 of the Disaster Management Act and guided by the National Policy on Disaster Management (NPDM), collaboration with NGOs is recognized as a vital component of effective disaster management in Satara district. The NPDM emphasizes the importance of community-based disaster management (CBDM), which integrates planning, policy implementation, and early warning systems at the grassroots level.

In Satara, building strong partnerships with NGOs and Community-Based Organizations (CBOs) is central to enhancing disaster preparedness and response. These organizations bring valuable local knowledge, community trust, and operational flexibility, making them key allies

in awareness campaigns, capacity-building efforts, and emergency response.

To strengthen this collaboration, there is a need to reinforce institutional mechanisms that facilitate regular engagement between NGOs and government agencies. Encouraging the replication and scaling up of successful community-led initiatives will further contribute to building a resilient and well-prepared Satara. By leveraging the strengths of humanitarian networks and promoting inclusive participation, the district can significantly improve its disaster risk reduction outcomes.

In Satara district, there are around 14 identified NGOs and the coordination mechanism between Government Organizations (GOs) and Non-Governmental Organizations (NGOs) for disaster management is well-established and plays a crucial role in various phases of the Disaster Management (DM) cycle. The NGOs participate in no. of government activities of disaster management which are as follows:

### **Coordination Mechanism**

#### **❖ Search and Rescue Operations**

- **Emergency Response:** During emergencies, such as natural disasters, NGOs collaborate closely with district authorities to provide immediate search and rescue operations. They bring in specialized skills and trained personnel to assist in locating and rescuing affected individuals.
- **Resource Mobilization:** NGOs often have access to additional resources and can mobilize volunteers quickly, enhancing the overall response capacity of the district.

#### **❖ Preparedness Phase**

- **Crowd Management:** During the annual festival like Palkhi procession, which attracts large crowds, NGOs work with district authorities to ensure safety and preparedness. They help in crowd management, setting up medical aid stations, and providing information to pilgrims about safety measures.
- **Early Warning Systems:** NGOs assist in setting up and maintaining early warning systems. They help disseminate information to the community about potential hazards and the necessary precautions to take.

#### **❖ Mitigation Measures**

- **Public Awareness Campaigns:** NGOs run campaigns to raise awareness about disaster risks and the importance of mitigation measures. They use various media platforms to reach a wider audience and educate them on how to reduce their vulnerability to disasters.

## ❖ Recovery and Rehabilitation

- **Post-Disaster Support:** After a disaster, NGOs provide essential services such as distributing relief materials, setting up temporary shelters, and offering psychological support to affected individuals.

### 6.5.1. GO-NGO Coordination Strategy

A clearly defined communication protocol is essential for ensuring smooth coordination between government agencies and NGOs during disaster situations in Satara district. This protocol helps streamline the flow of information, ensures timely decision-making, and enhances the overall efficiency of response operations.

#### **Key actions include:**

- **Establishing Communication Channels:** Multiple communication modes—such as mobile phones, email, radio, and messaging platforms—should be set up to maintain uninterrupted and reliable contact between GOs and NGOs throughout the emergency.
- **Defining Information Flow:** The protocol should clearly outline what types of information need to be shared (e.g., situation updates, resource needs, response actions), how frequently updates should be provided, and which agencies or individuals are responsible for sending and receiving information.
- **Standardized Reporting Mechanisms:** Implementing uniform reporting formats and timelines will help ensure that all stakeholders receive accurate, consistent, and timely updates. This includes situation reports, resource status, and field-level feedback.

By institutionalizing this communication framework, Satara can significantly improve coordination and collaboration between all response partners, leading to more effective disaster management outcomes.

### 6.5.2. GO-NGO Communication Protocol During Emergencies

Effective communication between government organizations (GOs) and non-governmental organizations (NGOs) is critical for a well-coordinated emergency response in Satara district. To ensure smooth collaboration, the following communication protocol should be followed:

- **Focal Point Identification:** Designate specific individuals within both GOs and NGOs to act as primary communication contacts during emergencies.
- **Contact Information Exchange:** Share updated contact details, including mobile numbers, email addresses, and other relevant communication tools, between all focal points.
- **Multi-Channel Communication:** Establish multiple real-time communication channels such as phone calls, SMS, emails, and instant messaging platforms (e.g., WhatsApp or Signal) to ensure redundancy and reliability.
- **Emergency Communication Platform:** Set up a centralized and secure platform or system for sharing alerts, updates, and critical information efficiently among all stakeholders.
- **Regular Coordination Briefings:** Schedule routine briefings between GOs and NGOs to exchange situational updates, discuss operational strategies, and assess resource needs.

- **Timely Threat Updates:** Ensure that all partners receive prompt information on emerging hazards, risks, and developments to support informed decision-making and rapid response.
- Facilitate the exchange of critical information, data, and insights between Government Organizations (GO) and Non-Governmental Organizations (NGOs) to support well-informed decisions and coordinated emergency responses.
- Promote transparency and openness in communication, while ensuring the protection of confidential and sensitive information.
- Organize regular coordination meetings, either face-to-face or online, to review response strategies, allocate resources, and resolve operational issues.
- Engage key stakeholders—including officials from relevant government departments, NGO representatives, community leaders, and other partners—in these coordination meetings.
- Collaborate on resource mobilization to ensure that available resources are allocated and used efficiently across all responding entities.
- Share up-to-date information on available human resources, equipment, infrastructure, and facilities to identify gaps and prevent duplication of efforts.
- Encourage joint decision-making, ensuring that both GO and NGOs have equal opportunities to contribute to planning and implementation.
- Build consensus on priorities, action plans, and resource distribution based on the needs identified through assessments and community feedback.
- Coordinate the delivery of emergency alerts, warnings, and public messages to affected populations using diverse communication platforms.
- Ensure message consistency and accuracy across all communications from GO and NGOs to minimize confusion and misinformation.

### 6.5.3. List of NGOs/CBOs

*Table 47 List of NGO & CBO*

<i>S.No.</i>	<i>Name of the organisation</i>	<i>Telephone No.</i>	<i>Mobile No.</i>
<i>1</i>	<i>Sahyadri Adventure Trackers, Mahabaleshwar, Sanjay Parthe</i>	<i>02168-217765</i>	<i>9421208702 8275929314</i>
<i>2</i>	<i>Mahabaleshwar Adventures Trackers Association, Anil Kelghane, Bhatiya Baba</i>	<i>9403546490</i>	<i>8605709007 8408809005</i>
<i>3</i>	<i>Khandala Rescue Team (Pargaon Khandala), Anand Gulumkar</i>	<i>9689026008 8378043824</i>	<i>8180927700 9822008093</i>
<i>4</i>	<i>Shivendraraje Rescue team, Satara – Chandrasen Pawar</i>	<i>8308232369</i>	<i>8888888063</i>
<i>5</i>	<i>Shirwal Rescue Team, Shirwal</i>		<i>8007901786 9890079216</i>
<i>6</i>	<i>Pratapgad Search and Rescue Team, Pratapgad - Ajit Jadhav</i>		<i>9420023241</i>
<i>7</i>	<i>Anirudha Upsana Trust Satara Branch, Sandip Yaydande</i>	<i>9881031744, 9881882380</i>	<i>9860016888</i>

<b>8</b>	<i>Health Army, Arogya Sena, Satara City</i>		<i>9822057561</i>
<b>9</b>	<i>Chava Yuwa Munch, Atit, Taluka Satara, Uday Yadav</i>	<i>02162-262188</i>	<i>9850938788</i>
<b>10</b>	<i>Balaji Charitable Trust, Powai Naka, Satara, Rajendra Chorge</i>	<i>02162-232998</i>	<i>9422038089</i>
<b>11</b>	<i>Anirudha Bapu Trust, Tal. Wai</i>	<i>02167-220091, 220248</i>	<i>9850402699</i>
<b>12</b>	<i>Lions Club, Satara</i>	<i>9850392174</i>	<i>8888498872</i>
<b>13</b>	<i>Rotary Club, Koregaon</i>	<i>02163-222881, 220329</i>	<i>9423032582</i>
<b>14</b>	<i>Lions Club, Karad.</i>	<i>02164-220422</i>	<i>9822265629</i>

*Source: DDMA, Satara*



## 7. Capacity Building and Training Measures

According to the Disaster Management Act (2005), capacity-building in Satara District focuses on reducing disaster risks and enhancing community safety by strengthening resilience and improving the ability to respond effectively. This involves identifying existing resources and developing or acquiring additional ones as needed. A key aspect of capacity-building is organizing structured training programs for government officials, first responders, community leaders, and volunteers. These training courses are coordinated to ensure consistency and effectiveness across departments.

The District Collector (Deputy Commissioner) is responsible for overseeing all capacity-building initiatives across the district, while Heads of Departments are tasked with enhancing the disaster management capabilities within their respective sectors. The District Disaster Management Authority (DDMA) plays a central role in this process by conducting workshops, simulation exercises, and mock drills to test preparedness and improve response mechanisms. Public awareness campaigns are also organized to educate communities about potential hazards and preventive measures. These campaigns use community meetings, mass media, and the distribution of Information, Education, and Communication (IEC) materials to schools, colleges, government offices, and rural areas.

To foster community engagement, the DDMA hosts events such as marathons, slogan-writing contests, and painting competitions, encouraging participation from diverse groups including youth and women. Specialized training is also provided to masons and engineers to promote disaster-resilient construction practices. Additionally, the DDMA collaborates with NGOs, civil society organizations, academic institutions, and private sector entities to leverage their expertise and resources. This multi-sectoral approach ensures a coordinated and comprehensive strategy for building disaster resilience in Satara District.

### 7.1. Training and Capacity Building

The capacity analysis approach in Satara District should adopt a comprehensive framework that spans short-term, medium-term, and long-term perspectives. This approach must address both policy-level and operational-level needs, ensuring that capacity-building efforts are strategic, sustainable, and responsive to evolving challenges. A multifaceted methodology is essential to assess existing capabilities, identify gaps, and implement targeted interventions.

Training initiatives should be designed to bridge these identified capacity gaps. Leveraging local expertise within the district is crucial for contextual relevance and effective delivery. These programs should be inclusive and tailored to the specific roles and responsibilities of different stakeholders.

At the policy level, training should focus on officials from the District Disaster Management Authority (DDMA) and other key decision-makers. These sessions should emphasize strategic planning, policy formulation, and inter-agency coordination.

## 7.2. Roles and Responsibilities of the Departments for Capacity Building

### Revenue & Disaster Management Department:

The Revenue & Disaster Management Department in Satara plays a pivotal role in ensuring the district's preparedness and response capabilities in the face of natural and man-made disasters. The following initiatives are essential to strengthening disaster resilience:

- Ensure full operational readiness of the District Emergency Operations Center (DEOC) by maintaining its functionality round-the-clock, especially during high-risk periods.
- Conduct regular training programs for DEOC personnel to enhance their technical skills, coordination abilities, and situational awareness.
- Equip the DEOC with critical emergency tools, including updated hazard maps, communication systems, and essential response resources to support real-time decision-making.
- Develop a specialized response workforce trained in mountain rescue, swimming, diving, and boat operations, considering Satara's geographical terrain and its popularity as a tourist destination.
- Provide hands-on training to rescue teams in first aid, search and rescue operations, and basic life-saving techniques to ensure swift and effective response during emergencies.
- Maintain a centralized and regularly updated database of trained personnel across various disaster management functions within the district administration.
- Ensure the availability and timely replenishment of essential emergency supplies, such as search and rescue kits, first aid materials, public address systems, blankets, tarpaulins, and other relief items.
- Train revenue officers at the grassroots level in basic first aid and search and rescue techniques to empower them as first responders in their respective areas.
- Establish a dedicated District Disaster Response Force (DDRF) modeled on the National Disaster Response Force (NDRF), equipped and trained to respond swiftly to disasters across the district.

In Satara district, recently a training program and public awareness program focusing on search and rescue have been organized by DDMA Satara in collaboration with NDRF in flood-prone and landslide-prone talukas from 1 to 15 May 2025.



Figure 18 Training and awareness programme in Satara District

**Police department, Home Guards, Civil Defense & Fire Services:**

- To strengthen disaster preparedness and response in Satara, the Police Department, Home Guards, Civil Defence, and Fire Services undertake the following initiatives:
- Maintain a comprehensive district-level database of police personnel trained in disaster management, ensuring their skills are documented and accessible for deployment during emergencies.
- Provide continuous training to police personnel to enhance their capabilities in using modern disaster response techniques and technologies, particularly for search and rescue (SAR) operations.
- Organize refresher training programs for district police officials under the guidance of the Maharashtra State Police and the National Disaster Response Force (NDRF), ensuring alignment with national standards.
- Train specialized teams in psycho-social care, especially those involved in preventing human trafficking, which tends to rise in the aftermath of disasters.
- Ensure the availability and maintenance of SAR equipment for all disaster response teams, enabling timely and effective interventions.
- Conduct volunteer training programs covering key areas such as:
  - Search and rescue (SAR)
  - First aid
  - Traffic and crowd management
  - Dead body handling
  - Evacuation and shelter management
  - Mass care operations
- Equip Home Guards units with essential SAR tools and gear, enabling them to respond effectively to emergencies across the district.
- Carry out regular mock drills by fire service personnel, simulating hazardous material incidents and other emergency scenarios to test readiness and improve response protocols.
- Facilitate periodic refresher courses for departmental staff at recognized national and state-level training institutes to keep them updated on best practices and evolving risks.
- Establish a dedicated task force to conduct biannual inspections of industrial units and public offices to ensure compliance with fire safety norms and regulations.

**Health Department:**

The Health Department in Satara plays a vital role in strengthening the district's disaster preparedness and response systems. It is responsible for organizing and delivering training programs for healthcare professionals, including doctors, nurses, paramedics, and public health workers. These sessions focus on key areas such as disaster response protocols, triage, first aid, infection control, and emergency health procedures.

- To ensure rapid medical response during disasters, the department establish and train specialized emergency medical teams. These includes Rapid Response Teams (RRTs), Mobile Medical Units (MMUs), and Disaster Medical Assistance Teams (DMATs), all

equipped to provide immediate care in crisis situations.

- Community awareness is another critical area. The department conduct regular workshops, seminars, and public campaigns to educate residents about emergency preparedness, evacuation plans, and health risks during disasters. These efforts are supported by collaboration with NGOs, government agencies, and international partners.
- Regular simulation exercises, mock drills, and tabletop exercises are conducted to test the readiness of healthcare facilities and personnel. These activities help to identify gaps and improve overall response capabilities.
- In addition to clinical training, the department provides psychosocial support training for healthcare workers and volunteers. This includes trauma-informed care, stress management, and counselling techniques to support disaster survivors. Training should also be extended to community-level health workers such as ASHAs, Anganwadi workers, and staff at PHCs and CHCs. These sessions cover WASH (Water, Sanitation, and Hygiene), trauma care, psychosocial support, and assistance for persons with disabilities (PwDs).
- Institutional capacity-building will be further strengthened through the Hospital Emergency Preparedness Programme (HEPP), which includes structured activities to enhance hospital readiness.
- The department also collaborate with organizations like the Red Cross, NCC, NSS, and Civil Defence volunteers to promote community-level awareness and preparedness. Awareness materials should be developed and distributed widely to improve public understanding of disaster management practices.
- A core group of district-level master trainers identified and trained to lead cascading training efforts across the region, ensuring sustainability and continuity in capacity-building.
- Finally, the department regularly evaluate its training and capacity-building programs. Feedback from participants and stakeholders are used to refine strategies and improve the district's overall disaster health response.

### **Education Department:**

The Education Department is tasked with embedding disaster management education into the school curriculum at all levels. This involves integrating topics such as disaster preparedness, response, mitigation, and recovery into various subjects to help students develop awareness and understanding.

- It also conducts training programs and workshops for teachers to ensure they are well-equipped to teach disaster management. These sessions prepare teachers to lead drills, administer first aid, and support students during emergencies.
- Schools regularly carry out drills and training activities to teach students how to respond to disasters. These include evacuation practices, first aid training, and awareness sessions on natural hazards and their effects.
- The department works in partnership with disaster management authorities and NGOs to create educational resources like textbooks, manuals, posters, and videos that help

convey disaster management concepts to students.

- Additionally, the department encourages research and innovation in disaster education by funding projects, promoting best practices, and exploring new teaching tools and technologies to improve school preparedness and resilience.

#### **Irrigation Department:**

- Conduct training programs for department staff to build their knowledge and skills in managing irrigation systems during disasters. These sessions may include emergency response steps, safety protocols, and effective communication methods.
- Work with relevant partners to run public awareness campaigns in flood-prone areas. This may involve organizing workshops, sharing informative materials, and using local media to spread important messages.
- Set up and maintain early warning systems to alert communities about possible disasters, especially floods. Train staff to operate and manage these systems to ensure timely alerts and reduce disaster impact.
- Keep irrigation infrastructure in good condition to prevent failures during disasters. This includes regular checks, repairs, and strengthening of system components to handle extreme weather.
- Take part in research and innovation projects to develop and apply new technologies and best practices for disaster-resilient irrigation systems. This may include studies, pilot programs, and knowledge-sharing efforts.

#### **Agriculture:**

- Arrange training sessions and workshops to teach farmers about disaster preparedness, response, and recovery. Topics may include protecting crops, conserving soil, managing water, and recovering after disasters.
- Promote farming methods that can withstand disasters, such as growing drought-tolerant crops, practicing agroforestry, using conservation agriculture, and managing land sustainably.
- Provide training and advice to livestock farmers on how to protect animals during emergencies. This includes guidance on sheltering, feeding, and evacuation.
- Work with other agencies to build and maintain early warning systems for weather-related disasters like floods, droughts, and cyclones. The department should also share timely weather updates and advice with farmers to help them plan better.

#### **Animal Husbandry:**

- Conduct workshops and training sessions to educate livestock owners and farmers on disaster preparedness, response, and recovery. These programs should cover essential topics such as animal sheltering, feeding, and evacuation procedures during emergencies like floods, cyclones, and droughts.
- Provide training on basic animal health care and first aid for both livestock owners and animal health workers. This includes identifying signs of illness, administering basic treatments, and offering emergency care to injured animals during disasters.
- Collaborate with local authorities and disaster management agencies to develop and

implement livestock evacuation plans. Train livestock owners on safe evacuation practices, including identifying evacuation routes, shelter locations, and assembly points.

- Educate livestock owners on strategies to reduce disaster risks and protect their animals and livelihoods. This includes promoting the use of resilient livestock breeds, improving animal housing and fencing, and adopting effective water and feed management practices.

#### **Zilla Parishad and Gram Panchayat:**

- Organize training sessions, workshops, and awareness campaigns at both village and district levels to educate the public on disaster preparedness, response, and recovery. These initiatives should include information on local hazards, evacuation routes, emergency shelter locations, and basic first aid.
- Conduct assessments to identify disaster-prone areas and evaluate the vulnerabilities of communities, infrastructure, and natural resources. These insights help in designing targeted capacity-building programs and effective disaster risk reduction strategies.
- Provide training to elected representatives, community leaders, and volunteers on disaster management principles, leadership, and coordination. Empowering local leaders enhances their ability to mobilize resources, coordinate emergency responses, and advocate for community needs during crises.
- Organize specialized training programs for local volunteers, firefighters, and emergency responders. These sessions should cover basic search and rescue techniques, proper use of rescue equipment, and coordination with district-level emergency services.

### **7.3. Institutional capacity building and training need assessment**

Institutional capacity building and training needs assessment are essential components in developing an effective District Disaster Management Plan for Satara. These processes involve evaluating the current capabilities and resources of various institutions involved in disaster response and mitigation. By identifying existing strengths, limitations, and capacity gaps, the district can design focused training programs to enhance the competencies of government departments, NGOs, community-based organizations, and other key stakeholders.

Training needs assessments help pinpoint the specific knowledge and skills required for different roles in disaster management. This ensures that training initiatives are tailored to meet the actual needs of personnel across sectors. Moreover, establishing systems for continuous monitoring and evaluation supports ongoing learning and adaptation, keeping capacity-building efforts aligned with emerging risks and challenges.

A collaborative, multi-sectoral approach is vital to these efforts. By working together, institutions can build a more resilient and well-prepared disaster management framework for the district, ensuring a coordinated and effective response to future emergencies.

Below are the sets of questionnaires for conducting a Training Needs Assessment, which all

departments are required to complete to prepare a training calendar accordingly:

**Training Need Assessment for Govt Officials**

- ☐ General Profile:
- ☐ Name:
- ☐ Department:
- ☐ Designation:
- ☐ District:
- ☐ Gender: ☐Male ☐Female ☐Other
- ☐ Age (In years):
- ☐ Years of Experience in the current department:
- ☐ Highest qualification:
- ☐ Additional qualification, if any:
- ☐ Telephone No. (Official):
- ☐ Telephone No. (Mobile- WhatsApp no. preferred)
- ☐ Email Id (Official):
- ☐ Email Id (Personal):
- ☐ Level of Expertise:
- ☐ Please mark your expertise in the following by choosing the appropriate options
- ☐ Disaster Management Act 2005:
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ State Disaster Management Plan of Maharashtra 2023:
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ Possible disaster risk reduction intervention in your department:
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ Incident Response System (IRS) in Disaster Management
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ India Disaster Resource Network (IDRN)
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ Early Warning System
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ National level Relief Norms (NDRF)
  - ☐ No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐ Expert
- ☐ State-Level Relief Norms (SDRF)

- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ SOP of Disaster Management
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Minimum Standard of Relief
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Damage loss Assessment
- ☐ ☒No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Do you know the significant national and international frameworks on which India's National DRM Policy and Strategy was built? If yes, please mention it.
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Sendai Framework for Disaster Risk Reduction
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Sustainable Development Goals
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☒Expert
- ☐ Prime Minister's 10 Points Agenda
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert
- ☐ Relevant Policies and Plans related to DRR:
- ☐ ☐No Idea ☐ Beginner ☐ Competent ☐ Proficient ☐Expert

#### **Department-level awareness of DRR**

- ☐ Was your department's functioning affected by the disaster in the past (eg flood, landslide)
- ☐ Yes ☐ No ☐
- ☐ If yes, please write briefly about the impacts.
- ☐ Name the scheme/programs implemented by your department about disasters or emergencies, if any.
- ☐ Are you aware of any funds within your department that may be used for disaster mitigation and capacity-building activities?
- ☐ Yes ☐ No ☐
- ☐ If yes, then please list them out.
- ☐ Have you been involved in preparing department annual plans in the past?
- ☐ Yes ☐ No ☐
- ☐ Has there been a disaster-specific action plan at your department level?
- ☐ Yes ☐ No ☐
- ☐ Have you undergone any training on disaster risk reduction?
- ☐ Yes ☐ No ☐



- ☐ If you answered yes to the previous questions, please mention it.

<b>Title of Training</b>	<b>Date of training attended</b>	<b>Details of Organizer</b>	<b>Should this training be organized for others within the department?</b>

- ☐ Have you conducted /facilitated any training sessions in your department?
- ☐ Yes ☐ No ☐
- ☐ If yes write down your expertise in training and the sessions.
- ☐ What are your expectations from the training program organized by SDMA?
- ☐ Does your department have a completely functional training institution to train its Officials?
- ☐ Yes ☐ No ☐
- ☐ If yes, kindly provide details like

<b>Sr. No.</b>	<b>Name of Training Institutions</b>	<b>Contact Person</b>	<b>Contact No.</b>	<b>Email ID</b>	<b>Address of Training Institutions</b>

- ☐ Does your department have an updated departmental disaster management plan?
- ☐ Yes ☐ No ☐
- ☐ Does your department have a standard operating procedure concerning disasters or emergencies?
- ☐ Yes ☐ No ☐
- ☐ If yes, mention details, such as GO/SOPS/Guidelines/Orders/Circulars issued by your department concerning emergencies.
- ☐ Write down the training sessions related to disaster risk reduction that you prefer to include in this training program.
- ☐ Has your department undertaken any Disaster Risk assessment? If yes, please state the year and title of the report.
- ☐ Have the assessment findings been used to design and implement plans/programs/other initiatives? If yes elaborate on how they were used and for which initiatives.
- ☐ Is there any existing data collection mechanism, systematic observation, and disaster risk Monitoring?
- ☐ Describe the key challenges your department/ organization faces in its scope of operation (preparedness and mitigation concerning disaster). (such as knowledge, data/information, technology, funds, time, leadership or other)

- ☐ In your opinion, what are the top 5 training program topics required for building capacities of your department/ organization in Disaster Risk Reduction? Please list them and indicate the target group.
- ☐ In your opinion, what are the top 5 priority sectors in Maharashtra where there is a need to develop capacities to include/mainstream DRR in these sectors effectively? Please list the five industries.
- ☐ Describe the critical SWOTs of your sector/ organization in effectively preparing and implementing DRR.
- ☐

Sl.no	Strength	Weakness	Opportunities	Threat

- ☐ What training program topics does your department require to develop virtual cadre officials' capacity to carry out the tasks?

*Table 48 Training Requirements Matrix*

Sl.no	Topic	Target audience	Priority (H/M/L)	Remarks (Reasons for this specific topic)
1	Basic Disaster Management Course			
2	Training on Formulation of District DM Plans			
3	Training on Emergency Response			
4	Training on the formulation of Departmental DM Plans			
5	Training on Mainstreaming DRR			
6	Mitigation proposal development			
7	IRS/IDRN			
8	Remote Sensing and GIS in Disaster Management			
9	Early warning techniques			
10	HRVCA			
	Any other sector-specific course/ Any hazard-specific training			

## 7.4. Community Capacity Building

Communities are the first to experience the effects of disasters and often serve as the initial responders. Promoting community participation ensures local ownership, addresses specific needs, and encourages volunteerism and mutual support. This approach is rooted in the principles of “self-help,” “help your neighbor,” and “help your community.” Known as Community-Based Disaster Management (CBDM) or Community-Based Disaster Risk Management (CBDRM), this model focuses on reducing vulnerability and disaster risk at the grassroots level.

Community capacity building involves forming and strengthening local disaster response systems, raising awareness, conducting training programs, and launching public information campaigns. It also includes promoting sustainable livelihoods through skill development. Task forces are created for key areas such as Search and Rescue (SAR), Water, Sanitation, and Hygiene (WASH), Early Warning Systems, First Aid, and Shelter Management.

Special attention is given to vulnerable groups, including the elderly, women, children, and persons with disabilities. Youth and women's groups are trained in various aspects of disaster response, including first aid, SAR, shelter management, and psychosocial support.

Community disaster plans are integrated into Panchayat, block, and district-level plans with coordination from the District Disaster Management Authority (DDMA). These efforts involve volunteers and organizations such as Home Guards, National Youth Corps (NYKS), National Cadet Corps (NCC), Red Cross, market associations, youth clubs, self-help groups (SHGs), community-based organizations (CBOs), NGOs, and Anganwadi centers, all of which play a vital role in spreading awareness.

Traditional communication methods like folk songs, street plays, local fairs, festivals, documentaries, and mass media are used to educate and engage the public. Community-Based Disaster Risk Reduction (CBDRR) and Village Contingency Planning (VCP) are essential tools for building resilience at the village level. These are implemented by relevant departments with support from local authorities, Panchayati Raj Institutions (PRIs), Rural Development departments, and Urban Local Bodies (ULBs), under the overall guidance of the District Administration.

## 7.5. Training Method and Approaches

*Table 49 List of Training Method & Approaches for Capacity Building*

<b>Sl. no.</b>	<b>Task</b>	<b>Method</b>	<b>Nodal agency</b>	<b>Supporting Agency</b>
<b>1</b>	<i>Information dissemination regarding various hazards and their respective do's and don'ts should be prioritized, with an emphasis on preparing community-based disaster management plans in these areas. schools, industrial clusters, slums, and resettlement colonies are identified as first-priority locations, given their height vulnerability. The second priority should be given to communities residing on the district's</i>	<i>Through Natak, Film Shows, Rallies, media, Newspaper Media, Posters and Pamphlets, Group discussions and workshops etc.</i>	<i>District Administration</i>	<i>No Govt Organizations (NGOs), Schools and colleges volunteers, NSS, NCC, sports groups, etc.</i>

	<i>outskirts, particularly in villages.</i>			
<b>2</b>	<i>Constitution of Community Based Disaster Management Committees and Taskforces</i>	<i>Through Community level meeting</i>	<i>District Administration</i>	<i>Apada mitra, members, Local Volunteers etc.</i>
<b>3</b>	<i>Capacity Building of Community Members</i>	<i>Through mock drills, preparation of community plans, trainings and workshops on disaster specific topics</i>	<i>District Administration</i>	<i>Civil Defence, Police, Fire, CBOs and NGOs</i>
<b>4</b>	<i>Training to the task forces and committee members, incl first-aid and trauma counselling, search and rescue and firefighting, warning dissemination, etc.</i>	<i>Training and workshops</i>	<i>Revenue Department along with Health, Police and Fire Departments</i>	<i>Civil Defence, Police, Fire, CBOs and NGOs</i>
<b>5</b>	<i>Post-disaster epidemic problems</i>	<i>Seminars and community meetings</i>	<i>Health Department</i>	<i>Local health departments, and NGOs</i>
<b>6</b>	<i>Training programs focusing on constructing seismic-resistant buildings and retrofitting existing structures will be conducted. The target participants included contractors, masons, engineers, architects, and local communities.</i>	<i>showing films, videos, distributing posters and brochures, reading materials, etc. in training and workshop</i>	<i>District Administration</i>	<i>PWD, Private contractors and NGOs etc</i>

## 7.6. Training of Trainer

Training of trainers (ToT) plays a crucial role in capacity building for disaster management several reasons:

- **Creating a Multiplier Effect:** Well-trained trainers can go on to train many others, significantly expanding the reach of disaster management knowledge and skills within communities or organizations.

- **Ensures High-Quality Training Delivery:** ToT equips trainers with the necessary knowledge, skills, and tools to deliver effective and accurate training on disaster preparedness, response, and recovery.
- **Promote Standardization:** ToT programs help establish consistent training methods, materials, and delivery approaches, ensuring uniformity in disaster management practices across different regions and trainers.
- **Supports Long-Term Sustainability:** Training individuals within the community or organization builds internal capacity, allowing training efforts to continue over time, even as new members join.
- **Encourages Contextual Adaptability:** Trainers trained through ToT programs are often skilled in customizing training content to suit the specific needs and conditions of different communities or organizations.
- **Empowers Local Leadership:** ToT fosters local ownership of disaster management initiatives by empowering individuals to lead training and capacity-building efforts, thereby strengthening community resilience.

## 7.7. Disaster Management Education

Disaster management education covers a wide range of learning aimed at preparing individuals, communities, and organizations to effectively prevent, respond to, and recover from both natural and human-made disasters. It includes structured learning in schools and colleges, as well as informal education through training programs, workshops, and public awareness initiatives.

This form of education equips people with the essential knowledge, practical skills, and mindset needed to understand different types of hazards, evaluate risks, and take appropriate actions to reduce vulnerability and strengthen resilience. It highlights the importance of being prepared, using early warning systems, understanding evacuation plans, following emergency response procedures, and implementing recovery strategies after a disaster.

By promoting a culture of safety, cooperation, and proactive engagement, disaster management education plays a key role in building communities that are better prepared and more resilient in the face of disasters.

## 7.8. Role of Aapda Mitra in Community-Based Disaster Management and their capacity Utilization

Aapda Mitra, or disaster response volunteers, play a pivotal role in Community-Based Disaster Risk Reduction (CBDRR) initiatives. These individuals are local residents who receive training and resources to support disaster management efforts within their communities.

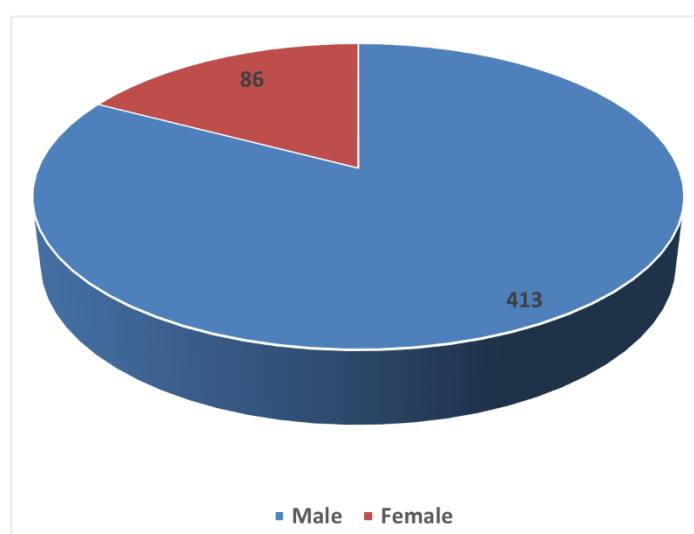
- **Risk Identification and Assessment:** Aapda Mitra actively engages in recognizing and

evaluating potential disaster threats in their locality. They collect data on hazards, vulnerabilities, and available resources, contributing to the creation of community risk maps and profiles.

- **Preparedness Planning and Awareness:** They take part in formulating and executing community disaster preparedness strategies. This includes organizing mock drills, conducting training programs, and leading awareness drives to inform residents about disaster risks and safety practices.
- **Early Warning and Evacuation Support:** Aapda Mitra helps relay early warning alerts to the community and ensures that at-risk groups understand evacuation protocols. They may also coordinate evacuation rehearsals and assist in guiding people during actual evacuations.
- **Emergency Response:** During disasters, Aapda Mitra acts as frontline responders, offering immediate help such as search and rescue operations, administering first aid, and setting up temporary shelters. They collaborate with official emergency services and local leaders to manage the response effectively.
- **Recovery and Rehabilitation:** In the aftermath of a disaster, Aapda Mitra supports recovery efforts by helping assess damage, clear debris, and distribute relief materials. They also assist community members in accessing government aid and rebuilding their lives.

As per the information available with DDMA Satara, there are 499 Aapda Mitra in Satara District comprises of 413 Male and 86 Female. They are skilled in different fields like running, swimming, rescue, leadership quality, driving, trekking and many more.

Overall, Aapda Mitra plays a crucial role in enhancing community resilience and promoting a culture of preparedness and mutual support. Their active participation in CBDRR empowers communities to be more self-sufficient and better prepared to face and recover from disasters.



*Figure 19 Gender wise strength of Aapda Mitra in Satara District*

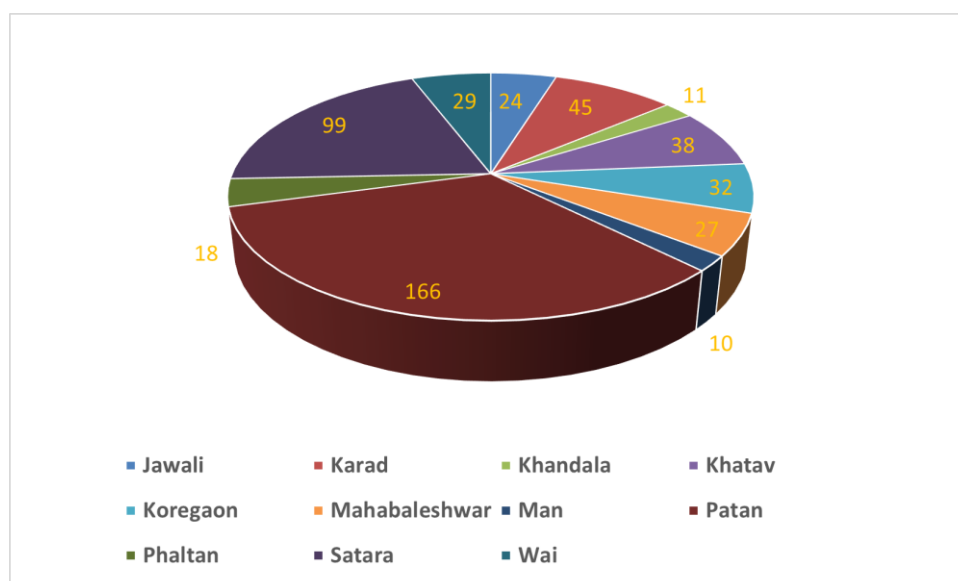


Figure 20 Taluka wise strength of Aapda Mitra in Satara District

## 7.9. Skill Upgrade and follow-up training

Skill upgradation and follow-up training are fundamental aspects of building capacity in disaster management. As the nature of disaster risks continues to change and new challenges arise, it is crucial for both individuals and organizations involved in disaster response to consistently improve their skills and knowledge. Skill upgradation involves offering specialized training programs that address specific needs identified through capacity assessments and feedback from earlier training experiences. These programs may cover a variety of topics such as advanced search and rescue operations, first aid, disaster communication, evacuation planning, and risk assessment techniques. Equally important are follow-up training sessions, which help participants reinforce their learning, fill knowledge gaps, and stay informed about the latest practices and innovations in the field of disaster management. By investing in both skill enhancement and continuous learning, organizations can ensure their teams are well-prepared to respond effectively to emergencies, reduce the impact on lives and property, and support communities during times of crisis.

## 8. Response and Relief Measures

Response and relief measures are vital elements of disaster management, especially in the immediate aftermath of a major disaster. The response phase involves urgent actions aimed at saving lives, reducing damage, and stabilizing the affected area. This includes a wide range of activities such as search and rescue operations, emergency medical care, and organized evacuation procedures. During this phase, emergency responders, healthcare professionals, and trained volunteers work around the clock to assist and protect those impacted by the disaster.

On the other hand, relief measures are focused on meeting the essential needs of disaster survivors and supporting their recovery. These efforts involve the distribution of critical supplies like food, clean water, shelter materials, and medical aid. Temporary shelters and emergency healthcare facilities are often set up to provide immediate support to displaced or injured individuals. The goal of relief operations is to ensure that affected populations receive timely and adequate assistance to help them cope with the crisis.

Together, response and relief efforts form the backbone of disaster management, significantly reducing the impact of disasters and laying the groundwork for long-term recovery and rebuilding of communities.

### 8.1. Levels of Emergency

Emergency levels—commonly categorized as L0, L1, L2, and L3—serve as a framework for classifying the severity and scale of disasters. These levels guide authorities in determining the appropriate response strategies and resource deployment based on the magnitude of the emergency.

**L0 (Level 0)** refers to the preparedness and mitigation phase that occurs before any disaster strikes. Activities at this stage include risk assessments, planning, training, and capacity-building initiatives aimed at enhancing readiness. The focus is on proactive measures to prevent or reduce the potential impact of disasters.

**L1 (Level 1)** represents low-intensity emergencies that can be effectively managed using local resources and capabilities. These may include minor accidents or localized disruptions with limited impact on public safety or infrastructure. Local authorities and emergency services typically handle the response at this level.

**L2 (Level 2)** indicates moderate-level emergencies that exceed the capacity of local resources and require a more coordinated response. These incidents—such as regional floods, earthquakes, or severe storms—may affect multiple communities. Additional support from neighboring districts or state-level agencies is often mobilized, including personnel, equipment, and logistics.

**L3 (Level 3)** denotes high-severity or catastrophic disasters that overwhelm local, regional, and even national response systems. These emergencies pose significant threats to life,



infrastructure, and the environment. A comprehensive, multi-agency response is required, often involving national-level resources and coordination with international partners for aid and support.

This tiered system ensures a structured and scalable approach to disaster response, enabling efficient mobilization of resources and minimizing the impact on affected populations.

## 8.2. Response Structure and Functions

At the district level, before and immediately after a disaster, the district administration will activate the district control room to ensure that relevant information is promptly disseminated to the appropriate authorities.

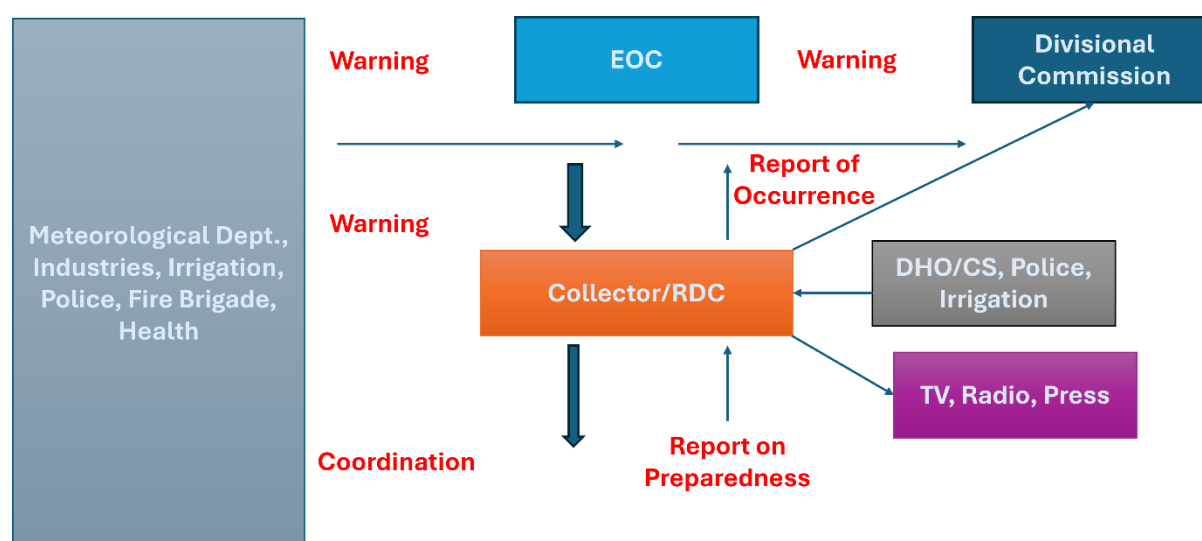


Figure 21 Response structure & function in Satara district

### 8.2.1. Incident Command System (ICS)

The Incident Command System (ICS) is a structured and adaptable management framework designed to handle a wide range of disaster situations—both natural and human-made. Its modular and scalable design allows it to be applied effectively to incidents of any size or complexity. ICS is built around five core management functions that ensure a coordinated and organized response effort: Command, Operations, Planning, Logistics, and Finance/Administration.

The primary goal of ICS is to strengthen existing disaster response mechanisms by integrating trained Incident Command Teams (ICTs) at various levels of authority. These teams are equipped with the expertise needed to manage different aspects of disaster response efficiently.

Here's a breakdown of the five key command functions within ICS:

- **Incident Commander:** This individual holds overall responsibility for managing the incident. They oversee all activities and ensure that response operations are well-coordinated and aligned with the incident objectives.

- **Operations Section:** Tasked with executing the tactical elements of the response, this section organizes and directs resources to implement the Incident Action Plan (IAP) effectively.
- **Planning Section:** This team collects, analyzes, and disseminates incident-related information. They are responsible for maintaining situational awareness, tracking resources, and preparing the IAP and other essential documentation.
- **Logistics Section:** Focused on providing the necessary support, this section ensures that personnel, equipment, and supplies are available and delivered where needed to sustain response operations.
- **Finance/Administration Section:** This section handles all financial aspects of the incident, including cost tracking, procurement, timekeeping, and financial reporting. It ensures that the response remains fiscally accountable and well-documented.

Together, these components form a cohesive system that enhances coordination, improves resource management, and ensures a timely and effective response to disasters.

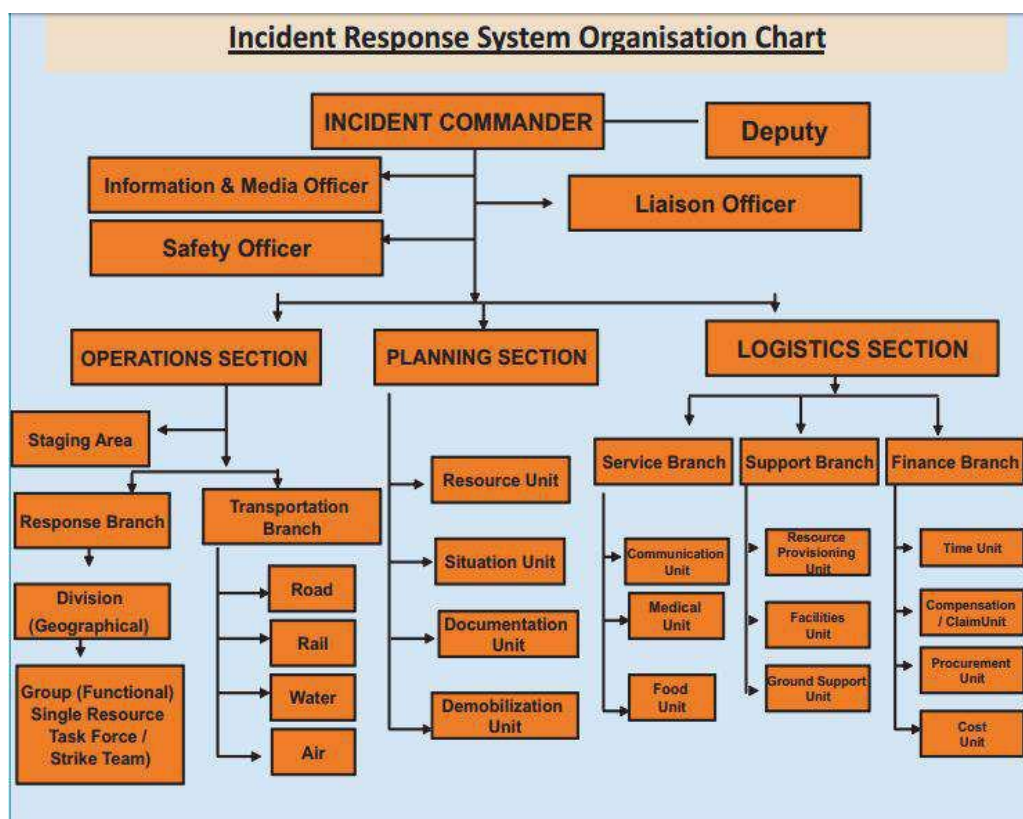


Figure 22 IRS Organizational Chart

## Response Structure

### Planning Assumptions

The multi-disaster response plan for Satara district adopts a standardized and adaptable approach to managing various types of disasters. This framework is designed to ensure that key

components—such as information gathering, communication protocols, coordination mechanisms, real-time monitoring, and institutional responsibilities—are clearly defined and consistently applied across all disaster scenarios.

Regardless of the nature of the disaster—be it floods, earthquakes, droughts, or industrial accidents—the core response structure remains unchanged. This ensures a swift and organized mobilization of resources and personnel.

A following table outlines the chain of command and operational steps to be activated during a disaster. This chart serves as a visual guide for all stakeholders, detailing the roles and responsibilities from the district administration down to the village-level task forces, ensuring a coordinated and efficient response.

*Table 50 List of Department wise Response Mode*

<b><i>D.S.P. Satara and Supporting NGOS</i></b>	<b><i>Fire brigade, Civil Defence, Home guards and supporting</i></b>	<b><i>Ex. Eng., PWD, Ex. Eng. MI and Supporting NGOS</i></b>	<b><i>SDO/ Tahsildars and Supporting NGOS</i></b>	<b><i>DHO/Civil Surgeon and Supporting NGOS</i></b>	<b><i>Ex. Eng MSEB and Supporting NGOS</i></b>
<b><i>Stand by</i></b>	<i>Stand by</i>	<i>Standby &amp; Alert</i>	<i>Stand by</i>	<i>Stand by</i>	<i>Standby &amp; Alert</i>
<b><i>Cordoning off Area</i></b>	<i>Evacuation</i>		<i>Law &amp; Order</i>		
<b><i>Evacuation</i></b>			<i>Local Warning Area</i>		
<b><i>Traffic Management</i></b>					

### **Engagement of Defense and Paramilitary Forces**

In the event of a disaster within Satara district, the District Collector will immediately coordinate with all relevant departments to communicate the nature of the emergency, and the type of assistance required. The administration will also work to mobilize support from local NGOs, community-based organizations, and other district-level agencies to strengthen the response efforts.

If the situation escalates beyond the district’s capacity to manage effectively, the District Collector may escalate the request for support to the state government, including seeking assistance from defense and paramilitary forces to ensure timely and effective disaster management.

### **Communication**

- All outgoing communication from the relief camp will be managed by the designated Communication Officer on behalf of the Relief Camp Officer. This includes data collection, maintaining records, assisting in tracing missing persons, and

organizing information for the Site Operations Center.

- The communication room in Satara's disaster response setup is equipped with essential tools such as landline telephones, fax machines, intercom systems, VSAT connectivity, computers with modems and printers, mobile phones, photocopiers, and wireless communication devices to ensure seamless coordination.
- During sensitive disaster situations, the media is urged to act responsibly, avoiding any content that could cause emotional distress to affected individuals. They must ensure the accuracy of information and avoid spreading rumors or unverified reports.
- It is crucial to publish verified numerical data related to the disaster to keep the public accurately informed and prevent the spread of misleading or false information.

### **Law and Order**

- The Police Department plays a vital role in disaster response by evacuating residents to safer locations, supporting the Revenue Department in relief operations, and protecting the property of affected individuals.
- They are responsible for maintaining law and order in disaster-hit areas, coordinating search and rescue missions in collaboration with NCC, Village Task Forces (VTF), and NGOs.
- Police personnel also provide security at relief camps and storage facilities and ensure the systematic distribution of relief materials.
- Additional responsibilities include facilitating evacuations, overseeing post-mortem procedures, and managing legal formalities.
- Special care is taken to ensure the safety and well-being of women and children in temporary shelters.

### **Public Grievances / Missing Persons Search**

- A district-level committee, chaired by the District Collector, addresses complaints and concerns related to missing persons.
- Search and rescue teams are deployed to locate individuals reported missing, whether alive or deceased.
- District EOC works 24\*7 to note and record all the grievances and details of missing person.

### **Animal Care**

- The Animal Husbandry Department is tasked with managing animal welfare during disasters, including carcass disposal and treatment of injured livestock.
- Vaccination drives are conducted to prevent the spread of diseases among animals.
- Separate arrangements are made for the sheltering of pets and cattle to ensure their safety and health.

### **Management of Deceased**

- The Carcass Disposal Team is responsible for the timely removal of animal carcasses to prevent health hazards.
- The Health Department oversees post-mortem examinations and ensures that all procedures comply with legal and medical standards.
- Proper and respectful disposal of human remains is carried out to prevent epidemics, and death certificates are issued to the next of kin to support legal processes.

### **Plan of Activation**

- Upon receiving a disaster alert or confirmation of a disaster, the district disaster response mechanism is activated with approval from the competent authority.
- The incident is immediately reported to the Commissioner of Relief (CoR)/State Disaster Management Authority (SDMA) by the designated monitoring agency using the fastest communication method available.
- The CoR will initiate a full-scale emergency response by activating all relevant departments, including the State Emergency Operations Center (EOC), District EOC, and Emergency Response Centers (ERCs).
- Detailed instructions will be issued regarding the required manpower, equipment, essential supplies, and the type and timeline of assistance needed.
- Coordination with task forces and response teams will be clearly outlined.
- The State EOC and all control rooms at the state and district levels will be fully staffed and operational.
- The State Government may issue a notification in the official gazette, declaring the affected areas as disaster zones under relevant laws and regulations.
- Once the situation stabilizes and normalcy is restored, the Commissioner of Relief will

officially declare the end of the emergency phase and issue instructions for the withdrawal of emergency personnel.

*Table 51 List of Stakeholders Responsible for Emergency Planning*

<b>S. No.</b>	<b>Emergency Management Function / Tasks</b>	<b>Function/Task Lead</b>	<b>Support function officers/agencies</b>
<b>1</b>	Direction control, Coordination	DM	D.D.O., SP, Resident Dy. Collector and Tahsildar
<b>2</b>	Information collection, Analysis and Damage Survey	DM	D.D.O., SP, Resident Dy. Collector (RDC), Tahsildar, DIC, Dy. D.D.O., Ex. Engr. R&B, DAO
<b>3</b>	Communication	RDC	Dy. Tahsildar, Mobile operators, TV, Radio, Police, forests, Fire
<b>4</b>	Alert and Warning	RDC / SP	EOC / Disaster Tahsildar, District Information Officer (DIO)
<b>5</b>	Transport (ESF, Evacuation, Relief supply)	RTO / DTO	RDC, D.D.O., DSO, SP, DMHO
<b>6</b>	SAR (Search and Rescue)	SP / Civil defense /SDRF / NDRF	Fire, civil defense, Home Guards & SDRF (when the magnitude of any disaster is beyond the coping capabilities of these response agencies, NDRF may be requisitioned for search & rescue operations.)
<b>7</b>	Emergency Public Information	DIO	EOC / police/ Transport/ Forest
<b>8</b>	Law and Order/Public Protection	SP	Dy. SP, Home Guards commander, NGOs, Paramilitary and Armed Forces
<b>9</b>	Public Works	Ex. Eng.	Irrigation, Ex. Engr., Panchayat, NGOs, Water Supply board, Municipalities, Home Guards, Police
<b>10</b>	Mass Care / Emergency Assistance /Shelters	Dist. Primary Education Officer	School Principal, teachers, health, PHC, State transportation, Water supply, RTO, Tahsildar, TDO
<b>11</b>	Health and Medical services, Psychosocial	District Health Officer (DHO)	Supt. Govt. hospital, Municipality, PHCs, CHCS, Red cross, Fire Brigade, Civil

### **8.3. Emergency Support Functions by line departments in primary and secondary roles.**

#### **8.3.1. Health department**

The health department plays a crucial role in Emergency Support Functions (ESFs) by providing essential medical services and public health support during disasters and emergencies. Some of the critical roles of the health department within ESFs include:

- Deliver essential medical care to disaster-affected individuals, including emergency

treatment, triage, and patient stabilization at the site or in healthcare facilities.

- Monitor public health conditions by conducting disease surveillance to detect and track outbreaks and implement timely interventions to prevent further spread.
- Execute disease prevention strategies, such as vaccination drives, vector control measures, and distribution of prophylactic medications to control infectious diseases.
- Support healthcare infrastructure by ensuring hospitals and clinics are prepared for surge capacity, supplying medical equipment and consumables, and coordinating patient referrals and transfers when needed.
- Provide mental health and psychosocial support to disaster survivors through counseling services, crisis intervention, and referrals to mental health professionals.
- Evaluate and mitigate environmental health risks, including contaminated water sources, unsafe food supplies, and sanitation issues, to prevent secondary health crises.
- Coordinate medical evacuations and patient transport, ensuring safe transfer to healthcare facilities with appropriate medical escorts and transport arrangements.

### **8.3.2. Police and Civil Defense**

- The Police Department ensures law and order in disaster-affected areas, safeguarding both people and property. They enforce evacuation directives, manage traffic flow, and prevent criminal activities such as looting.
- Both the Police and Civil Defense teams actively participate in search and rescue operations, working alongside other agencies and volunteers to locate, assist, and evacuate individuals in distress. They also provide first aid and arrange transportation to safe zones.
- During emergencies, when large crowds gather at shelters, relief centers, or disaster sites, the police manage crowd control to prevent stampedes, maintain public order, and ensure the safety of evacuees and responders.
- These departments assist in evacuating residents from high-risk zones to designated shelters, manage shelter operations, register evacuees, and help provide basic necessities such as food, water, and medical aid.
- Traffic regulation is a key responsibility, ensuring smooth movement of emergency vehicles, establishing evacuation routes, and facilitating uninterrupted access to affected areas.
- The police and civil defense units also disseminate critical information to the public,

including evacuation notices, shelter details, emergency contacts, and safety guidelines through social media, public announcements, and emergency alert systems.

- They maintain close coordination with other emergency services, such as fire brigades, medical teams, and government agencies, to ensure a unified and effective disaster response, resource sharing, and problem-solving during crises.

### **8.3.3. Revenue Department**

- The Revenue Department conducts rapid assessments to determine the extent of damage to infrastructure, property, and livelihoods. This data is essential for prioritizing relief and recovery operations.
- It oversees the distribution of relief materials, including food, clean water, shelter, and medical supplies, ensuring that aid is delivered promptly and fairly to all affected individuals.
- During emergencies, the department assists in evacuating people from high-risk zones to designated shelters, managing registration, basic amenities, and coordinating with other support agencies at these centers.
- In the recovery phase, the Revenue Department plays a key role in rehabilitating affected communities, supporting the reconstruction of damaged infrastructure, restoring essential services, and promoting livelihood recovery programs.
- The department is also responsible for assessing and disbursing compensation to disaster-affected families and individuals. It works with government bodies and NGOs to mobilize relief funds and recovery resources.
- Acting as a central coordination hub, the Revenue Department facilitates collaboration among government agencies, local authorities, and stakeholders, ensuring effective communication, decision-making, and resource mobilization throughout the disaster response and recovery process.

### **8.3.4. Irrigation and Water Supply Department**

- The Irrigation Department manages rivers, dams, and reservoirs to reduce flood risks. This includes monitoring water levels, executing controlled water releases, and issuing early warnings to downstream communities to prevent flood-related damage.
- In times of drought or water scarcity, the department ensures emergency water supply by transporting water from alternative sources such as nearby reservoirs or groundwater wells, ensuring access to safe drinking water for affected populations.
- To prevent flooding and waterlogging during heavy rainfall, the department maintains canals, drainage systems, and embankments. This involves clearing blockages, repairing damaged infrastructure, and ensuring effective water flow to



minimize disaster risks.

- After disasters like floods or cyclones, the Irrigation Department is responsible for assessing and restoring damaged irrigation infrastructure. This includes repairing breached embankments, restoring irrigation channels, and rehabilitating water supply systems to support the resumption of agricultural activities.

### **8.3.5.Transport Department**

- The Transport Department works closely with disaster management authorities to develop evacuation plans for areas vulnerable to natural disasters such as floods, cyclones, landslides, or wildfires. This includes identifying evacuation routes, setting up assembly points, and coordinating the safe movement of people using various transportation modes.
- During emergencies, the department may mobilize additional public transport services—including buses, trains, or other vehicles—to evacuate residents from affected areas or transport them to emergency shelters. They ensure that routes remain accessible, and that sufficient vehicles and drivers are available to support evacuation efforts.
- In the aftermath of disasters like earthquakes, landslides, or severe cyclones, the Transport Department plays a key role in clearing debris, repairing damaged roads, bridges, and highways, and restoring transportation infrastructure to enable the uninterrupted movement of emergency services and relief operations.

### **8.3.6.Role of NDRF**

- The National Disaster Response Force (NDRF), established under the Ministry of Home Affairs, Government of India, operates with two primary mandates.
- First, the NDRF is deployed during disasters to carry out search and rescue operations, aiming to save lives and reduce the impact of natural or man-made calamities.
- Second, during non-emergency periods, the NDRF focuses on training and capacity-building initiatives to strengthen disaster preparedness among various response agencies and community groups.
- One of the NDRF's battalions is stationed at Talegaon, Pune, which falls within the operational jurisdiction of Satara district, enabling quick deployment when needed.
- In the event of a disaster, NDRF teams can be mobilized for on-ground rescue missions, while their expertise and equipment can also be utilized to train local response teams, including district officials, volunteers, and emergency personnel.

## 8.4. District Emergency Operation Centre

The Emergency Operation Center (EOC) for Satara district is situated on the District Headquarters building. This center operates 24/7 and is equipped with modern infrastructure and a dedicated team to manage disaster-related activities. All equipment and resources within the EOC are exclusively allocated for disaster management purposes, ensuring focused and efficient operations across all phases—from preparedness to response and recovery.

The center is staffed by the District Disaster Management Officer (DDMO), an IT Assistant, and their support team, who work in close collaboration with various supporting agencies. To ensure seamless communication during emergencies, the EOC is equipped with dedicated telephone lines and communication systems, enabling timely and effective disaster response across the district.

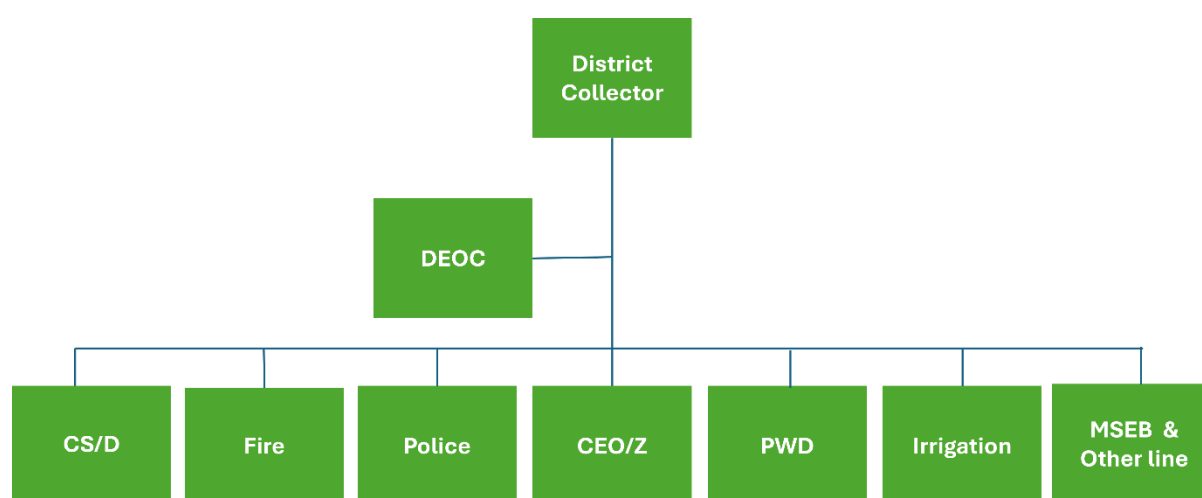


Figure 23 Structure of District Emergency Operation Centre (DEOC)

### 8.4.1. Role of Emergency Operation Centre in Normal Time

The District Collector of Satara holds the authority to appoint an Administrative Officer as the Officer-in-Charge of the Emergency Operation Center (EOC). This officer is entrusted with ensuring the smooth and effective functioning of the EOC. The key responsibilities during non-emergency periods include:

- Ensuring all equipment within the EOC is in proper working condition through regular checks and maintenance.
- Collecting updated data on the vulnerability of various blocks and villages from relevant line departments to support disaster preparedness.
- Compiling and submitting reports on the status of preparedness and mitigation measures undertaken by district departments to the Government of Maharashtra and the Divisional Commissioner's office.

- Monitoring the implementation of the District Disaster Management Plan (DDMP) to ensure all strategies and actions are being followed effectively.
- Maintaining and updating the Inventory of Resources and the district data bank to support timely response during emergencies.
- Revising the District Disaster Management Plan as needed, based on changing risks, vulnerabilities, and lessons learned.
- Activating the trigger mechanism upon receiving disaster alerts or when a disaster occurs within the district, to initiate immediate response actions.

### **8.4.2. Role of Emergency Operation Centre during Disaster**

Upon receiving alerts from authorized agencies, it is the responsibility of the Emergency Operation Center (EOC) to promptly issue disaster warnings to the general public and all critical departments involved in emergency response. Ensuring that these warnings are both accurate and timely is a core function of the EOC. To facilitate this, the EOC must maintain a robust and well-structured communication network capable of disseminating alerts efficiently. The District Collector serves as the competent authority for issuing such warnings. In the Collector's absence, the Additional District Magistrate (ADM) or the Resident Deputy Collector assumes full authority to perform all related duties.

Disaster warnings must be communicated to a wide range of stakeholders, including the Chief Secretary (Revenue), Government of Maharashtra, all Emergency Support Functions (ESFs), members of the District Disaster Management Committee (DDMC), hospitals—particularly those in or near the affected areas—as well as other hospitals across the district. Notifications must also reach the Divisional Commissioner's Office, the Satara Municipal Corporation, local defense units, Emergency Operation Centers in neighboring districts, the National and State EOCs, and elected representatives from the district.

To enhance coordination and response efficiency, the EOC is required to set up dedicated desks for each Emergency Support Function within its premises. Upon receiving a disaster warning, the EOC immediately initiates community preparedness and response measures in collaboration with all relevant agencies.

Additionally, the occurrence of a disaster triggers the following actions:

- The Emergency Operation Center (EOC) is expanded to include dedicated desks for Heads of Departments responsible for specific emergency functions.
- The Responsible Officer, under the direction of the District Collector, assumes command over all necessary district-level personnel. This includes staff from departments such as Industrial Safety & Health, Health, Red Cross Society, Food & Civil Supplies, Police, Zilla Parishad, Municipal Bodies, Public Health, PWD,

Transport, Irrigation, Fire Services, and Telecommunications. Any pre-approved leave for these personnel is automatically revoked, and they are required to report for duty immediately upon requisition.

- In the event of major disasters, the Responsible Officer may coordinate with local Army, Navy, or NDRF units to support rescue, evacuation, and emergency relief operations.
- The Responsible Officer is empowered to requisition resources, equipment, and materials from the private sector to support emergency response efforts.
- Industries located in the affected area are expected to activate their onsite emergency plans, with support available upon request from the district administration.
- The District Response Plan is activated, and dedicated desks for Operations, Logistics, and Planning Sections are established under the supervision of the Responsible Officer.
- The Operations and Logistics Sections are authorized to set up transit camps, relief camps, feeding centers, and cattle shelters as needed.
- Wireless communication systems are activated from the EOC to maintain contact with the Operations Section Chief, site operation bases, transit camps, feeding centers, relief camps, and cattle shelters.
- The Responsible Officer ensures the submission of Preliminary Information Reports and Action Taken Reports to the Chief Secretary, Director of the Disaster Management Unit (DMU), Principal Secretary of Rehabilitation & Reconstruction, and the Divisional Commissioner, Konkan Division, based on available information.
- If necessary, the Responsible Officer is authorized to order immediate evacuation of at-risk populations. In cases where disasters may impact neighboring districts or cross state borders, the officer is responsible for issuing alert notifications to the relevant authorities.

### **8.4.3.Trigger Mechanism**

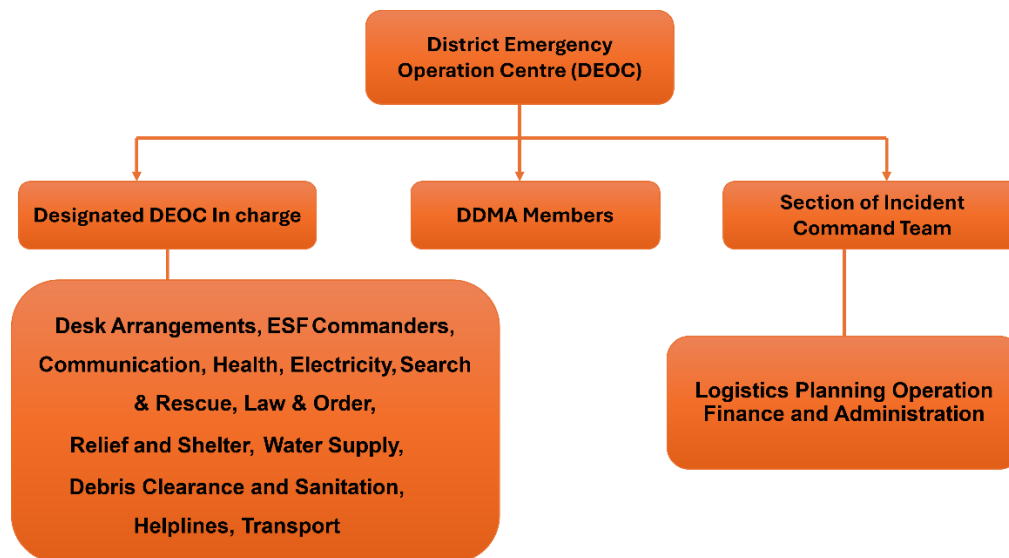
Upon receiving information about an emergency, the on-duty staff at the Emergency Operation Center (EOC) will immediately inform the District Collector (DC) or the Additional District Magistrate (RDC) and await further instructions. If the situation involves a disaster within any part of the district, the EOC staff will also notify key stakeholders, including members of the District Disaster Management Authority (DDMA), heads of Emergency Support Functions (ESFs), major hospitals, and the State Disaster Management Authority (SDMA).

Simultaneously, the staff will collect essential details about the incidents such as the type, scale, and location of the disaster—and relay this information to the appropriate authorities to support timely decision-making. The EOC in charge will ensure that up-to-date contact information for

the Divisional Commissioner and the State EOC is readily accessible.

All Desk Officers, Team Leaders, and members of the Incident Command Team will be promptly alerted to report to the District EOC. Once assembled, the Incident Command Team and Desk Officers will operate in accordance with their Standard Operating Procedures (SOPs) and follow directives issued by the Incident Commander (IC) to manage the situation effectively.

#### 8.4.4.Trigger Mechanism for Satara District



*Figure 24 Structure of emergency trigger mechanism in Satara district*

### Incident Response System (IRS) application and modules

The Incident Response System (IRS) is a structured and integrated framework developed to manage and coordinate emergency response operations during disasters and crises. It includes several specialized modules and applications that support different aspects of incident management:

- **Incident Reporting Module:** Enables individuals, organizations, and government bodies to report incidents in real time. It supports incident tracking, status updates, and data aggregation to provide situational awareness for decision-makers.
- **Resource Management Application:** Maintains an inventory of available personnel, equipment, and supplies, allowing for efficient allocation and deployment of resources based on operational needs during disaster response.
- **Communication and Coordination Module:** Facilitates collaboration among stakeholders, including government departments, emergency responders, and partner agencies. It provides tools for information sharing, activity coordination, and effective communication management.

- **GIS Integration:** Incorporates Geographic Information System (GIS) technology to support spatial analysis, mapping, and visualization. This helps identify high-risk zones, assess disaster impact, and plan response strategies based on geographic data.
- **Situational Awareness and Decision Support:** Offers real-time insights into incident dynamics, resource availability, and response priorities. It generates dashboards, reports, and analytical tools to support informed decision-making.
- **Training and Capacity Building Module:** Provides e-learning modules, simulation exercises, and tabletop training to enhance the preparedness and skills of responders, officials, and decision-makers involved in disaster management.
- **Documentation and Reporting Module:** Supports the recording of incident logs, situation reports, after-action reviews, and lessons learned, ensuring transparency, accountability, and continuous improvement in emergency response practices.

Together, these modules form a robust system that enhances preparedness, response, and recovery capabilities in Satara district. The IRS ensures efficient coordination, communication, and resource management, helping to minimize the impact of disasters and protect lives and livelihoods.

The District Disaster Management Authority (DDMA) of Satara must regularly access the <https://irsdss.in/maha> portal and ensure that all critical information—such as contact details, available resources, and equipment inventories—is kept up to date.

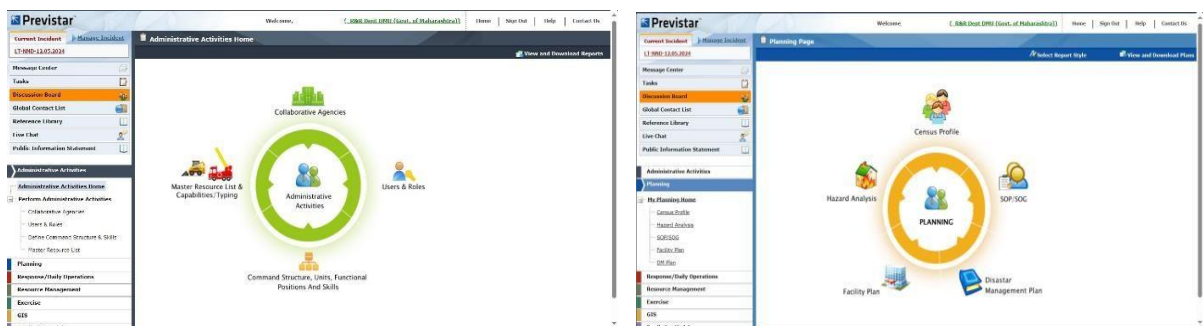


Figure 25 Dashboard of IRS-MAHA

## 8.5. Preparedness measures for effective response

Preparedness measures are essential for ensuring a timely and effective response to disasters. This proactive approach to disaster management involves a range of strategies aimed at reducing the impact of potential hazards and strengthening response capabilities. Key preparedness actions include conducting risk assessments to identify vulnerabilities, developing comprehensive disaster response plans, and organizing regular training and capacity-building programs for emergency personnel and community members.

Equally important is the availability and maintenance of critical resources, such as emergency supplies and equipment, as well as the establishment of reliable communication systems to ensure seamless coordination during crises. Public awareness campaigns and the



implementation of early warning systems also play a vital role in preparing communities to act swiftly and effectively when disasters strike. By prioritizing these preparedness efforts, both communities and organizations can significantly enhance their resilience, protect lives, and reduce the overall impact of disasters.

## 8.6. Use of EWDS

### 8.6.1.CAP Sachet

The Common Alerting Protocol (CAP) Sachet, developed by the National Disaster Management Authority (NDMA), is a standardized tool designed to enhance communication during emergencies. Accessible via <https://sachet.ndma.gov.in/>, these sachets contain structured alert messages formatted according to the CAP standard. This format ensures that alerts, warnings, and critical updates are disseminated quickly, accurately, and uniformly to the public and emergency response agencies.

In India, including Maharashtra and Satara district, CAP Sachets play a vital role in improving communication during disasters such as floods, cyclones, earthquakes, and other emergencies. By providing a common platform for alerting and information sharing, CAP Sachets help streamline coordination among various stakeholders, enhance the efficiency of response efforts, and ultimately strengthen community resilience against disasters.



Figure 26 Dashboard of CAP Sachet

## 9. Rehabilitation, Reconstruction and Recovery Measures

Rehabilitation and reconstruction in Satara district form the crucial recovery phase after disaster relief efforts, aiming to restore normalcy in affected communities. Key activities include damage assessment, debris removal, housing assistance, and aid distribution. The process also involves monitoring progress, resolving issues like unoccupied homes, and planning relocations from high-risk areas. Urban and rural development, public awareness campaigns, and capacity-building programs enhance resilience. Housing insurance is promoted, grievance redressal systems are established, and social rehabilitation supports mental health, education, and livelihoods. These efforts are coordinated by local authorities in collaboration with NGOs and state agencies.

### 9.1. Post-Disaster Rehabilitation and Reconstruction Strategies

Post-disaster reconstruction and rehabilitation should prioritize key activities that enable swift recovery in affected areas. Effective resolution of challenges requires active involvement from both the government and the impacted communities, as their combined efforts are essential for a comprehensive and sustainable recovery process.

- Damage assessment.
- Disposal of debris
- Disbursement of assistance for houses
- Formulation of assistance packages
- Monitoring and review
- Cases of non-starters rejected cases, non-occupancy of houses.
- Relocation
- Town planning and development plans
- Reconstruction as Housing Replacement Policy
- Awareness and capacity building
- Housing Insurance
- Grievance redressal

#### 9.1.1.Strategy

To ensure a swift and effective recovery in disaster-affected areas, the following strategies should be adopted:

- **Build Back Better:** Reconstruction should aim to enhance resilience and preparedness, minimizing damage in future disasters.
- **Participatory Planning:** Infrastructure upgrades must align with the social and cultural values of the affected communities, ensuring their needs and preferences are respected.
- **Effective Coordination:** A well-structured recovery plan is essential for harmonizing efforts among various development agencies. This plan should be based on thorough damage and needs assessments across multiple sectors.



Key sectors for recovery include:

- **Essential Services:** Restoration of food supply, healthcare, water, sanitation, electricity, communication, and transportation.
- **Infrastructure:** Rebuilding of housing, public buildings, and roads.
- **Livelihoods:** Reviving employment opportunities, agriculture, small-scale industries, and local businesses.

Priority should be given to the rapid restoration of essential services like electricity, water, and sanitation. Temporary solutions—such as water tankers, mobile sanitation units, and provisional power supply systems—should be deployed with the support of relevant agencies. Establishing temporary infrastructure for storage and distribution of resources is also crucial to meet immediate community needs.

## 9.2. Post-Disaster Damage and Needs Assessment

Post-disaster needs assessment is a vital step carried out after a disaster to understand its impact on affected communities and to identify both immediate and long-term requirements. This process involves collecting detailed data on the extent of damage to infrastructure, housing, livelihoods, and essential services. It also evaluates the vulnerabilities of the population and their ability to recover. The insights gained from this assessment are used to shape effective response and recovery plans, ensuring that aid reaches those who need it most. Additionally, it plays a key role in aligning the efforts of government bodies, humanitarian agencies, and local communities, promoting a well-coordinated and efficient disaster response.

### 9.2.1. PDNA District Committee members

The Post-Disaster Needs Assessment (PDNA) should function as a well-structured, collaborative mechanism involving multiple agencies. Establishing a clear management structure is essential for its effectiveness. This structure typically includes the following components:

**PDNA Management Team:** Usually led by the District Collector, this team oversees the entire assessment process. It meets regularly to provide strategic direction, make key decisions, and ensure that adequate resources are available for conducting the evaluation.

**Coordination Team:** Appointed by the management team, this group acts as a bridge between the district administration and logistical operations. Often composed of staff from district line departments, the team handles daily planning, coordinates with sector teams, liaises with the state government and donors, manages data analysis, and supports the development of the recovery and reconstruction framework. It also ensures that all logistical arrangements for the assessment are in place.

**Sector Teams:** These teams consist of technical experts from relevant line departments. State-level representatives assist district teams during field visits to collect baseline data, assess damage and losses, validate findings, and prepare sector-specific reports. These reports outline

the extent of damage and propose priorities for recovery and reconstruction.

**Report Preparation Secretariat:** Working under the coordination team, and with technical support from development partners if needed, this unit compiles the sectoral reports into a comprehensive, consolidated PDNA report. It ensures consistency and accuracy in presenting the overall findings and recommendations.

## 9.2.2.PDNA Format

### Sector-wise Damage Assessment Formats

After a disaster, every intending department shall communicate the damage-loss assessment to the district authorities through proper channels in the format below.

**Name of Department:**

**Dated:**

**Type of Hazard:**

#### Power Supply Department

Sl.no	Name of Tehsil	Name of village	Item/Services	No. of unit damage	No. of the village affected	Population affected	Recovery measure
			Feeder				
			Transformer				
			HT lines				
			LT line				
			Electric Poles				

#### Health Department

Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			PHCs (Damaged/ destroyed)	No. of buildings	
				Estimate loss (Rs.)	
			CHC's (Damaged/ destroyed)	No. of buildings	
				Estimate loss (Rs.)	
			Other Buildings (Damaged/ destroyed)	No. of buildings	
				Estimate loss (Rs.)	
			Human lives lost	Male	
				Female	
			A person who suffered	Male	

**PWD**

Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			Fully Damage Pucca House	Number of Houses	
				Estimated Loss in Rs.	
			Fully Damage Kucha House	Number of Houses	
				Estimated Loss in Rs.	
			Severely Damaged Pucca House	Number of Houses	
				Estimated Loss in Rs.	
			Severely Damaged Kuccha House	Number of Houses	
				Estimated Loss in Rs.	
			Partly damaged Houses (Pucca/Kuccha)	Number of Houses	
				Estimated Loss in Rs.	
			No. of huts damaged	Number of Houses	
				Estimated Loss in Rs.	
			Roads (all)	Number of Houses	
				Estimated Loss in Rs.	
			State Roads	Number of Houses	
				Estimated Loss in Rs.	
			District Roads	Number of Houses	
				Estimated Loss in Rs.	
Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			Village Roads	Number of Houses	
				Estimated Loss in Rs.	
			Bridges	Number of Houses	
				Estimated Loss in Rs.	
			Culvert	Number of Houses	
				Estimated Loss in Rs.	
			Hospital	Number of Houses	
				Estimated Loss in Rs.	
			Office Buildings	Number of Houses	
				Estimated Loss in Rs.	
			Police Station	Number of Houses	

				Estimated Loss in Rs.	
			Shops	Number of Houses	
				Estimated Loss in Rs.	
			Others	Number of Houses	
				Estimated Loss in Rs.	

### Agriculture Department

Sl. no	Name of Tehsil	Name of Village	Type of Crop	Total cropped area affected (in Ha)		Estimated loss to crops in Rs.		Total
				Agriculture	Horticulture	Agriculture	Horticulture	

### Livestock/Animal Husbandry Department

Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			Milch animal lost (Buffalo/Cow)	No	
				Estimate loss (Rs.)	
			Milch Animal lost (Sheep/Goat)	No	
				Estimate loss (Rs.)	
			Drought animal lost (Horse/Bullock)	No	
				Estimate loss (Rs.)	
			Drought animal lost (Calf/Donkey/Pony/Mule)	No	
				Estimate loss (Rs.)	
			Poultry Lost (Chick/Duck)	No	
				Estimate loss (Rs.)	
			Others	No	
				Estimate loss (Rs.)	

### Education Department

Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			Primary School (Damaged- fully/ Partially)	No. of Buildings Estimate loss (Rs.)	
			High School (Damaged- fully/ Partially)	No. of Buildings Estimate loss (Rs.)	
			Collages (Damaged- Fully/ Partially)	No. of buildings Estimate loss (Rs.)	
			University (Damaged- fully/ Partially)	No. of buildings Estimate loss (Rs.)	
			Other Educational Institute	No. of buildings Estimate loss (Rs.)	
			Others	No Estimate loss (Rs.)	

### Women and Child Development Department

Sl. no	Name of Tehsil	Name of Village	Items	Particulars	Total
			Anganwadi (Damaged- fully/ Partially)	No. of Buildings Estimate loss (Rs.)	
			Others (Damaged- Fully/ Partially)	No. of Buildings Estimate loss (Rs.)	
			Others	No. of Buildings Estimate loss (Rs.)	

### Food Supplies Department

Sl.no	Name of Tehsil	Name of Village	Type	No. of Godown damaged	The kind of Grain perished	Qty of Grain perished (ton)	Qty of Grain at risk (ton)	Recovery measure
			Civil Supply					
			Others					

### 9.3. Key Timeline

Recent developments in disaster assessment, particularly the adoption of the National Disaster Management Plan (2016) by the Government of India—aligned with the Sendai Framework for Disaster Risk Reduction (2015–2030)—have placed a stronger focus on resilient recovery. A key element of this approach is the accurate and timely assessment of post-disaster damage and needs.

While the PDNA Manual provides a detailed explanation of the process, the essential steps are outlined clearly. For each step, adhering to the timeline is critical to ensure an effective and coordinated response. The internationally recognized methodology, developed by the UN, European Union, and World Bank based on the UN-ECLAC model, recommends a structured timeline for conducting a comprehensive assessment. This timeline ensures that recovery planning is both timely and based on accurate, sector-specific data, enabling targeted and efficient recovery efforts.

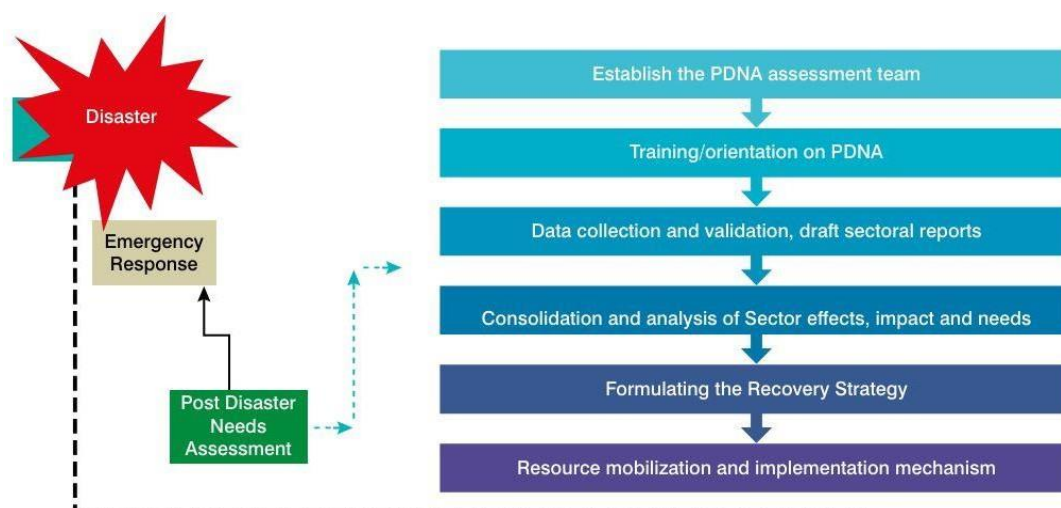


Figure 27 Steps of PDNA as per NDMA guidelines

#### Survey Timeline

Table 52 Survey Timeline for PDNA

Types	Week							
	1	2	3	4	5	6	7	8
Estimation of disaster effects								
Baseline data collection								
Field visit and survey								
Estimation of damage and production losses								
Aggregation of damage and production losses								
Estimation of disaster impact								
Micro-economic impact analysis								
Macro-social impact analysis								
Personal/household impact analysis								

Estimation of post-disaster needs										
Recovery needs										
Reconstruction needs										
Assessment report preparation										

## 9.4. SOPs for Training District Officials and Stakeholders on PDNA

### Training Contents:

1. Familiarization with the principles and structure of Post-Disaster Needs Assessment.
2. Explanation of data collection strategies, tools, and techniques used during assessments.
3. Determining key sectors for evaluation, such as housing, infrastructure, livelihoods, health, education, and the environment.
4. Guidance conducting both rapid and detailed assessments of disaster impacts.
5. Training in identifying the specific needs and vulnerabilities of affected populations.
6. Techniques for analyzing collected data to extract actionable insights.
7. Instructions on compiling assessment findings and effectively communicating them to stakeholders.
8. Hands-on activities and real-world examples to reinforce understanding and application of assessment methods.

### Training Delivery:

1. Engage experienced professionals with expertise in disaster management and assessment techniques.
2. Conduct sessions in accessible physical or virtual settings to ensure inclusive participation.
3. Use multimedia content, manuals, and interactive methods to enhance learning.
4. Promote group discussions and experience-sharing to enrich the training experience.
5. Include simulations and mock assessments for hands-on practice.
6. Implement post-training assessments to gauge knowledge retention and identify areas for improvement.

### Training Logistics:

1. Secure a suitable location with necessary facilities like AV equipment, internet, and training supplies.
2. Ensure participation from key departments and organizations involved in disaster response.
3. Provide participants with relevant resources such as presentations, handouts, and reference documents.
4. Plan sessions at convenient times with adequate duration to cover all topics thoroughly.

### Monitoring and Evaluation:

1. Monitor training delivery to ensure alignment with the agenda and address participant concerns.
2. Conduct pre- and post-training evaluations to measure learning outcomes.
3. Gather participant input to assess training quality and identify areas for enhancement.

4. Analyze results and refine future training based on lessons learned.

#### **Documentation and Reporting:**

1. Maintain detailed records including attendance, materials used, and evaluation results.
2. Prepare summaries highlighting key outcomes, feedback, and recommendations.
3. Distribute reports to relevant parties and incorporate their feedback into future training plans.

#### **Continuous Improvement:**

1. Material Updates: Regularly revise training content to reflect new insights and evolving best practices.
2. Professional Development: Support ongoing learning for trainers and participants to strengthen PDNA capabilities.
3. Collaboration and Learning: Encourage knowledge exchange among stakeholders to foster a culture of continuous improvement in disaster management.

## **9.5. Infrastructure Restoration and Reconstruction**

### **9.5.1.Short-term Recovery Programs**

Short-term recovery programs play a vital role in helping disaster-affected individuals and communities regain stability. These initiatives focus on restoring livelihoods and providing immediate support to those impacted. Key components often include temporary employment, skill development through vocational training, and income-generating activities aimed at helping people rebuild their economic independence. Financial support mechanisms such as loans, grants, and direct assistance are also critical, offering the necessary resources for individuals and small businesses to recover and rebuild. These programs act as a crucial support system, offering both practical aid and a sense of hope as communities begin their journey toward recovery and long-term resilience.

### **9.5.2.Long-term recovery programs: Sustainable livelihood**

Disaster recovery progresses through several stages, beginning with immediate relief efforts that focus on providing essential needs such as shelter, food, and clean water to those affected. As the situation stabilizes, attention shifts to repairing homes and businesses, resuming daily routines, and initiating cleanup and reconstruction activities. This process relies heavily on the combined efforts of government bodies, non-profit organizations, and the private sector to offer consistent support.

However, some individuals and communities may encounter more complex challenges that require extended timeframes and specialized assistance to fully recover. In such cases, a structured and strategic recovery approach becomes essential to address specific needs and manage intricate rebuilding efforts. Community recovery programs adopt a long-term, holistic view, aiming to meet critical recovery demands and efficiently mobilize resources. These efforts often involve the creation of dedicated committees or task forces responsible for crafting



recovery plans, securing funding, and coordinating aid.

Under the National Response Framework, the Emergency Support Function (ESF) for Community Recovery plays a key role in aligning federal resources to support the long-term recovery of states and local communities. This function emphasizes the restoration of infrastructure, housing, and local economies while also working to reduce future risks and promote sustainable recovery. While standard disaster relief and mitigation programs address many recovery needs, large-scale disasters with complex impacts require extensive inter-agency collaboration and technical expertise, which are facilitated through the ESF framework.

*Table 53 Previously distributed ex-gratia among flood, heavy rain, landslides, hailstorm, cyclone affected peoples*

<b>Year 2019</b>			
<b>Details</b>	<b>Period</b>	<b>No.</b>	<b>Ex gratia amount (in Lakh)</b>
<i>Death of people</i>	-	04	16
<i>Death of cattle</i>	-	94	17.63
<i>Fully damaged houses</i>	-	266	554.31
<i>Partially damaged houses</i>	-	6448	
<i>Farmers affected due to crop loss (July to October 2019)</i>	-	104028	6084.27
<i>Total Area (in Ha)</i>	-	24370.70	
<i>Handicraft/handloom- damage to artisans</i>	-	40	20
<i>Shopkeepers</i>	-	426	213
<i>Tapari</i>	-		
<i>Fisheries</i>	-		145.41
<b>Year 2020 and 2021</b>			
<b>Details</b>	<b>Period</b>	<b>Affected item</b>	<b>Ex gratia amount (in Lakh)</b>
<i>Hailstorm and unseasonal rain in 2020</i>	<i>Feb to May 2020</i>	<i>Agricultural crop</i>	26.22
<i>Nisarg cyclone</i>	<i>June 2020</i>	<i>Agricultural crop</i>	14.90
		<i>House damage</i>	69.29
		<i>Cattle lost</i>	0.30
<i>Heavy rains, flood</i>	<i>June to October 2020</i>	<i>Agricultural crop</i>	2481.98
		<i>Agricultural land</i>	1.53
		<i>Human</i>	16
		<i>Cattle</i>	3.15

		House damage	34.08
<b>Hailstorm and unseasonal rain</b>	Jan to Feb 2021	Agricultural crop	78.68
	Mar to May 2021	Agricultural crop	23.42
<b>Tauktae Cyclone</b>	May 2021	Human	20
		Agricultural crop	22.21
		Cattle shed	0.15
		House damage	45.78

Source: DDMA, Satara

### 9.5.3. Matrix of short-term and long-term Recovery Program

Table 54 Short term & Long-Term Recovery program Matrix

Activity/Action	Estimate of Duration (Short term)	Estimate of Duration (Long term)
<b>Warning</b>	Hours to a few days	
<b>Response/Operations</b>	Ongoing	Ongoing
<b>Emergency</b>	15 days	60 days
<b>Preparation of damage assessment</b>	4 days	4 - 8 days
<b>Disaster declaration</b>	1 – 10 days	0 – 30 days
<b>Federal/State Mitigation Strategy</b>	1 - 15 days	15 – 30 days
<b>Recovery</b>	7 – 150 days	150 – 365 days
<b>Temporary building moratorium</b>	<= 30 days	<= 60 days
<b>Letter of intent to submit HM Grant</b>	<= 60 days	<= 60 days
<b>Short term reconstruction</b>	<=1 year	200 – 365 days
<b>Long term reconstruction</b>	100 days to 5 years	5 to 10 years

## 9.6. Social and Psychological Support

Social and psychological support plays a vital role in disaster response and recovery by addressing the emotional and mental health needs of affected individuals and communities. In the wake of a disaster, people often face intense emotions such as fear, anxiety, grief, and

trauma, which can deeply affect their psychological well-being and resilience. Support programs are designed to create safe, supportive environments where individuals can openly share their experiences, express emotions, and receive empathy and guidance from trained counselors and peer support groups. These initiatives also equip people with coping strategies, stress management tools, and psychoeducational resources to help them process their experiences and regain a sense of stability. By fostering connection, community, and emotional healing, social and psychological support efforts contribute significantly to individual and collective recovery and resilience.

## 10. Social Inclusion in Disaster Risk Reduction

Disasters often intensify existing social inequalities, underscoring the need for inclusive disaster response strategies. Traditional disaster management approaches tend to treat all affected individuals as a homogeneous group, frequently overlooking disparities rooted in gender, caste, class, or other social factors. This lack of differentiation can lead to unequal support and further marginalization of vulnerable populations.

Disaster Risk Reduction (DRR) seeks to address these imbalances by recognizing that different groups have varying capacities to cope with disasters. While tackling broader social marginalization may go beyond the direct scope of DRR, it is essential for DRR efforts to be grounded in an understanding of social dynamics and to actively promote inclusivity.

The Disaster Management Act of 2005 reinforces this principle by prohibiting discrimination in disaster-related activities, acknowledging that economically disadvantaged and socially marginalized communities are often the most severely impacted. A community's vulnerability is shaped by its social, cultural, economic, and political context, which can deepen existing inequalities and exclude certain groups from participating in recovery and decision-making processes.

According to the World Summit for Social Development, social inclusion involves ensuring equity, justice, dignity, and active participation for all, while embracing diversity. In contrast, social exclusion results in discrimination and denial of rights based on identity or status, limiting individuals' ability to fully engage in society. Despite representing a significant portion of the population, socially excluded groups are often overlooked in disaster response and are underrepresented in Disaster Management Plans (DMPs).

Inclusive Disaster Risk Management aims to correct this by ensuring equal rights, opportunities, and dignity for all, regardless of age, gender, disability, or other characteristics. It promotes resilience by embracing diversity and ensuring that no one is left behind in disaster preparedness, response, and recovery efforts.

### 10.1. Gender Perspective and DRR

Gender-based vulnerabilities during disasters arise from deep-rooted societal norms and power imbalances that often privilege men over women. These disparities limit women's access to essential resources, decision-making roles, and legal protections, increasing their susceptibility to disaster impacts. Although women have valuable roles to play in disaster risk reduction, they are frequently sidelined in relief and recovery processes. Disasters tend to intensify existing gender inequalities, exposing women to heightened risks such as violence, malnutrition, and economic instability.

Post-disaster recovery efforts often fail to address the specific needs of women, especially those who are single, widowed, or lack legal ownership of property. Women frequently encounter barriers in accessing aid, participating in recovery planning, and rebuilding their lives.

However, disaster situations can also serve as catalysts for challenging traditional gender roles and empowering women. Measures such as registering rebuilt homes in joint names, providing dedicated shelters for single women and widows, and offering access to social security and income-generating opportunities can promote gender equity in recovery.

It is equally important to recognize and address the vulnerabilities of sexual and gender minorities in disaster contexts. These groups often face additional challenges due to societal stigma and discrimination, which are commonly overlooked in disaster planning and response. Including sexual and gender minorities in disaster risk reduction strategies is essential for reducing their vulnerabilities and ensuring a more inclusive and equitable approach to disaster management.

## 10.2. Scheduled Castes and Scheduled Tribes

Scheduled Castes (SC) and Scheduled Tribes (ST) form a significant part of the population in Satara district and, as recognized by the Indian Constitution, have historically faced social and economic disadvantages. Various national and state-level initiatives, including the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, aim to safeguard their rights and prevent discrimination. In the context of Disaster Risk Reduction (DRR), it is essential to acknowledge the unique challenges these communities face.

Caste-based discrimination and social exclusion remain persistent issues, which can intensify during disasters. Many SC and ST communities in Satara reside in remote or hazard-prone areas—such as hilly regions in Mahabaleshwar or forest-adjacent zones in Patan and Jawali—where infrastructure is weak and access to essential services is limited. This geographic and social marginalization increases their vulnerability to natural hazards. Women from these communities often face compounded challenges due to both caste and gender-based discrimination.

DRR efforts in Satara must ensure the active inclusion of SC and ST communities in all stages of disaster planning, implementation, and decision-making. It is crucial to avoid caste-neutral approaches that overlook systemic inequalities. Relief distribution, access to shelters, and essential services must be provided equitably, without any form of discrimination.

For Scheduled Tribes, whose cultural identity and traditional practices are protected under Schedules V and VI of the Constitution, DRR strategies should be sensitive to their unique needs. Many tribal communities in Satara, especially in forested and hilly areas, remain isolated and underserved. DRR initiatives should focus on restoring their natural resource base, ensuring timely and culturally appropriate relief, and promoting community-led recovery efforts. Customized plans aligned with the Panchayats (Extension to Scheduled Areas) Act (PESA) should be developed to ensure that tribal voices are central to disaster preparedness and recovery.

### 10.3. Children

The United Nations Convention on the Rights of the Child (1989) established binding international standards to protect children's rights, ensuring access to essentials like food, water, shelter, and education. It emphasizes safeguarding children from abuse, neglect, exploitation, and trafficking—risks that are heightened during disasters. Due to their age and limited understanding, children are especially vulnerable in emergencies and require focused care and protection.

In disaster situations, children may face separation from their families, gender-based violence, child labor, and disruptions in education and nutrition. To address these risks, post-disaster recovery efforts must prioritize the swift reopening of Anganwadi centers and schools, even in temporary facilities. These centers should be equipped with enhanced food supplies to meet children's nutritional needs.

The Juvenile Justice Act (2000) mandates the care, protection, and rehabilitation of children, establishing Child Protection Units at village and block levels. These units provide nutrition, safe recreational spaces, protection from violence and trafficking, and support for family reunification.

Multiple government bodies—including the Ministry of Women and Child Development, Ministry of Social Justice and Empowerment, and Ministry of Human Resource Development—along with relevant commissions and societies, work together to create support systems and oversee child protection during disasters. Their coordinated efforts ensure timely interventions and comprehensive care for children in crisis.

### 10.4. Elderly

The global population is aging rapidly, with projections indicating that by 2030, the number of people over 60 will surpass those under 10. While this demographic shift reflects advancements in healthcare and longevity, it also presents new challenges—particularly in disaster risk reduction (DRR). In India, increasing life expectancy and improved healthcare have contributed to a growing elderly population. However, older adults often face unique vulnerabilities during disasters, which are frequently overlooked.

Elderly individuals may struggle with mobility issues, chronic health conditions, psychological stress, and limited financial resources, making them especially susceptible during emergencies. It is essential that DRR strategies address these specific needs at every stage—from preparedness to recovery.

The UN Charter for Older People in DRR outlines three core principles: recognizing the distinct needs of older adults, ensuring they are not neglected, and valuing their experience and contributions to disaster management. Governments, aid agencies, and organizations are encouraged to uphold the rights of older people, involve them in planning, and address existing gaps in DRR policies.

In post-disaster recovery, it is crucial to provide targeted support for older individuals without displacing them from their familiar environments. Community-based support systems should be established to deliver essentials such as food, medicine, and shelter. District-level DRR plans should identify elderly residents living alone and make temporary arrangements to meet their needs. Additionally, protective measures should be taken to safeguard their property and assets.

## **10.5. Persons with Disabilities (PWD)**

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) defines persons with disabilities (PWD) as individuals with long-term physical, mental, intellectual, or sensory impairments that, in interaction with various barriers, hinder their full and effective participation in society. The convention highlights the importance of including PWD in disaster risk reduction (DRR) and relief efforts.

In India, there are approximately 2.68 crore persons with disabilities, accounting for about 2.2% of the total population, with the majority living in rural areas. Research indicates that PWD are disproportionately affected during disasters due to limited personal preparedness and insufficient consultation regarding their specific needs. Evacuation during emergencies is often difficult for many PWD, and they frequently feel excluded from humanitarian aid and response mechanisms.

Throughout the disaster risk management (DRM) cycle, PWD encountered numerous barriers, including restricted access to information, services, and social participation, as well as being overlooked during relief distribution. To address these challenges, DRR strategies must be inclusive and responsive to the unique vulnerabilities of PWD.

Community-based support systems—such as buddy systems—can play a crucial role in assisting PWD during emergencies. It is also important for PWD to proactively identify trusted individuals who can support them and be informed about their specific needs. Disaster response plans should maintain updated lists of PWD requiring special care, and all post-disaster facilities must be accessible and barrier-free.

Additionally, special provisions may be needed to protect the property and assets of persons with disabilities, ensuring their rights and dignity are upheld throughout the disaster response and recovery process.

# 11. Financial Arrangements/ Resources

## 11.1. Recommendation by XV Finance Commission

The 15th Finance Commission has introduced important recommendations for strengthening Disaster Risk Management (DRM) in India. These are detailed in two reports: one for the fiscal year 2020–21 (Chapter 6) and the final report covering 2021–22 to 2025–26 (Chapter 8).

A major shift in approach is the new allocation methodology, which moves away from the earlier expenditure-based model. Instead, it incorporates a combination of factors: a state's capacity (based on past spending), risk exposure (area and population), and hazard and vulnerability (measured through a disaster risk index).

The Commission recommends that states contribute 25% of the allocation, while Northeastern and Himalayan (NEH) states contribute 10%. It also proposes a restructured funding mechanism through the creation of two dedicated funds:

- **National Disaster Risk Management Fund (NDRMF)** at the central level
- **State Disaster Risk Management Fund (SDRMF)** at the state level of the total grants earmarked for disaster management:
- **20%** is allocated for **mitigation**
- **80%** is reserved for the **response fund**, which is further divided into:
  - **40%** for **Response & Relief**
  - **30%** for **Recovery & Reconstruction**
  - **10%** for **Preparedness & Capacity Building**

This structure aims to ensure a balanced approach—addressing immediate disaster response needs, supporting long-term recovery, and enhancing preparedness through training and capacity development.

For the period **2021–26**, the Commission recommends:

- **₹1,60,153 crore** for **SDRMF** (for states)
- **₹68,463 crore** for **NDRMF** (for states)

These recommendations form a comprehensive DRM framework that emphasizes both rapid response and resilience-building for future disaster preparedness.



## Summary of Recommendations

The contribution ratio for disaster management funding, as recommended by the 13th Finance Commission, should be retained. Under this arrangement, states are required to contribute 25% to the State Disaster Response Fund (SDRF) and State Disaster Mitigation Fund (SDMF), while the Northeastern and Himalayan (NEH) states contribute only 10%, with the Union government covering the remaining share.

- Mitigation Funds should be established at both national and state levels in accordance with the Disaster Management Act. These funds should be utilized for local and community-based initiatives that aim to reduce disaster risks and promote sustainable, environmentally friendly settlement and livelihood practices.
- The allocation of disaster management funds to State Disaster Risk Management Funds (SDRMFs) should be based on a combination of factors: past expenditure (indicating institutional capacity), area and population (reflecting risk exposure), and the disaster risk index (capturing hazard and vulnerability). Based on an assumed annual increase of 5%, the total recommended corpus for the period 2021–26 is ₹1,60,153 crore, with ₹1,22,601 crore as the Union government's share and ₹37,552 crore as the states' contribution.
- The total allocation to SDRMF should be divided to cover the full disaster management cycle. Of this, 80% should be allocated to the SDRF and 20% to the SDMF. The SDRF's share should be further broken down into 40% for Response and Relief, 30% for Recovery and Reconstruction, and 10% for Preparedness and Capacity Building. This structured approach ensures a balanced focus on immediate response, long-term recovery, and strengthening disaster preparedness. While the SDRF and SDMF funding windows are not interchangeable, there could be flexibility re-allocation within the three sub-windows of SDRF.
- The allocation for the NDRMF should be based on expenditure in previous years. Assuming an annual increase of 5 per cent, the total national allocation for disaster management is estimated to be Rs. 68,463 crores for 2021-26.
- The allocation for the NDRMF should also be subdivided into funding windows like that of the States' allocation for disaster management. Hence, the NDRF should get 80 per cent of the total allocation for the NDRMF, with further division into 40 per cent for Response and Relief, 30 per cent for Recovery and Reconstruction and 10 per cent for Preparedness and Capacity-building. The NDMF should be allotted 20 per cent of the total allocation for the NDRMF. If required, the Ministry of Home Affairs may examine the need to amend the Disaster Management Act to create three sub-windows within the NDRF. While the funding window of NDRF and NDMF should be maintained, there could be flexibility for re-allocation within these sub-windows.
- To discourage excessive and unsubstantiated demands from States, all Central Assistance through the NDRF and NDMF should be provided on a graded cost-sharing basis. States

should contribute 10 per cent for aid up to Rs. 250 crores, 20 per cent for assistance up to Rs. 500 crore and 25 per cent for all assistance exceeding Rs. 500 crores.

- A Recovery and Reconstruction Facility should be established within the NDRF and SDRF. Assistance for recovery and reconstruction is generally a multi-year program, and the assistance shared between the Union and States needs to be released annually against expenditures and only as a percentage of the total cost.
- State Governments need essential disaster preparedness to respond effectively to disasters. Their institutions and facilities must be well-functioning to meet a situation's necessities. The readiness and capacity-building grants could support the SDMA, SIDM, training and capacity-building activities and emergency response facilities. A Similar window of preparedness and capacity-building should be made available within the NDRF, which could be used to support national agencies.
- Major capital works required proper upstream river basin management (to mitigate annual flood disasters caused by river erosion) with gestation periods of ten to fifteen years cannot be accommodated through the Finance Commission award. Therefore, we recommend that such projects be considered national priority projects. Only such holistic projects can help address flood mitigation adequately. A piecemeal approach will result in the annual washing away of river embankments.
- There should be six earmarked allocations for a total amount of Rs. 11,950 crores for certain priority areas, namely, two under the NDRF (Expansion and Modernization of Fire Services and Resettlement of Displaced People affected by erosion) and four under the NDMF (Catalytic Assistance to Twelve Most Drought-prone States, Managing Seismic and Landslide Risks in Ten Hill States, Reducing the Risk of Urban Flooding in Seven Most Populous Cities and Mitigation Measures to Prevent Erosion).
- The allocation for the National Disaster Risk Management Fund (NDRMF) should be determined based on past expenditure trends. Assuming a 5% annual increase, the total national allocation for disaster management for the period 2021–26 is projected at ₹68,463 crore.
- Like the state-level structure, the NDRMF should be divided into specific funding windows. 80% of the total allocation should go to the National Disaster Response Fund (NDRF), further split into 40% for Response and Relief, 30% for Recovery and Reconstruction, and 10% for Preparedness and Capacity Building. The remaining 20% should be allocated to the National Disaster Mitigation Fund (NDMF). If necessary, the Ministry of Home Affairs may consider amending the Disaster Management Act to formally establish these three sub-windows within the NDRF. While the overall structure should be maintained, some flexibility in reallocating funds between sub-windows may be allowed.
- To prevent excessive and unjustified demands from states, central assistance from the NDRF

and NDMF should follow a graded cost-sharing model. States should contribute 10% for aid up to ₹250 crore, 20% for aid up to ₹500 crore, and 25% for assistance exceeding ₹500 crore.

- A dedicated Recovery and Reconstruction Facility should be created within both the NDRF and SDRF. Since recovery and reconstruction are typically multi-year efforts, funding should be released annually, based on actual expenditures and as a proportion of the total project cost.
- States must strengthen their disaster preparedness capabilities. This includes ensuring that institutions and emergency facilities are fully functional. Preparedness and capacity-building grants can support State Disaster Management Authorities (SDMAs), State Institutes of Disaster Management (SIDMs), training programs, and emergency response infrastructure. A similar preparedness window should be available within the NDRF to support national-level agencies.
- Large-scale capital projects, especially those related to upstream river basin management for flood mitigation, often have long gestation periods (10–15 years) and cannot be funded through Finance Commission allocations. Such projects should be treated as national priority initiatives, as only comprehensive solutions can effectively address recurring flood risks. Fragmented efforts will continue to result in annual damage to river embankments.
- Lastly, a total of ₹11,950 crore should be earmarked for six priority areas. Two of these fall under the NDRF—Expansion and Modernization of Fire Services and Resettlement of People Displaced by Erosion. The remaining four fall under the NDMF—Catalytic Assistance to Twelve Most Drought-Prone States, Managing Seismic and Landslide Risks in Ten Hill States, Reducing Urban Flood Risk in Seven Major Cities, and Mitigation Measures to Prevent Erosion.
- A streamlined and institutionalized payment system between the Ministry of Home Affairs and the Ministry of Defense should be established through mutual consultation. Three potential models for this system have been proposed to ensure efficiency and clarity in financial transactions.
- To enhance institutional capacity, a dedicated mechanism should be created to oversee the National and State Disaster Risk Management Funds (NDRMF and SDRMF) and to explore additional funding sources. A comprehensive disaster database should also be developed to evaluate the impact of expenditures across various aspects of disaster management. Measures such as directing financial assistance to women household members can further improve the effectiveness and inclusivity of disaster response. The National Disaster Management Authority (NDMA) must take a proactive role in collaborating with states to drive reforms in disaster management.
- To improve the process of accessing central assistance, the current system for damage

assessment should be replaced with a two-stage evaluation: an initial Humanitarian Needs Assessment for immediate relief, followed by a Post-Disaster Needs Assessment (PDNA) for long-term recovery and reconstruction.

- All newly introduced funding windows should be supported by detailed guidelines, which should be developed under the leadership of the NDMA.
- An annual national report should document allocations, expenditures, key achievements, and outcomes based on indicators aligned with the Sendai Framework for Disaster Risk Reduction (SFDRR). These indicators, defined by the NDMA, will help assess the contribution of disaster funding to national and state-level capacity building.
- In cases where SDRMF and NDRMF resources are insufficient, both the Union and State governments should consider alternative financial instruments such as reconstruction bonds, contingent credit lines, crowdfunding platforms, and corporate social responsibility (CSR) contributions.
- Additionally, insurance mechanisms should be introduced as a social safety net to complement existing financial systems. These could include a national insurance scheme for disaster-related fatalities, integration of crop insurance with relief efforts, a risk pool for infrastructure protection, and access to international reinsurance for rare, high-impact hazard events.

## **11.2. SDRF & SDMF Guidelines**

The guidelines for the constitution and administration of the State Disaster Response Fund (SDRF) provide a clear and organized framework for managing disaster response at the state level. Issued under the Disaster Management Act, 2005, these guidelines cover key aspects such as the operational period, funding structure, types of disasters covered, fund constitution, contributions, release mechanisms, and administrative procedures essential for effective disaster response.

The operational period for these guidelines spans from 2021–22 to 2025–26, as recommended by the 15th Finance Commission. During this period, the State Disaster Risk Management Fund (SDRMF) is divided into two components: the SDRF, which receives 80% of the total allocation, and the State Disaster Mitigation Fund (SDMF), which receives the remaining 20%. The SDRF is further categorized into sub-allocations for Response and Relief, Recovery and Reconstruction, and Preparedness and Capacity Building.

The SDRF is intended to provide immediate relief for a range of disasters, including cyclones, floods, earthquakes, droughts, fires, hailstorms, landslides, avalanches, tsunamis, pest attacks, frost, and cold waves. States are also permitted to use up to 10% of the SDRF for local disasters not listed by the Ministry of Home Affairs, provided they follow established norms.

The SDRF is constituted as a Reserve Fund, with contributions from both the Central and State Governments. Interest earned on the fund is credited semi-annually, and the fund is strictly

used for disaster response and relief activities. The total corpus is determined by the Finance Commission, with the Central Government contributing 75% to 90%, depending on the state's classification. States are required to make timely budgetary provisions for their share.

All expenditures from the SDRF must be properly recorded, and any deviation from prescribed accounting standards may result in the suspension of further fund releases. The Central Government's share is released in two installments, contingent upon compliance with accounting norms and the establishment of a State Executive Committee (SEC).

Each state must form an SEC, which is responsible for managing the SDRF, including decisions on fund utilization, contributions, and investments. The Accountant General maintains the fund's accounts, while the Comptroller and Auditor General (CAG) conducts annual audits to ensure transparency and adherence to guidelines.

The SDMF, which receives 20% of the SDRMF allocation, is dedicated to disaster mitigation efforts. It supports projects aimed at reducing disaster risks, such as infrastructure improvements, early warning systems, and community-based risk reduction programs. Unlike the SDRF, which focuses on immediate relief, the SDMF emphasizes proactive measures to build resilience and reduce the long-term impact of disasters on communities and the economy.

### 11.3. Fund outlay and year-wise status of Utilization

STATE DISASTER RISK MANAGEMENT FUND (SDRMF)							FUNDS (PERCENTAGE ALLOCATION)	
(IN CRORES) 100%							(IN CRORES)	
SDRMF	2021-22	2022-23	2023-24	2024-25	2025-26	Total	SDMF (20%)	32031
							SDRF (80%)	128122
Union Share	22184	23294	24466	25688	26969	122601	Response & Relief (40%)	64061
States' share	6799	7137	7491	7864	8261	37552	Recovery & Reconstruction (30%)	48046
							Preparedness & capacity building (10%)	16015
<b>TOTAL</b>	<b>28983</b>	<b>30431</b>	<b>31957</b>	<b>33552</b>	<b>35230</b>	<b>160153</b>	<b>Total</b>	<b>160153</b>

•Funding Windows of SDRF and SDMF are not Interchangeable  
 •Flexibility for re-allocation within three sub windows of SDRF up to 10% of the earmarked allocation has been recommended

Figure 28 Funding outlay and year wise status of utilization

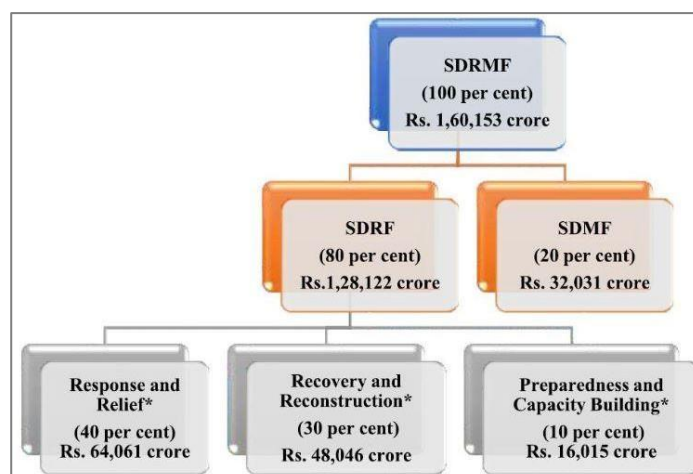


Figure 29 Fund distribution structure

*Table 55 Allocation of State Disaster Response Fund for 2021-26*

<b>Year</b>	<b>State Share</b>	<b>Central Share</b>	<b>Total</b>
<b>2021-22</b>	859.2	2577.6	3436.8
<b>2022-23</b>	902.4	2706.4	3608.8
<b>2023-24</b>	947.2	2841.6	3788.8
<b>2024-25</b>	994.4	2984	3978.4
<b>2025-26</b>	1044	3132.8	4176.8
<b>Total</b>	<b>4747.2</b>	<b>14242.4</b>	<b>18989.6</b>

## 11.4. Centrally Sponsored Schemes Supporting DRR and State Schemes

In Satara district, several national and state-level development schemes play a crucial role in enhancing disaster resilience and reducing vulnerabilities across rural and urban areas:

- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) not only provides livelihood security through guaranteed rural employment but also contributes to DRR by supporting the construction of community assets such as check dams, water harvesting structures, and rural roads. These assets help mitigate the impact of floods and droughts, particularly in drought-prone talukas like Khatav and Man.
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT) supports urban resilience in towns like Satara, Karad, and Wai by improving infrastructure related to water supply, sewerage, and urban transport. Many of these projects integrate disaster-resilient features such as stormwater drainage systems and flood control measures.
- The National Rural Drinking Water Program (NRDWP) and Jal Jeevan Mission (JJM) aim to ensure safe and sustainable drinking water in rural areas. In Satara, these programs are vital for maintaining water security during droughts and floods, with efforts focused on source protection, water quality monitoring, and household tap connections, including in schools and Anganwadi centers.
- Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) enhances agricultural resilience by promoting efficient irrigation, watershed development, and rainwater harvesting. These interventions are especially beneficial in Satara's semi-arid zones, helping farmers cope with erratic rainfall and water scarcity.
- The National Rural Livelihoods Mission (NRLM) empowers vulnerable rural households, including those affected by disasters, by promoting self-help groups (SHGs), skill development, and access to credit. In Satara, this has helped women and marginalized communities build economic resilience.
- State Urban Development Schemes, aligned with AMRUT, are being implemented in

Satara's urban centers to improve infrastructure resilience. These include earthquake-resistant construction, flood mitigation systems, and solid waste management.

- Swachh Bharat Mission (Grameen) Phase-II focuses on sustaining Open Defecation Free (ODF) status and implementing solid and liquid waste management in all villages. In disaster-prone areas, this helps prevent the spread of disease and ensures hygiene even during emergencies.

With climate change impacting agriculture, water resources, and infrastructure, schemes like agricultural insurance and Direct Benefit Transfers (DBT) under the Pradhan Mantri Garib Kalyan Yojana have provided critical support. During the COVID-19 pandemic, Satara residents benefited from cash transfers and free food grains, helping them cope with economic disruptions.

Financial inclusion programs such as the Pradhan Mantri Jan Dhan Yojana and MUDRA Yojana have enabled people in Satara to access banking services and affordable credit, strengthening their financial resilience in the face of disasters.

The Standard Operating Procedures for Rural Drinking Water and Sanitation in Natural Disasters, issued by the Department of Drinking Water and Sanitation, guide local authorities in Satara on maintaining WASH services during emergencies, preventing communities from reverting to unsafe practices.

## 11.5. Other Financing Options

In addition to government schemes, Disaster Risk Reduction (DRR) can be supported through a variety of non-governmental financing mechanisms that enhance community resilience and preparedness:

- Corporate Social Responsibility (CSR): Many companies allocate a portion of their profits to CSR initiatives, which can include DRR-related activities. These funds can be used for building resilient infrastructure, conducting disaster preparedness training, and supporting rehabilitation in disaster-affected areas.
- Public-Private Partnerships (PPPs): Collaborative efforts between government bodies, private sector organizations, and civil society can pool resources for DRR. PPPs are effective in funding large-scale projects such as early warning systems, resilient housing, and critical infrastructure upgrades.
- Crowd funding: Online platforms enable individuals and communities to raise funds for specific DRR projects. These may include constructing community shelters, installing local alert systems, or supporting grassroots preparedness initiatives.
- Disaster-Specific Campaigns: In the aftermath of disasters, targeted crowdfunding campaigns can rapidly mobilize financial support for emergency response and recovery.

These campaigns often attract global contributions, enabling swift aid delivery.

- **Philanthropic Foundations:** Many foundations offer grants for DRR-focused programs, including risk assessments, community education, and capacity-building. These funds often support long-term resilience strategies and innovation in disaster management.
- **Endowments:** Some organizations establish dedicated endowment funds to ensure sustained financial support for DRR initiatives over time, helping maintain continuity in resilience-building efforts.
- **Grant Programs:** International donors and aid agencies provide grants to governments, NGOs, and local communities for DRR projects. These grants typically fund preparedness training, infrastructure development, and livelihood restoration.
- **Technical Assistance:** Beyond funding, international organizations also offer technical support, including expert guidance, training, and knowledge-sharing to strengthen DRR capabilities at all levels.



## 12. Monitoring Evaluation, Updation Maintenance and Dissemination of DDMP

The District Disaster Management Plan (DDMP) for Satara is developed with the goal of public accessibility, aiming to inform both the general public and all relevant stakeholders including departments, institutions, and agencies involved in disaster management. This plan acts as a detailed reference, outlining the policies, strategies, and procedures necessary to reduce disaster risks and enhance preparedness. Its primary objective is to minimize the impact of disasters and protect lives and property. A key principle emphasized in the plan is the integration of disaster management across all sectors, reinforcing that disaster preparedness and response is a shared responsibility that requires coordinated efforts from every department and agency.

### 12.1. Plan Evaluation

The District Disaster Management Authority (DDMA), Satara, conducts biannual reviews of the District Disaster Management Plan (DDMP), with formal updates carried out annually before the onset of the monsoon, typically in May. Once approved by the competent authorities, the revised plan is circulated among all relevant stakeholders within the DDMA. As per the Disaster Management Act, 2005, the DDMA is entrusted with the planning, coordination, monitoring, and execution of the DDMP.

- Initial drafts of the DDMP are discussed within the DDMA, and the final version is approved by the Chairman.
- In accordance with Section 31, Clause (4) of the Disaster Management Act, the DDMP is subject to annual review and revision by the DDMA.
- The review process includes the integration of vertical and horizontal plans into the district-level framework.
- Once finalized and approved, the updated DDMP is shared with all stakeholders involved in disaster management within the district.
- The DDMA also monitors the implementation of the plan and issues necessary directives to ensure effective execution.
- The DDMP includes the following components:
  - a) Identification of disaster-prone areas within the district.
  - b) Preventive and mitigation measures to be undertaken by district-level government departments and local authorities.
  - c) Capacity-building and preparedness activities to be implemented by government departments and local bodies to effectively respond to potential disasters.

- d) Response plans and procedures in the event of a disaster, including:
- i. Assignment of responsibilities to district-level departments and local authorities.
  - ii. Mechanisms for prompt disaster response and relief.
  - iii. Procurement of essential resources.
  - iv. Establishment of communication systems.
  - v. Public information dissemination strategies.
- e) Any additional matters as may be specified by the State Authority.
- A copy of the finalized District Plan is submitted to the State Authority, which then forwards it to the State Government.
  - To assess disaster management activities and evaluate the DDMP, biannual meetings are held under the chairmanship of the DDMA Chairman – Satara. During these meetings, all participating departments and agencies provide recommendations on specific disaster management issues and are instructed to submit quarterly progress reports.

## **12.2. Post-Disaster Evaluation**

The Chairman of the District Disaster Management Authority (DDMA) is responsible for establishing specialized protocols to systematically collect data following any disaster, regardless of its scale or severity. This post-disaster assessment mechanism will involve collaboration with qualified professionals, subject matter experts, and researchers to ensure that the data collected is thoroughly verified, cross-checked, and documented for future reference and learning.

The DDMA will conduct evaluations of the District Disaster Management Plan (DDMP) through structured meetings and consultations with all relevant stakeholders.

## **12.3. Plan Update**

The Chairman of the District Disaster Management Authority (DDMA), Satara, is responsible for ensuring the regular revision and updating of the District Disaster Management Plan (DDMP) in collaboration with all relevant line departments. This process takes into account several key considerations specific to the district's evolving risk landscape and operational needs:

- Reviewing and updating the district's resource inventory, including equipment, trained personnel, and their contact details, to ensure readiness during emergencies.
- Incorporating lessons learned from past disasters in Satara—such as floods, landslides,

and droughts—by updating the disaster history matrix with new insights and response outcomes.

- Adjusting operational protocols and locations based on revised Standard Operating Procedures (SOPs) and updated checklists to reflect current realities.
- Integrating feedback from training programs and near-miss incidents reported by departments and field teams to improve preparedness.
- Utilizing insights from mock drills and simulation exercises conducted across talukas like Karad, Wai, and Mahabaleshwar to refine response strategies.
- Updating the district's hazard profile to reflect any changes in the frequency, intensity, or nature of disasters, especially in light of climate variability.
- Adopting new technologies and innovations for hazard detection and risk mapping, including the use of drones, sensors, and AI-based forecasting tools.
- Modernizing databases using Geographic Information Systems (GIS) to enhance spatial planning and resource deployment.
- Considering demographic shifts, such as urbanization in Satara city and migration trends in rural areas, which may influence vulnerability and resource needs.
- Accounting for changes in the geo-political or administrative landscape, such as new development projects, infrastructure expansion, or policy changes that could affect disaster management strategies.

## **12.4. Desktop Review**

Desktop review plays a vital role in enhancing a District Disaster Management Plan (DDMP). It involves a detailed evaluation and analysis of existing documents, reports, and data associated with disaster management in the district. This process typically includes a broad array of materials such as earlier versions of the DDMP, documentation of past disaster events, hazard vulnerability assessments, records of training sessions and simulation exercises, and pertinent policy frameworks. The objective of the desktop review is to pinpoint areas needing enhancement, identify gaps in current preparedness measures, and recognize new or evolving risks that must be addressed in the updated plan. By thoroughly reviewing existing information and learning from previous experiences, decision-makers can ensure that the revised DDMP is robust, actionable, and specifically aligned with the district's unique challenges and risk profile.

## **12.5. Consultation with Key Officials**

To ensure effective disaster management in the district, the District Disaster Management Authority (DDMA), Satara, must foster strong coordination and consultation among diverse

stakeholders, local governing bodies, and relevant authorities. This collaboration should also encompass linkages with higher-level agencies such as the State Disaster Management Authority (SDMA) and the National Disaster Management Authority (NDMA). These partnerships emphasize the importance of integrated efforts across all tiers of disaster management to enable efficient planning, service delivery, information exchange, and optimal resource utilization—ultimately strengthening the district’s disaster resilience.

A structured, hierarchical consultation mechanism is vital, beginning at the village level and extending through tehsil, sub-division, and district levels. To support the effective implementation of the District Disaster Management Plan (DDMP), the chairperson or CEO of DDMA must ensure the following institutional arrangements within the district:

- a. **Active disaster management committees or task forces** at each administrative level—village, tehsil, sub-division, and district—tasked with planning, organizing, coordinating, and executing disaster risk reduction, preparedness, response, and recovery initiatives.
- b. **Emergency Operation Centers (EOCs)** established at the sub-division and district levels to streamline disaster response by managing information flow, coordinating resources, and facilitating service delivery.
- c. **Integrated functioning of district-level agencies**, including the DDMA and the District Emergency Operation Center (DEOC), to address specific hazards and provide support to other departments as required.

## 12.6. Field/Observation Study

A field/observation study is a critical component in the process of upgrading a District Disaster Management Plan (DDMP), as it offers direct, on-the-ground insights into the district’s vulnerabilities, available resources, and response capacities. This study entails visiting various locations across the district—both urban and rural—to evaluate infrastructure, natural landscapes, population distribution, communication systems, healthcare services, evacuation pathways, and other key elements.

Through field surveys, direct observations, and interviews with essential stakeholders, including local officials, community representatives, emergency personnel, and residents valuable, context-specific data can be collected to guide the refinement of the DDMP. This approach helps uncover existing gaps and challenges in disaster preparedness and response, evaluates the effectiveness of current mitigation strategies, and identifies the unique needs and priorities of different areas within the district.

Moreover, the field/observation study serves to validate information gathered during the desktop review, ensuring that the revised DDMP is grounded in actual conditions and accurately reflects the district’s specific characteristics. Ultimately, a thorough field/observation study lays the groundwork for evidence-based decision-making and the development of customized strategies to strengthen the district’s disaster resilience.

## 12.7. Guidance for DDMP Review

- **Establish a Review Committee:** Create a multidisciplinary committee that includes representatives from key government departments, emergency services, NGOs, community leaders, and other stakeholders engaged in disaster management.
- **Perform a Desktop Review:** Conduct a comprehensive analysis of the current DDMP to assess its relevance, effectiveness, and alignment with present-day disaster risks, policies, and best practices. Identify outdated content, gaps, and areas needing improvement.
- **Conduct Field/Observation Study:** Carry out site visits across the district to evaluate real-world conditions, vulnerabilities, and capacities. Collect firsthand data through surveys, stakeholder interviews, and direct observation of infrastructure, natural features, and community settings.
- **Engage in Stakeholder Consultation:** Facilitate broad-based consultations with key stakeholders to gather feedback and suggestions for improving the DDMP. Include voices from local authorities, emergency personnel, community organizations, and vulnerable groups to ensure inclusiveness.
- **Review Plan Components:** Examine each section of the DDMP—hazard identification, risk analysis, mitigation plans, response strategies, recovery frameworks, and coordination systems. Evaluate their clarity, practicality, and effectiveness, and identify areas for enhancement.
- **Update Hazard Profiles:** Revise hazard profiles using the latest scientific research, historical data, and emerging risks. Including new threats such as pandemics and technological hazards in the risk assessment.
- **Strengthen Preparedness Measures:** Identify and address gaps in training, resources, and coordination. Design targeted capacity-building programs based on findings from the review process.
- **Improve Coordination Mechanisms:** Enhance collaboration among government agencies, departments, and stakeholders. Clearly define roles, responsibilities, and communication protocols to ensure efficient coordination during emergencies.
- **Integrate Lessons Learned:** Incorporate insights from past disaster events, simulations, and drills. Analyze what worked, what didn't, and apply those lessons to improve the DDMP's adaptability and responsiveness.
- **Finalize the Updated DDMP:** Consolidate all feedback, findings, and revisions into a comprehensive and actionable updated DDMP. Ensure alignment with national and international disaster management standards.
- **Seek Approval and Adoption:** Submit the revised DDMP to the District Disaster Management Authority (DDMA) for formal approval. Obtain endorsements from relevant authorities and stakeholders.

- **Disseminate and Train:** Share the updated DDMP widely among stakeholders. Organize training programs, workshops, and mock drills to ensure everyone understands their roles and responsibilities.
- **Establish Periodic Review and Updates:** Set a regular schedule for reviewing and updating the DDMP. Monitor implementation, evaluate outcomes, and adjust strategies to address evolving risks and priorities.

## 12.8. DDMP review, NDMA-2014 and NDMP 2019 Sharing the report for the Feedback and Finalization

As part of the review process, it is crucial to ensure that District Disaster Management Plans (DDMPs) are aligned with the evolving priorities, frameworks, and guidelines issued by the National Disaster Management Authority (NDMA). The NDMA's 2014 guidelines and the National Disaster Management Plan (NDMP) of 2019 offer detailed frameworks and standards for disaster management across national, state, and district levels. These documents lay out essential principles, strategies, and actions for risk reduction, effective response, and post-disaster recovery.

A thorough review of existing DDMPs is necessary to evaluate their adequacy, relevance, and effectiveness in addressing both current and emerging risks. This review should specifically assess how well the plans align with the NDMA-2014 guidelines and the NDMP 2019 framework.

Following the review, all findings, insights, and proposed updates should be compiled into a detailed report. This report should highlight strengths, identify areas needing improvement, and outline specific actions required to enhance the DDMPs.

The report should then be shared with key stakeholders—including district officials, government departments, NGOs, community leaders, and other disaster management partners. Their feedback should be actively sought to ensure the revised DDMPs reflect a shared understanding of local risks, vulnerabilities, and priorities.

Through collaborative consultation and feedback, the DDMPs can be finalized with the necessary updates and improvements. This iterative and inclusive approach ensures that the plans remain dynamic, responsive, and relevant to the district's changing disaster management landscape.

By aligning DDMPs with NDMA guidelines and involving stakeholders throughout the review and finalization process, districts can significantly strengthen their capacity to prepare for, respond to, and recover from disasters—ultimately enhancing community resilience and safety.

## 13. Disaster Risk Governance

### 13.1. Mainstreaming DRR in developmental planning

Disasters, depending on their magnitude, can severely disrupt the development trajectory of affected regions, potentially undoing decades of progress. Development efforts that overlook disaster risks and fail to incorporate adequate risk reduction strategies may inadvertently intensify existing vulnerabilities or introduce new ones, thereby amplifying the adverse impacts of future disasters.

Mainstreaming Disaster Risk Reduction (DRR) involves the systematic and meaningful integration of DRR into all development planning and execution processes. This approach aims to strengthen disaster resilience, minimize losses, and accelerate progress toward sustainable development goals. It emphasizes the concurrent and seamless inclusion of both development and DRR considerations into policies, strategies, and implementation frameworks.

Given that climate change acts as a risk multiplier—exacerbating uncertainties and intensifying hydro-meteorological hazards—effective DRR mainstreaming must also account for how climate change reshapes risk landscapes. Unfortunately, DRR mainstreaming is often misunderstood or vaguely applied by decision-makers and practitioners, which undermines its potential impact. Addressing this gap in understanding is essential.

Looking ahead, DRR mainstreaming is expected to play an increasingly central role in both development and disaster management. As such, it stands as a foundational pillar of the District Disaster Management Plan (DDMP). In many respects, the objectives of the Sustainable Development Goals (SDGs), climate change adaptation, and disaster resilience are deeply interconnected. DRR mainstreaming promotes resilience-building not as a secondary element of disaster planning, but as a core strategy embedded within all development initiatives.

### 13.2. Inter-Agency Coordination

Effective inter-agency coordination at the district level is vital for robust disaster governance, timely response, early warning dissemination, and the implementation of non-structural risk reduction measures. In India, this coordination is primarily facilitated by the District Disaster Management Authority (DDMA), as mandated by the Disaster Management Act of 2005.

Each district's DDMA serves as the central body for planning and executing disaster management activities. Chaired by the District Magistrate or Collector, the DDMA includes officials and experts from various departments, ensuring a multidisciplinary approach to disaster preparedness and response. Its core responsibilities include developing and executing the District Disaster Management Plan (DDMP), coordinating district-level activities, mobilizing resources, and conducting public awareness campaigns.

The DDMA works in close collaboration with both governmental and non-governmental entities, including other DDMAAs, the State Disaster Response Force (SDRF), the National



Disaster Response Force (NDRF), and various emergency services. This collaboration ensures efficient coordination during emergencies and optimal use of available resources. The DDMA is also authorized to issue directives and guidelines to local authorities and agencies to ensure effective implementation of disaster management strategies.

A key function of the DDMA is the dissemination of early warnings and alerts for hazards such as earthquakes, floods, cyclones, epidemics, industrial accidents, fires, and road mishaps. Institutional mechanisms like the District Crisis Management Group (Task Force) further strengthen coordination by managing critical response functions through specialized task forces. These task forces are led by designated agencies and are responsible for specific areas such as planning and coordination, administration, warning systems, search and rescue, public health, shelter management, logistics, damage assessment, telecommunications, and media relations.

Additionally, advisory bodies such as the District Disaster Management Committee (DDMC) or District Disaster Management Advisory Committee (DDMAC) provide expert guidance on various thematic areas. These committees include specialists from government departments, research institutions, and NGOs, ensuring a holistic approach to disaster governance.

Coordination structures also extend to various administrative levels, including Urban Area Disaster Management Committees, Block Disaster Management Committees, and Gram Panchayat/Village Disaster Management Committees. These local bodies are responsible for formulating and implementing disaster management plans at their respective levels, promoting decentralized and community-based disaster preparedness and response.

### **13.3. Roles and Responsibilities of the Line Departments in preparedness, Response and Recovery**

#### **13.3.1. Phase 1: Preparedness**

##### **District Administration / Collector's Office**

- Prepares and regularly updates the District Disaster Management Plan (DDMP).
- Coordinates with various departments to assess available resources and capabilities.
- Organizes mock drills and simulation exercises to evaluate preparedness.
- Sets up communication systems and early warning mechanisms.

##### **District Disaster Management Authority (DDMA)**

- Develop disaster management policies and operational guidelines.
- Carries out risk analysis and hazard mapping activities.
- Organizes training sessions and capacity-building initiatives for stakeholders.
- Ensures emergency supplies and equipment are readily accessible.



## **Health Department**

- Develops medical emergency response strategies and maintains essential drug reserves.
- Provides disaster response training to healthcare personnel.
- Identifies and prepares health facilities for handling large-scale emergencies.
- Implements systems for disease monitoring and outbreak detection.

## **Fire and Emergency Services**

- Conducts fire safety audits and public awareness programs.
- Trains teams in rescue operations and emergency response techniques.
- Acquires and maintains firefighting tools and emergency vehicles.
- Establishes mutual support arrangements with adjacent districts.

## **Public Works Department (PWD)**

- Evaluates the vulnerability of key infrastructure assets.
- Plans for rapid restoration of infrastructure post-disaster.
- Procures essential emergency tools like water pumps and generators.
- Identifies and designates safe zones for emergency shelters.

## **13.3.2. Phase 2: Response**

### **District Administration / Collector's Office**

- Activates the District Emergency Operations Centre (EOC) during emergencies.
- Issues disaster alerts and evacuation orders when required.
- Oversees and coordinates search and rescue missions.
- Manages the deployment of personnel and critical resources.

### **District Disaster Management Authority (DDMA)**

- Coordinates efforts with line departments and external support agencies.
- Continuously monitors the situation and updates response strategies.
- Provides regular briefings to stakeholders and the general public.
- Maintains effective communication with state and national authorities.

## **Health Department**

- Establishes emergency medical camps and treatment facilities.
- Deploys medical teams to disaster-affected areas.
- Conducts disease surveillance and manages outbreak responses.

- Offers psychosocial care and mental health support to affected populations.

#### **Fire and Emergency Services**

- Carries out search and rescue operations in impacted zones.
- Assists in evacuation efforts and manages crowd control.
- Delivers emergency medical aid and first response services.
- Handles incidents involving hazardous materials.

#### **Public Works Department (PWD)**

- Removes debris and reopens blocked transportation routes.
- Evaluates the safety and stability of buildings and infrastructure.
- Restores essential utilities like electricity and water supply.
- Provides temporary shelters and housing for displaced individuals.

### **13.3.3. Phase 3: Recovery**

#### **District Administration / Collector's Office**

- Leads damage assessment surveys to evaluate the impact of the disaster.
- Initiates the distribution of financial relief and compensation to affected individuals.
- Coordinates with NGOs and volunteer groups to support long-term recovery.
- Implements “build back better” strategies to strengthen future resilience.

#### **District Disaster Management Authority (DDMA)**

- Develops comprehensive recovery strategies and action plans.
- Tracks recovery progress and assesses the effectiveness of implemented programs.
- Seeks additional support and funding from higher authorities and donor agencies.
- Conducts post-disaster evaluations to capture lessons learned and improve future responses.

#### **Health Department**

- Restores healthcare services to normal operational levels.
- Performs health evaluations and addresses ongoing medical concerns.
- Launches public health initiatives to prevent post-disaster disease outbreaks.
- Continue to provide mental health and psychosocial support to affected communities.

## Fire and Emergency Services

- Repairs and services firefighting equipment and facilities.
- Engages communities through fire safety education and outreach.
- Participates in debriefings and reviews following disaster events.
- Revises emergency response protocols based on post-event insights.

## Public Works Department (PWD)

- Undertakes long-term reconstruction of damaged infrastructure.
- Upgrades public infrastructure to reduce vulnerability to future disasters.
- Supports community rebuilding and resilience-enhancing projects.
- Invests in training and resources to improve emergency response readiness.

## 13.4. Establishing Coherence Among DRR, Climate Change and Developmental Goals

Achieving coherence among Disaster Risk Reduction (DRR), climate change adaptation, and development requires a deep understanding of their interlinkages and a concerted effort to align strategies across sectors and ministries. The 2030 global agenda emphasizes the opportunity to design integrated financing mechanisms, policies, and programs that can simultaneously address multiple objectives. This integrated approach not only enhances efficiency but also accelerates implementation.

True coherence and mutual reinforcement go beyond traditional inter-agency coordination. They demand a transformative approach where actions under one domain actively support and strengthen the goals of the others. To realize this, coherence must be embedded within mainstream planning and policy-making processes, ensuring that development initiatives are resilient, climate-informed, and risk-aware from the outset.

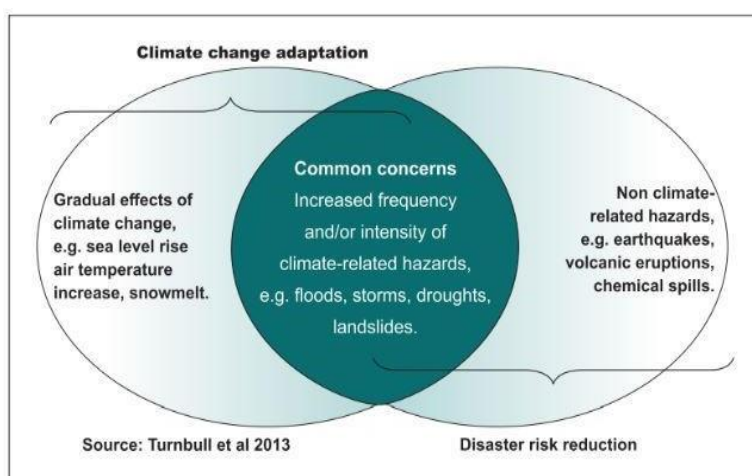


Figure 30 Relation between climate change & DRR

### 13.4.1. From the perspective of Disaster Risk Reduction, several indicative areas can be identified to initiate this process:

- **Enhancing Risk Awareness:** Embedding a comprehensive understanding of disaster risks both natural and those emerging from development activities into all development planning is vital. This includes recognizing both existing and newly generated risks.
- **Recognizing Cascading Risks:** It is essential to understand how risks can cascade across sectors, where decisions in one area may significantly impact disaster risk in another, requiring a system-based approach to risk management.
- **Evaluating Vulnerabilities and Capacities:** Identifying vulnerabilities linked to cascading risks and assessing the capacity to withstand, adapt to, and recover from these risks is a key component of resilience planning.
- **Mainstreaming Disaster Risk in All Initiatives:** Disaster risk must be treated as a core consideration in all projects and programs—across government, private sector, and civil society—rather than as an isolated concern.
- **Harmonizing Risk Management Strategies:** Aligning risk management practices across sectors ensures coordinated and effective action in reducing disaster risks.
- **Strengthening Government Integration:** Improving both horizontal (across departments) and vertical (across administrative levels) integration of DRR within government systems—supported by decision-making tools and digital technologies—can significantly enhance coordination.
- **Establishing Targets and Monitoring Systems:** Setting clear goals, timelines, indicators, and monitoring frameworks helps unify efforts across sectors and track progress in building disaster resilience.

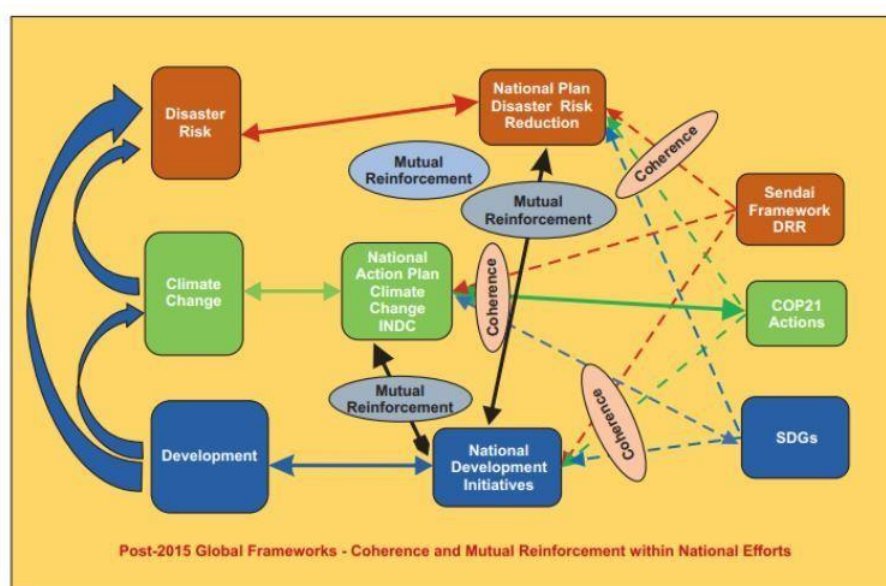


Figure 31 Coherence & mutual reinforcement within national efforts

### **13.4.2. Coherence and Mutual Reinforcement**

Risk multipliers pose a significant threat to the success of development frameworks, making risk management a central pillar of sustainable development. With evolving demographic patterns, development trends, the intensifying impacts of climate change, and growing exposure to disaster risks, the need for greater coherence and coordination among global initiatives has never been more urgent. These efforts aim to reduce vulnerability to hazards and enhance resilience across all levels of society.

Effectively minimizing losses and risks from natural hazards and climate extremes requires integrated, multi-level governance. One of the key challenges lies in fostering institutional convergence that aligns the objectives of various global agreements. Disaster Risk Reduction (DRR) and Climate Change Adaptation are now recognized as core components of these international agendas, all of which share the overarching goal of achieving sustainable development.

A strong global commitment to ambitious targets and accelerated implementation of these agreements is essential. Given the synergies among the post-2015 global frameworks, maximizing their collective impact can generate shared value. It is critical to avoid “policy risks” or conflicting strategies that may inadvertently increase vulnerability rather than reduce it.

The diverse mandates, targets, and actions outlined in the three major frameworks—Sendai Framework for DRR, the Paris Agreement on Climate Change, and the Sustainable Development Goals (SDGs) form a more robust and comprehensive resilience agenda when implemented in a coordinated and mutually reinforcing manner. Building resilience requires integrated action across development planning, humanitarian response, climate adaptation, and disaster risk reduction.

# 14. Standard Operating Procedures & Checklists

## 14.1. SOP for Revenue Department

### Pre-Disaster Preparedness

1. Establishing Disaster Management Committees at the district, taluka, and village levels to promptly initiate various actions during disasters and provide them with training.
2. Prepare a comprehensive disaster management plan and sensitize all departments, preparing a list of phone numbers and relevant contacts.
3. Activate control rooms at the district and taluka levels for 24 hours during monsoon emergencies, ensuring safe shelters are identified in advance.
4. Engage with voluntary organizations and other agencies for their participation in emergency management.
5. Coordinate the distribution and management of essential items and thoroughly inspect all arrangements.
6. Disseminate Urgent messages through village committees upon receiving prior information and planning for the safe evacuation of people. Also, finalize alternative arrangements promptly.
7. Formulate response teams and coordinate alternate communication arrangements.
8. Coordinate with the administration and machinery of adjoining districts for waterlogging and rainfall-related issues.
9. Maintain updated records of standing orders.
10. Plan alternative arrangements based on the severity of contact breakdown in villages.

### During an emergency

1. Prepare immediate damage assessment reports and plan for prompt action. Formulate response teams and appoint coordination and control officers.
2. Tackle natural disasters through various committees at the village and taluka levels.
3. Assist with government decisions, maintaining a record on the GR table.
4. Provide food, grains, clothing, and shelter assistance to the affected population. Prepare shelters and provide immediate relief and support, including food and water.
5. Collect information on incidents and report to senior officers promptly.
6. Provide essential items for first aid to voluntary organizations for distribution and assistance.
7. Arrange vehicles for transporting patients to hospitals.
8. Coordinate with various government offices.
9. Ensure the availability of diesel and petrol for all vehicles and machinery.

10. Seek assistance from neighboring districts in the event of a major disaster.
11. Keep control rooms operational during disasters and maintain coordination.
12. Ensure proficiency in handling relief work without any lapses.
13. Arrange for meetings with key individuals as needed.
14. Maintain smooth operation of the emergency response committee through regular meetings.

#### **Post-emergency/disaster**

1. Provide orders/guidance from the government regarding the government's stance and disaster relief work to all departments.
2. Initiate disaster relief work by coordinating with the relevant departments.
3. Implement government aid funds and material distribution in the affected district.
4. Engage experts to assess the extent of damage caused by the disaster and formulate a comprehensive plan for addressing the situation.
5. Maintain a 24-hour information center to disseminate information through media and communicate with the public.
6. Arrange for the safety of critical individuals.
7. Collect information and report to the government.
8. Implement special programs to mitigate post-disaster stress and tension in the affected areas.

## **14.2. SOP for Police Department**

#### **Pre-Disaster Preparedness**

1. Plan to evacuate people stranded due to heavy rainfall swiftly.
2. Activate control rooms to operate 24/7.
3. Pre-plan alternate routes for traffic in case of road closures due to flooding.
4. Arrange for relief funds and other necessities for those affected by the disaster. Deploy message transmission devices to areas prone to being cut off.

#### **During an emergency**

1. Ensure smooth traffic management systems.
2. Enforce laws and maintain order during the relief efforts.
3. Utilize various media channels to dispel rumors.
4. Clear roads and pathways in disaster-affected areas.
1. Provide immediate assistance and shelter to affected individuals.
2. Conduct medical assessments and provide first aid to injured individuals.



3. Maintain communication via wireless devices when landlines are down.
4. Engage in relief operations alongside NCC/NSS/Home Guard units.
5. Implement emergency communication setups in areas with broken communication links.
6. Ensure law and order are maintained.

#### **Post-emergency/disaster**

1. Enforce laws and maintain order to prevent looting and theft in affected areas.
2. Conduct search and rescue operations and control the crowd.
3. Organize safe shelter and relief distribution centers.
4. Ensure legal procedures and arrangements are made promptly for deceased individuals.

#### **Home Guard**

1. Control crowds and traffic in disaster-affected areas.
2. Assist in search and rescue operations.
3. Aid in the normalization of civilian life.

### **14.3. SOP for Irrigation & Water Resource Department**

#### **Pre-Disaster Preparedness**

1. Implementation of Control Rooms operational 24 hours.
2. Appointment of Nodal Officers at each taluka and establishment of control rooms at the headquarters.
3. Deployment of communication devices capable of transmitting messages on all possible platforms.
4. Vigilance and coordination with relevant departments by ensuring proper management and coordination before and during the release and closure of water from dams. Stay in touch with Rainfall Measurement Centers and Survey Stations.
5. Arrangements for informing the people in the affected areas about the threat of floods and the release of water from dams, using vehicles such as sirens, cables, and radios. Provision of pumps, generators, boats, excavators, etc., where necessary for water evacuation.

#### **During an emergency**

1. Monitor all dams by establishing communication networks and closely monitoring the rising water levels due to heavy rainfall.
2. Alert the people in the areas of the dams before the release of water.
3. Search and rescue operations for those stranded in flooded areas and provision of pumps, generators, boats, excavators, etc., for water evacuation where necessary.
4. Provide necessary information to the Revenue Department in case public panic leads to property damage.



### **Post-emergency/disaster**

1. Surveying the condition of water resources and promptly rectifying any damages.
2. Providing the administration with all possible assistance in relief work.
3. Providing immediate water supply to relief camps and affected areas.
4. Ensuring that water resources are not contaminated.

## **14.4. SOP for Nagarpalika**

### **Pre-Disaster Preparedness**

1. Establish 24-hour control rooms and appoint control officers.
2. Keeping firefighting equipment such as hoses, fire extinguishers, fire buckets, sandbags, and other supplies ready.
3. Plan to immediately clean all drains/sewers to ensure swift water drainage and implement preventative measures such as spraying disinfectants to control diseases.
4. Inspect buildings susceptible to collapse during disasters and arrange immediate relocation if necessary.
5. Establishing emergency committees for disaster management and ensuring individual awareness. Prepare safe evacuation routes during emergencies.
6. Implementing an effective waste management system and raising public awareness.

### **During an emergency**

1. Issuing alerts to the public using sirens during emergencies.
2. Mobilizing firefighting teams, equipment, and other resources.
3. Take immediate action to ensure quick drainage of excess water, conduct cleanliness drives, and administer medication.
4. Organizing relocation efforts if necessary.

### **Post-emergency/disaster**

1. Maintaining 24-hour operation of control rooms for information dissemination and communication with the public.
2. Conducting awareness campaigns for public health and ensuring the provision of clean water.
3. Implementing sanitation campaigns to prevent the outbreak of diseases among the population.

## **14.5. SOP for Health Department**

### **Pre-Disaster Preparedness**

1. Establishing 24-hour control rooms.

2. Keeping all officers stationed at headquarters and ensuring the availability of essential medicines and medical kits and planning to ensure continuous availability of gloves, masks, first aid supplies, anti-snake venom, and chlorine tablets, even in emergencies.
3. Establishing health camps, organizing department-wise planning, and educating the public on cleanliness and health.

#### **During an emergency**

1. Ensuring all hospitals, primary health centers, and dispensaries have stocked medicines and updated medical records. Making available medical officers and updated medical kits at disaster sites.
2. Distributing preventative medicines and anti-allergic doses to prevent the spreading of contagious diseases and providing necessary information to municipalities and villages panchayats to prevent the spread of infectious diseases.
3. Providing immediate medical treatment to the injured and conducting post-mortems for deceased individuals.

#### **Post-emergency/disaster**

1. Communicating with municipalities and relevant village panchayats to provide necessary information to prevent disease spread and ensure the availability of preventive medicines and medical supplies.
2. Providing immediate preventive medicines and anti-allergic doses to people engaged in relief work to prevent the spread of diseases.
3. Deploying health workers to provide health services to affected areas and controlling the situation.

### **14.6. SOP for Zila Parishad Department of Health**

#### **During an emergency**

1. Providing information to the public to prevent the spread of infectious diseases by controlling food and water and emphasizing hygiene and cleanliness. Assistance should be sought from voluntary organizations and concerned individuals.
2. Contact the Tehsildars for additional assistance, such as staff and medicines.
3. Providing medical treatment to the injured and those in distress.
4. Provision of first aid and medicines in affected areas.
5. Establishing information centers in hospitals.
6. Maintaining communication with the District Magistrate's control room.

### **14.7. SOP for Public Works Department**

#### **Pre-Disaster Preparedness**

1. Conduct regularly risk assessments to identify vulnerable infrastructure.

2. Develop and maintain an updated disaster management plan for the PWD, including protocols for assessing damage, prioritizing response actions, and coordinating with others relevant agencies.
3. Implement routine maintenance schedules for critical infrastructure assets to ensure structural integrity and resilience against disasters.
4. Identify high-risk structures and prioritize retrofitting or reinforcement measures to enhance their ability to withstand seismic activity, flooding, and other hazards.
5. Conduct community outreach programs and awareness campaigns to educate the public about disaster risks, evacuation routes, and emergency protocols related to public infrastructure.

### **During Emergencies**

1. Deploy rapid assessment teams to conduct on-site inspections of damaged infrastructure, assess the extent of structural damage, and identify immediate safety hazards.
2. Collect and compile data on infrastructure damage, road blockages, and other critical issues to inform decision-making and resource allocation for emergency repairs and recovery operations.
3. Prioritize the clearance of debris, fallen trees, and other obstructions to restore access to roads, highways, and public facilities for emergency responders and the public.
4. Undertake temporary repair works, such as patching potholes, repairing damaged culverts, and stabilizing slopes to ensure the safety and usability of key transportation routes and public assets.

### **Post-Emergency/Disaster Recovery**

1. Conduct detailed structural assessments and engineering surveys to evaluate the long-term impacts of disasters on public infrastructure and determine the scope of rehabilitation and reconstruction efforts.
2. Document and analyze lessons learned from the disaster response and recovery process to identify areas for improvement in infrastructure design, construction standards, and emergency management practices.
3. Develop detailed reconstruction plans and specifications for repairing or replacing damaged infrastructure in accordance with engineering standards and safety regulations.
4. Coordinate with contractors, suppliers, and other stakeholders to expedite the Procurement of materials and equipment needed for infrastructure restoration projects and ensure compliance with quality control measures.
5. Integrate disaster risk reduction principles and climate resilience considerations into designing and constructing new infrastructure projects to minimize vulnerability to future disasters.
6. Enhance the capacity of PWD staff through training programs, workshops, and knowledge-sharing initiatives on disaster risk management, emergency response

procedures, and resilient infrastructure development strategies.

## **14.8. SOP for Telecommunication Department**

### **During Emergencies**

1. Restoration of telecommunication services.
2. Preparation of various teams for the restoration of telecommunication services.
3. Contact the District Control Room through the Tehsildars for additional assistance.
4. Providing updated information to the District Control Room every two hours during emergencies.

## **14.9. SOP for Railway Department**

1. Control of crowds at railway stations through railway police.
2. Providing updated information on railway schedules and accidents to the public.
3. Sending injured individuals to hospitals.
4. Providing updated information to the District Control Room every two hours during emergencies.

## **14.10. SOP for Agriculture Department**

### **Pre-Disaster Preparedness**

1. Conduct regularly risk assessments to identify potential hazards.
2. Provide training to agricultural extension officers, farmers, and other stakeholders on Disaster-resistant farming practices, early warning systems, and emergency response procedures.
3. Training and awareness programs to educate farmers on crop diversification, soil conservation techniques, and water management strategies to enhance resilience against disasters.
4. Maintain an inventory of agricultural inputs, including seeds, fertilizers, pesticides, and farming equipment, to ensure adequate supplies are available for emergency response.
5. Establish strategic stockpiles of essential agricultural commodities in accessible locations to support immediately post-disaster recovery efforts.
6. Coordinate with relevant government agencies, NGOs, and private sector partners to promptly procure and distribute relief supplies to affected farmers.

### **During Emergencies**

1. Monitor weather forecasts, crop conditions, and pest infestation patterns to provide early warnings to farmers about potential risks and advisories for preventative actions.
2. Activate communication channels, such as mobile alerts, radio broadcasts, and Community meetings, to disseminate timely information and guidance to farmers during

emergencies.

3. Deploy rapid assessment teams to survey agricultural areas affected by disasters and assess the extent of crop damage, livestock losses, and infrastructure destruction.
4. Compile and analyze data collected from field assessments to prioritize response efforts, allocate resources, and develop recovery plans tailored to the needs of affected farmers.
5. Establish emergency assistance centers or mobile outreach teams to provide immediate support and relief services to affected farmers, such as emergency shelter, food, water, and veterinary care for livestock.

#### **Post-Emergency/Disaster Recovery**

1. Implement rehabilitation and recovery programs to restore agricultural infrastructure, rehabilitate degraded lands, and promote sustainable farming practices in disaster-affected areas.
2. Provide technical assistance and training to farmers on soil conservation, water management, organic farming, and climate-resilient agriculture techniques to build long-term resilience against future disasters.
3. Support farmers in marketing their produce, accessing markets, and diversifying income sources to mitigate the economic impacts of disasters and improve livelihood resilience.
4. Facilitate the revival of local agricultural value chains, agribusinesses, and rural enterprises through targeted interventions, market linkages, and capacity-building initiatives.

### **14.11. SOP for District Information Office**

1. Dissemination of information about various accounts in the district through media.
2. Coordination with various media for dissemination.

### **14.12. SOP for State Transport Department**

#### **Pre-Disaster Preparedness**

1. Conduct regular risk assessments to identify potential hazards and vulnerabilities in the transport infrastructure, including roads, bridges, and public transport systems.
2. Develop and maintain an up-to-date emergency response plan that outlines roles, responsibilities, and procedures for different scenarios, such as natural disasters, accidents, and security threats.
3. Train transport department personnel regularly on emergency response procedures, including evacuation protocols, first aid, and communication protocols. Conduct drills and simulations to ensure readiness.
4. Implement a robust maintenance program to ensure the structural integrity of roads, bridges, and other transport infrastructure. Regular inspections should be carried out to identify and address potential hazards.

5. Establish partnerships and communication channels with other emergency response agencies, such as police fire departments, and disaster management authorities, to facilitate coordinated responses during emergencies.
6. Educate the public about emergency preparedness measures, such as safe driving practices, evacuation routes, and emergency contact information. Utilize various communication channels, including social media, to disseminate information.
7. Maintain stockpiles of essential emergency supplies, such as road flares, first aid kits, emergency lights, and communication equipment, at strategic locations for rapid deployment during emergencies.

### **During Emergencies**

1. Immediately activate emergency response teams to assess the situation and coordinate response efforts. Designate specific personnel to manage communication with other agencies and stakeholders.
2. Implement traffic control measures to manage congestion and facilitate the movement of emergency vehicles. Deploy traffic marshals at critical intersections and diversion points to ensure smooth traffic flow.
3. Aid evacuees, including providing transportation services for vulnerable populations such as the elderly, disabled, and those without access to private vehicles. Coordinate with other agencies to establish evacuation shelters and distribution centers.
4. Mobilize teams to clear debris, repair damaged roads, and restore transport infrastructure quickly. Prioritize routes leading to critical facilities such as hospitals, emergency shelters, and relief distribution centers.
5. Communicate regularly with other emergency response agencies and stakeholders. Share information, coordinate response efforts, and address emerging challenges. Utilize designated communication channels for efficient coordination.

### **Post-Emergency/Disaster**

1. Conduct rapid assessments to evaluate the extent of damage to transport infrastructure and facilities. Compile detailed damage reports and submit them to relevant authorities' further action.
2. Initiate recovery and restoration efforts to repair damaged infrastructure, including roads, bridges, and public transport systems— Mobilize resources and personnel to expedite the restoration process.
3. Aid and support to affected communities, including facilitating transportation for relief workers, distributing emergency supplies, and offering counseling services to those in need.
4. Conduct a comprehensive review of the emergency response to identify strengths, weaknesses, and areas for improvement. Use the findings to update emergency response plans, procedures, and training programs.

5. Invest in measures to enhance the resilience of transport infrastructure against future emergencies and disasters. This May include infrastructure upgrades, adopting new technologies, and implementing risk reduction measures.

### **14.13. SOP for Maharashtra State Electricity Board**

#### **Pre-Disaster Preparedness**

1. Establishment of control rooms.
2. Identification of vulnerable power supply infrastructure for ensuring electrical safety.
3. Ensuring availability of maintenance equipment such as transformers, poles, and wires at appropriate locations.
4. Elevating transformers in flood-prone areas if feasible.

#### **During Emergencies**

1. Prompt restoration of damaged power supply lines.
2. Continuous operation of control rooms.
3. Swift replacement of submerged transformers.
4. Providing information about restoration work and estimated time of completion.
5. Establishment of information desks to address citizens' complaints.
6. Implementing measures to prevent accidents due to electrical hazards, ensuring proper flow of electricity on power lines, and promptly removing fallen trees and Poles.

#### **Post-emergency/disaster**

1. Immediately conduct assessments of the electricity distribution infrastructure to identify Damage to substations, transformers, poles, and power lines. Report findings promptly to the relevant authorities.
2. Develop a restoration plan prioritizing critical infrastructure such as hospitals, emergency services, and communication facilities. Ensure that restoration efforts are coordinated and efficient.
3. Efficiently allocate resources, including personnel, equipment, and materials, to expedite restoration. Coordinate with other agencies and stakeholders to maximize resource Utilization.
4. Implement stringent safety protocols to prevent accidents during the restoration process. Provide training and guidance to field personnel on safe working practices.
5. Keep the public informed about the progress of restoration efforts, estimated timelines for power restoration, and safety instructions. Use multiple communication channels to reach a broad audience.
6. Engage with affected communities to address their concerns, aid where possible needed,

and facilitate community resilience efforts. Establish communication channels to receive feedback and address grievances.

7. Monitor the restoration process closely and adapt plans as necessary based on evolving conditions and challenges. Maintain open communication channels with field teams to address any issues promptly.
8. Conduct a thorough review of the response to identify strengths, weaknesses, and areas for improvement. Use the findings to enhance future disaster preparedness and response efforts.



# 15. Annexure:

## 15.1. 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.	Krishna Hospital	Karad	02164-241555
10.	City Medical Centre	Karad	02164-224344
11.	Shiddhivinayak Hospital	Karad	02164-227327
12.	Bhagyashri Hospital	Karad	02164-223517
13.	Krishna Hospital	Karad	02164-266333
14.	Sahayadri Hospital	Karad	02164-271171
15.	Kutir Rugnalaya	Vaduj	02161-244240
16.	Gramin Rugnalaya	Vaduj	02161-231218
17.	Gramin Rugnalaya	Dahiwadi	02165-230374
18.	Gramin Rugnalaya	Gondawale Kh.	02165-282255
19.	Dr. Arun Patil Hospital	Dahiwadi	02165-203011
20.	Cottage Hospital	Patan	02372-283268
21.	Patankar Hospital	Patan	02372-283142
22.	Koyna Project Davakhana	Koynanagar	02372-284499
23.	Shivanjali Accident Hospital	Phalatan	02166-220871
24.	Gandhi Hospital	Phaltan	02166-221292
25.	Life Hospital	Phaltan	02166-225630
26.	Gramin Rugnalaya	Phaltan	02166-254135
27.	Gramin Rugnalaya	Khandala	02169-252136
28.	Shree Medical Foundation	Khandala	02169-244110
29.	Shree Datta Hospital	Lonand	02169-225132
30.	Navjeevan Hospital	Lonand	02169-225419

31.	Gramin Rugnalaya	Wai	02167-220044
32.	Geetanjali Hospital	Wai	02167-220340
33.	Mission Hospital	Wai	02167-220002
34.	Dr. Jaju Hospital	Bhuinj	02167-285323
35.	Belair Hospital	Panchgani	02168-240709
36.	Gramin Rugnalaya	Medha	02367-285264
37.	Gramin Rugnalaya	Somardi	02367-230442
38.	Sadanand Hospital	Kudal	02367-235343
39.	Gramin Rugnalaya	Mahabaleshwar	02168-260247
40.	Dr. Thoke Clinic	Mahabaleshwar	02168-260330
41.	Dr. Reddy Clinic	Mahabaleshwar	02168-260359

### 15.2. List of PHC in Satara District

PHC (ZP DHO)	Sub Centres	Location	Phone number
Kanher	45	Satara (02162)	265239
Nandgaon			263116
Thoseghar			227265
Limbh			276303
Parali			278228
Nagthane			268301
Chichaner Vandan			274251
Kumthe			279546
Kudal	24	Jawali (02378)	235392
Saigaon			240508
Kelghar			245454
Bamnoli			202616
Kusumbi			242041
Tapola	17	Mahabaleshwar (02168)	247256
Taldev			274070
Panchgani			240257
Kavthe	28	Wai (02167)	274227
Bhuinj			285213
Bawdhan			276176
Malatpur			282140
Ahire			275344

Lonand	20	Khandala (02169)	225373
Shirwal			244213
Barad	35	Phaltan (02166)	242246
Taradgaon			243683
Bibi			255235
Girvi			256016
Sakhadwadi			254135
Rajale			248135
Palashi	31	Man (02165)	284211
Mardi			286350
Pulkoti			230221
Malwadi			250274
Mhaswad			270536
Pusegaon	40	Khatav (02161)	260236
Diskal			264306
Aundh			248744
Katar Khauv			242307
Nimsod			240227
Khauv			266297
Mayani			270253
Wathar Station	32	Koregaon (02163)	252395
Kinhai			232234
Wathar Kiroli			235235
Tadwale			233539
Palashi			256174
Rahimatpur			230282
Wadgaon Haveli	64	Karad (02164)	268128
Sadashiv Gar			271900
Supane			255746
Rethare Bk			281038
Kale			254330
Indoli			264706
Umbraj			264332
Masur			252060
Undale			250093

Kole			256233
Helgaon			253738
Talmaule			272087
Dhebewadi			258229
Marli			268008
Morgiri			271029
Malhaperth			285440
Keral			283373
Murud	63	Patan (02372)	267617
Salve			264147
Helwak			285593
Tarle			266749
Chaphai			287561
Kalgaon			261029
Sonawade			249491

### 15.3. List of Blood Bank in the District

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

### 15.4. List of Transport Network

Sr. No	Particular	Numbers	Contact of the Authority
1.	Railway (Number of stations)	7	1. Satara – 02162270050 2. Karad – 02164271034 3. Koregaon – 02163220261 4. Rahimatpur – 02163230900 5. Shenoli – 02164269398 6. Lonand – 02169225050 7. Wathar – 02163252228
2.	Roadways (National Highways)	1	National Highway Authorities India (NHAI) (Pune) – 02025231745
	(State Highways)		Maharashtra State Road Development Corporation (MSRDC) – 8007999321
4.	Air Ports or Air Strips	1 (Proposed in Karad Taluka)	-
5.	Helipad	2 Proposed in Karad Taluka and Phaltan Taluka	-
6.	Major State Transport Bus Depots	11	<ul style="list-style-type: none"> <li>• Satara – 02162-230064</li> <li>• Karad – 02164-222563</li> <li>• Koregaon – 02163-220221</li> <li>• Phaltan – 02166-222379</li> <li>• Patan – 02372-283036</li> <li>• Wai – 02167-220680</li> <li>• Dahiwadi – 02165-220248</li> <li>• Mashwar – 02168-260485</li> <li>• Medha – 02378-285259</li> <li>• Khandala – 02169-252245</li> <li>• Waduj – 02161-231070</li> </ul>

## 15.5 Control Room

S.No.	Department	Telephone No.	Mobile No.
1.	Control Room, Mantralaya, Mumbai (Disaster Management)	022-22027990 022-22794229	022-22816625 9321587143
2.	Control Room Divisional Commissioner Pune	020- 26340534	020-26360326
3.	Control Room – District Collector's Office Satara	02162-232175	02162-232349
4.	Police control room, Satara	231181/233833	9011181888
5.	Health Department	02162-234653	
6.	MSEB Control room, Satara	02162-244640	9029168554
7.	PWD Control Room	02162-234989	
8.	Irrigation Dept. control room	02162- 244481	02162-244681
9.	Control room , NDRF	02114-247000/247008	9422315628
10.	Satara Municipality	02162-234077	02162-282636
11.	Deputy Conservator of Forest Satara	02162-220057 /58	1926 (Toll Free)
12.	Koyna Dam and Koyna Mandal	02372-284406 02372-284343	02162-246071 9403345265
13.	Seismic Centre, Patan Sri Chaudhary	02372-284405	9420628081 9422380315
14.	Sh Sandeep, Mahar Battalion, Aundh, Pune	8108639933	020-25803014
15.	Sh. Shedge, Commandant Army, Pune	9923739603	7507776216
16.	Sh. S. G. Kamble, Director, Meteorological Department, Mumbai	022-22151989 22150431	022-22153823 9969250198
17.	Deputy Director, Meteorological Department, Pune	020-25535886	020-25530201
18.	Forest Dept., Satara	02162-220057/58	Toll Free 1926
19.	NDMA Control room, New Delhi	011-26701728	011-1078
20.	Indian Meteorological Department	022-22150517 / 22151989 Fax-022-22150517	9969250198 Whatsapp
21.	Koyna Dam - Koynanagar	02372-284406/99	8991122801

## 15.6 Mantralaya, Mumbai

S.No.	Officials	Telephone No.	Mobile No.
1.	Principal Secretary, Relief and Rehabilitation Department, Mantralaya, Mumbai	022-22025274 22016818	
2.	Shri. Satishkumar Khadke – Director Disaster Management Division, Mantralaya Mumbai	022-22026712 25200393 22794233	9819207435
3.	Control Room Mantralaya Mumbai	022- 22027990 22816624 22615035 22794229	9321587143 022- 22653819 22816625 Fax(022) 22023039
4.	Shri. S.B. Singh -	02114 – 247010	9423506765

	Commandant, (N.D.R.F) Sadubāre, Tal. Maval Dist. Pune	02114 - 231509	
5.	Control Room (N.D.R.F) Sadubare, Pune	9422010448 02114-247000	9422315628 02114-247008

### 15.7 Divisional Commissioner Office Pune Division, Pune

S. No.	Officials	Telephone No.	Mobile No.
1.	Mr. Chandrakant Pulkundwar Divisional Commissioner, Pune Division, Pune	020-26362223 26361365	
2.	Mr. Mahesh Patil Additional Commissioner (Revenue)	020-26360326	9422259334
3.	Mr. Rajendra Jadhav, Nodal Officer Control Room Divisional Commissioner Pune	020-26340534 020-26360326	9922962210
4.	Atul Pargaonkar - Divisional Disaster Management Coordinator Pune Division	020-26360326	9420265884 8329654003

### 15.8 Collector's Office Satara

S.No.	Officials	Office Contact No.	Residence Contact No.	Mobile No.
1.	Mr. Santosh Patil, District Collector Satara	232750	232751	7720073456
2.	Mr. Mallikarjun Mane, Additional District Collector Satara	230138	233750	9822366999
3.	Mr. Nagesh Patil, Resident Deputy Collector	236133		9850504189
4.	Mr. Vikrant Chavan, Deputy Collector (Revenue)	232349		9763212813 / 9049914000
5.	Mr. Bhagwan Kamble, Deputy Collector (Election)	229605		8975337722
6.	Mrs. Nutan Patil Deputy District Collector, (Ro.H.Yo.)	233842		7397 839 614
7.	Mr. Shashikant Mali, District Planning Officer Satara	234843	239414	8275596101
8.	Mr. Manohar Gawhad, District Rehabilitation Officer	234292		8149107336
9.	Mrs. Vaishali Rajmane, District Supply Officer	234840		9423271681
10.	Mrs. Rajshree More, Deputy District Collector Land Acquisition No. 2	230433		9422132279
11.	Mr. Pravin Salunkhe, Deputy District Collector Land Acquisition No. 21	230433		9975532173
12.	Deputy District Collector Land Acquisition No. 09			

13	Abhishek Deshmukh, Deputy Collector Land Acquisition No. 4			7719955599
14	Shri Abhijit Patil, Deputy Collector Land Acquisition No. 16			7719955855
15	Deputy Collector Land Acquisition No.			
16	Shri. Shashikant Jadhav, Tehsildar (Revenue)	236133		9923593063
17	Shri. Chandrashekhar Shitole, Tehsildar (General)	232175		9881304874
18	Bharat Kumar Tumbde, Sec. District Supply Officer	234292		80105 54658
19	Shri Vaibhav Pilare, Special Executive Officer	234840		8551842612
20	Mrs. Maimunnisa Sande, Tahsildar (Rehabilitation)	234292		8275257516
21	Mrs. Smita Pawar, Tahsildar (S. Village)	232175		74474 83440
22	Mr. Abhijit Bapat, N. Pa. Administrative Officer	233034		7588586688
23	Mr. Sanjay Kulkarni, District Information Officer	231103		9420171914
24	Mr. Devidas Tamhane, District Disaster Management Officer	232349		9657521122 9890719745
25	Mr. Sanjay Badekar, Naib Tehsildar (Revenue)	236133		9511903403 9573717155
26	Mrs. Rituja Kadam, Deputy Tehsildar (Criminal)	232175		8104971170
27	Mrs. Sharda Khade, Deputy Tehsildar (Criminal)	232349		9881854875
28	Mr. Milind Amte, Deputy Tehsildar (Criminal)			9403683994
29	Mr. Chandrakant Gaware, Personal Assistant to the Hon'ble District Collector	232750		9604700355
30	Mrs. Shendre, Personal Assistant to the Additional District Collector	230138		9637488265
31	Mrs. Lakhapati, Personal Assistant to the Resident Deputy District Collector	236133		9403167262

### 15.9 Sub-Divisional Officer (Provincial Officer), Satara

S. No.	Officials	Office Contact No.	Residence Contact No.	Mobile No.
1.	Mr. Ashish Barkul, Sub-Divisional Officer Satara	02162 - 234395	234810	8408814667



2.	Mr. Atul Mhetre, Sub-Divisional Officer Karad	02164 - 221378	221306	9403240333
3.	Shri. Priyanka Ambekar, Sub-Divisional Officer Phaltan	02166 - 222386	222261	7038454028
4.	Mr. Rajendra Kachre, Sub-Divisional Officer Wai	02167 - 227744	222222	7744842006
5.	Mr. Abhijit Naik, Sub-Divisional Officer Koregaon	02163 - 221300	-	9049358450
6.	Mr. Sopan Tompe, Sub-Divisional Officer Patan	02372 - 283122	-	8552052752
7.	Mrs. Ujjwala Gade, Sub-Divisional Officer Man-Khatav	02165 - 220161	-	9623868514

### 15.10 Tehsilders, Satara

S. No.	Officials	Office Contact No.	Residence Contact No.	Mobile No.
1.	Mr. Vaibhav Pilare Tehsildar Satara (In-charge)	02162 230681	233876	8551842612
2.	Mr. Sandesh Kode Tehsildar Koregaon	02163 - 220240	220241	8149319558
3.	Mr. Hanumant Kolekar Tehsildar Jawli	02378 - 285223	285254	9881096196
4.	Mrs. Sonali Metkari Tehsildar Wai	02167 - 227711	221222	9975794277
5.	Mrs. Tejashwini Khochrepatil Tehsildar Mahableshwar	02168 - 260229	260262	9403840503
6.	Mr. Ajit Patil Tehsildar Khandala	02169 - 252128	252148	9637568844
7.	Mr. Abhijit Jadhav Tehsildar Phaltan	02166 - 222210	220529	8208075476
8.	Mr. Vikas Ahir Tehsildar Maan	02165 - 220232	220249	9923789888
9.	Mrs. Bai Mane Tehsildar Khatav	02161 231238	231208	8788846947
10.	Mr. Kalpana Dhawale Tehsildar Karad	02164 - 222212	222468	8482876900
11.	Mr. Anant Gurav - Patan	02372 -283022	9158201978	9420933283

### 15.11 Zilla Parishad, Satara

S.No	Officials	Telephone No.	Mobile No.
1.	Mrs. Yashni Nagarajan Chief Executive Officer, Z.P.Satara	230688 230601	9958493779

2.	Mr. Vishwas Sid - Asst. Chief Executive Officer	226005	9822283742
3.	Mr. Vishwas Sid Project Director District Rural Development Agency	234189	9822283742
4.	Mr. Rahul Kadam Chief Accounts and Finance Officer	233832	9604809586
5.	Mr. Nilesh Ghule - Deputy Chief Executive Officer (S.P.)	238126	7507443627
6.	Mr. Archana Waghmale - Deputy Chief Executive Officer (G.P.)	233843	9890066082
7.	Mr. Pragya Mane - Deputy Chief Executive Officer (Water and Sanitation)	236569	9960248654
8.	Mr. Rohini Dhawale - Deputy Chief Executive Officer (B.C.)	229888	8007556049
9.	Mr. V. A. Taware District Women and Child Welfare Officer	237353	9423520471
10.	Mr. Dhananjay Chopde Education Officer (Secondary)	234807	9823516193
11.	Mr. Shabnam Mujawar Education Officer (Primary)	233522	9922638224
12.	Mr. Anis Nayakwadi - Education Officer (Planning)	233522	9545897786
13.	Mr. Amar Nalawde - Engineer Construction (South)	238190	9373119493
14.	Mr. M. I. Modi - Executive Engineer Construction (North)	227927	9158879687 9764518275
15.	Mr. Arun Kumar Dilpak Executive Officer, Rural Development Department	227998	9049649008
16.	Shri. Gaurav Chakke Executive Officer, Rural Development Scheme	230226	8149256760
17.	Dr. Mahesh Khalipe- District Health Officer	233025	9766378873
18.	Shri. Gajanan Nanavare Agricultural Development Officer	234186	9403969504
19.	Dr. Vinod Pawar – District Animal Husbandry Officer	233793	9890920482

20.	Shri Vidayanand Challawar - District Social Welfare Officer	228764	8237028361
21.	Shri Megha Shinde Senior Geologist, Satara	237586	855299989
22.	Shri. A.A. Mulla, Deputy Engineer, Maintenance	229604	9764845786

### 15.12 Health care – District level

S.No	Officials	Telephone No.	Mobile No.
1.	Dr. Yuvraj Karpe District Surgeon	02162-238494, 238005	7588383070
2.	Dr. Mahesh Khalipe- District Health Officer	233025	9766378873
3.	Dr. Rahul Khade- Asst. District Surgeon		9011092711
4.	Dr. Vikas Wadgahe- Resident Medical Officer (External Relations)	238494	9158883710
5.	Dr. Kiran Jadhav Nodal Officer (Disease Management)	230051	8010965102
6.	Dr. Kumbhar District Health Officer	233269	8275481481
7.	Rajendra Kadam Manager BVG (108 Ambulance)		7774081762
8.	Nitin Ithape Coordinator BVG (108 Ambulance)	238494	9403683754
9.	I. C. U. (24 Hours Working Phone)	02162-234653	-
10.	Venkatesh Gaur, Medical Social Worker		8180056560
11.	Dr. Vinayak Kale, Dean Government Medical College Satara	02162-230051	8080580422

### 15.13 Taluka Health Officer, Panchayat Samiti

S.No	Officials	Telephone No.	Mobile No.
1.	Dr. R. T. Jadhav - Satara	02162-231080	9403684502
2.	Dr. Sandeep Yadav - Jawali	02378-285427	9403684588 8421039594
3.	Dr. Pradumna Bulakh - Mahabaleshwar	02168-261272	9850633567
4.	Dr. Sagar Gaikwad - Wai	02167-227841	8309085647
5.	Dr. Avinash Patil - Khandala	02169-252090	9421060017
6.	Dr. Nikhil Dighe - Phaltan	02166-225729	9021311146
7.	Dr. Laxman Kodalkar - Maan	02165-220074	9403684806

8.	Dr. Yunus Sheikh - Khatav	02161-231462	9403684786
9.	Dr. Asif Jamadar - Koregaon	02163-220072	9011317771
10.	Dr. Narendra Mali - Karad	02164-224423	9881381619
11.	Dr. Navnath Kamble - Patan	02372-282598	9890422081

#### 15.14 State Road Transport Corporation (S.T.) Satara

S.No.	Office Name	Telephone No.	Mobile No.
1.	Mr. Rohan Palange Divisional Controller, ST Satara	02162-231850	7887731545
2.	Mr. Vikas Mane Mechanical Engineer (Operation)	02162-234677	7972315167
3.	Smt. Jyoti Gaikwad - Divisional Transport Officer Satara.	239479	9146062400
4.	Mr. Shekhar Farande Safety and Vigilance Officer	238167	9850934321
5.	Mrs. Reshma Gade Divisional Transport Superintendent	239025	9049448487
6.	Mrs. Poonam Sutar, Divisional Engineer (Civil)	238078	9673630697
7.	Mr. Sachin Gaikwad, Divisional Stores Officer	238170	7028982828

#### 15.15 Depot Manager and Bus Station in Satara Division

S.No.	Depot manager	Office Contact No.	Bus stand Contact No.	Mobile No.
1.	Shri Ratnakant Shinde Smt. Swati Praveen Bandre Satara	02162 - 230064	234567 238508	8237812448 9137235253
2.	Sh. Yuvraj Dinkarrao Kadam - Wai	02167 - 220680	220001	9890837252
3.	Sh. Dayanand Patil - Patan	02372 - 283036	283032	8087200400
4.	Sh. Kuldeep Dubal Dahiwadi	02165 - 220248	220235	8208914190
5.	Sh. Mahesh S. Jadhav - Mahabaleshwar	02168 - 260485	260254	8857021378
6.	Smt. Nita Babar, Pawar - Medha	02378 - 285259	285260	9156382017
7.	Smt. Bisammila Syed - Khandala	02169 - 252245	252135	9403234374

8.	Sh. Pratap Anil Patil - Vaduz	02161 - 231070	231235	9766691693
9.	Smt. Sharmishtha Pol Vikram Khande Karad	02164 - 222563	222278	8830870382 9637925485
10.	Sh. Nita Vinod Jagtap Koregaon	02163 - 220221	220232	9158852900
11.	Sh. Rahul Dashrath Waghmode Phaltan	02166 - 222379	222227	9730794044

### 15.16 Police Department

S.No.	Officials	Telephone No.	Mobile No.
1.	Mr. Tushar Doshi Superintendent of Police Satara	02162-232225 R. 232224	9923100999
2.	Mrs. Vaishali Kadukar Appointment of Superintendent of Police	02162-237486 R. 229100	9175013674
3.	Mr. Atul Sabnis Po. Deputy Superintendent (Home)	02162-234776	9923347788
4.	Mr. K. N. Patil Poni Police Control Room	231181/233833	9923499987
5.	Mr. B. N. Patil Police Inspector District Special Branch	02162-234231	9823242999
6.	Mr. S. L. Ghadge Po.O. B. D. D. S. Squad	02162-243247	9511810742
7.	Arun Deokar Police Inspector Local Crime Branch	02162-233923	9923388756
8.	Mr. Gaikwad Police Sub-Inspector Poni Wireless Message	02162-235698	83291775305
9.	Mr. A.R. Yadav Po.O. District Transport Planning Branch	02162 - 2262215	
10.	Mr. R. Sawantre Po.O. Cyber Cell	02162-234130	9823948001
11.	R.T. Shinde Reserved P.O. Headquarters	02162-	8805733315
12.	R. V. Shinde Police Inspector Motor Transport		9823017588
13.	Mr. A R Yadav Saponi.Satara City Traffic Control Branch	-	9970142460
14.	Shri Sawant - Office Superintendent, Home Guard Satara	02162-222082	

15	Shri Tushar Varande Home Guard Kendranayak	02162-222082	9890081660
16	Shri. H A Galinde (API) Bhuinj Highway Traffic	02167 - 268327	8208932407
17	Shri A S Lokhande (API) Karad Highway Traffic	02164 - 242299	9699828783
18	Shri Avinash Pawar (PI) State Secret News	02162-239697	9763976990
19	Superintendent Satara Jail		8329357887

### 15.17 Sub-Divisional Police Officer

S.No.	Officials	Telephone No.	Mobile No.
1.	Shri Rajiv Navale Sub-divisional Police Officer, Satara	02162-234886	9860158263
2.	Mrs. Sonali Kadam Sub-divisional Police Officer Koregaon	02163-222818	8552049692
3.	Shri. Amol Thakur Sub-divisional Police Officer Karad	02164-222345	9421741561
4.	Mr. Rahul Dhas Sub-divisional Police Officer Phaltan	02166-222468	9689677558
5.	Shri Balasaheb Bhalthim Sub-divisional Police Officer Wai	021667-227733	9823962830 7020621541
6.	Mr. Vijay Patil Sub-divisional Police Officer Patan	02372-282336	9923768787
7.	Mrs. Ashwini Shendge Sub-divisional Police Officer Dahiwadi	02165-232222	7972272928

### 15.18 Police Stations

S.No.	Officials	Telephone No.	Mobile No.
1.	Mr. R. B. Maske Police Inspector Satara City	02162-230580	7499243075 8888857179
2.	Mr. N. B. Tambe Police Inspector Satara Taluka	02162-233949 238607	8805552669
3.	Mr. S. H. Mhentre Police Inspector Shahupuri	02162-252333	9371931371
4.	Mr. D. S. Walvekar S. Police Inspector Borgaon	02162-265233	7798118259
5.	Mr. G. R. Ballal Police Inspector Koregaon	02163-220233/ 221233	9881149601
6.	Mr. S. V. Kandge S. Police Inspector Rahimatpur	02163-230233	9404384969

7.	Mr. A.D. Mane Police Inspector Wathar Station	02371-252221	7021349722
8.	Mr. Poman S. Police Inspector Pusegaon	02375-260233	9175132606
9.	Mr. G. D. Sonawane Police Sub. Vaduz	02161-231233	9921907250
10	Mr. D. P. Darade S. Po. Sub. Dahiwadi.	02165-220233	9420025780
11	Mr. Sonawane A.A. S. Police Inspector Mhaswad	02373-270233	9970717712
12	Mr. Avinash Mate S. Police Inspector Aundh	02161-262233	9823016799
13	Mr. H. Shah P. Sub. Phaltan City	02166-222333	7757827744
14	Mr. S. D. Mahadik P. Sub. Phaltan Rural	02166-222533	9823562255
15	Mr. S. B. Bhosale S. Police Inspector Lonand	02169-225033	7738147796
16	Mr. S. S. Shelke S. Police Inspector Khandala	02169-252133	7020769040
17	Mr. Yashwant Jagtap Police Inspector Shirwal	02169-244133	9588609911
18	Mr. G. P. Shahane Police Inspector Wai	02168-227033	8888895777
19	Mr. P. B. Sandbhor Police Inspector Mahabaleshwar	02168-260333	8433815833
20	Mr. D. G. Pawar S. Police Inspector Panchgani	02168-240333	9850301133
21	Mr. S. S. Patil S. Police Inspector Medha	02378-285233	8308830756
22	Mr. R. S. Garje Police Inspector Bhuinj	02167-285233	9527649090
23	Mr. A. B. Kavathekar S. Police Inspector Patan	02372-283033	7420890020
24	C. M. Machhale Saponi Malharpeth	02372-299233	8888758845
25	Mrs. S. S. Patil	02372-258233	9922754064

	Masponi Dhebewadi		
26	Mr. S. K. Olekar S. Police Inspector Koynanagar	02372-284533	8888874362
27	Mr. Tasildar Police Inspector Karad City	02164-222233	9807999711
28	Mr. M. J. Jagtap Police Inspector Karad Taluka	02164-222377	9594917881
29	Mr. R. A. Bhore S. Police Inspector Ubranja	02164-264033	9011087396
30	Mr. R Bhosale S. Police Inspector Talbeed	02164-285333	9702598555
31	V A Shelar, API Masur	02164-252233	9923666064

### 15.19 Municipal Chief Officer

S. No.	Officials	Office Contact No.	Residence Contact No.	Mobile No.
1.	Shri Abhijit Bapat Chief Officer Satara	02162- 239247 234077	230783	7588586688
2.	Shri. Prashant Vhatkar Chief Officer Karad	02164- 222237 222444	222363	7385494384
3.	Shri. Nikhil More Chief Officer Phaltan	02166 -222325	221767	9405860938
4.	Mrs. Sanjeevani Dalvi Chief Officer Wai	02167- 220022	220070	9022525429
5.	Shri Yogesh Patil (Additional) Chief Officer Panchgani	02168- 240244	240355	9579421123
6.	Mrs. Yogesh Patil Chief Officer Mahabaleshwar	02168- 260220	260671	9579421123
7.	Shri. Vinod Jalak (Additional) Chief Officer Rahimatpur	02163 – 230223	-	9527528612
8.	Shri Sachin Mane Chief Officer Mhaswad	02373- 270221 270252	270221	7350034371
9.	Shri. Pratap Koli Chief Officer Malkapur	02164 - 241332	241377	8007141597
10	Shri. Datta Gaikwad Chief Officer Lonand	02169-225250 225248		9096558544
11	Shri. Vinod Jalak Chief Officer Koregaon	02163 – 220560		9527528612



12	Shri. Chetan Konde Chief Officer Khandala	02169-252212		8888884077
13	Shri Satish Chavan Chief Officer Vaduz	02161-231283 232257		9960521676
14	Shri. Sandeep Gharge, Chief Officer Dahiwadi	02165 – 220945		9975747263
15	Parag Kodagale Chief Officer Medha	02378-285216		9028480595
16	Shri. Santosh More - Patan	02378-285216		9028480595

### 15.20 Satara Irrigation Project Board Satara

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Jayant Shinde – Superintendent Engineer Satara Irrigation Project Board	02162- 244654	7066285555 8788661564
2	Mr. Amar Kashid – Working Engineer Urmodi Project Department V Shri Molawade	02162- 246043	9527014444 9822740939
3	Mrs. Pragati Yadav- Working Engineer Krishna Irrigation Department, Satara	02162- 244681	9527342222 94094045827
4	Mr. Sanjay Bodke – Working Engineer Dhom Balkawadi Project Department, Wai	02167- 220079	9373647609
5	Mr. Yogesh Shinde – Working Engineer Satara Irrigation Department, Satara	02162- 244455	7028124324 8999893454
6	Mr. Sunil Kumar Sathe Deputy Executive Engineer, Dhom Balkawadi Project Department, Wai		9881121166
7	Mr. Milind Pawar – Working Engineer Small Irrigation Water Conservation, Satara	02162- 244644	9422236130
8	Mr. Uday Nangre – Deputy Engineer Arafal Canal Development, Karwadi	02164- 271094	9881304830
9	Mr. Amol Nikam - Working Engineer Small Irrigation Department, Satara	02162- 246193	9922423410
10	Mr. R. Y. Rediyar – Executive Engineer Tembhu Ursa Water Irrigation, Oglewadi	02162- 244644	9850892507
11	Sh. Raju Dubal – Executive Engineer Nira Ujwa Canal (Vir Dam), Phaltan	02166- 222228	8010785793
12	Sh. Gaikwad S.S – Executive Engineer Tarli Project		9422068283

13	Sh. Sanjaykumar Mane Assistant Superintendent Engineer Satara Irrigation Project Board Krishnanagar Satara		9325638527
14	Sh. Varsha Shahane Deputy Executive Engineer Dhom Canal Division No.2 Satara		9420465903
15	Sh. Rahul Ghanwat, Executive Engineer Kanhher Canal Division No.2 Karwadi Rajesh Haddare U.K.Abh.		9850133278 7774041850 9561994576
16	Sh. Nitin Babar, U.K.A. A. Small Irrigation Department Satara		8275268093
17	Amol Nikam U.A. District Kathapur Ursa Sin. Department Satara De.Su.Inamdar. U.K.A.		9922423410 9922433220
18	Shivaji Pawar, Sub Divisional Engineer, Koyna Irrigation, Patan Irrigation, Tarli Irrigation		9503311710
19	Vikas Bansode Asst. Engineer Medium Projects Ner, Ranand, Andali		7588383190
20	Amit Checke, Deputy Engineer Urmodi Irrigation		9405563613
21	Smt. A. Sutar, Asst. Eng. Dhom Irrigation Sub-Division No. 1		9421217711
22	Smt. N. N. Mohite, Asst. Eng. Dhom Irrigation Sub-Division No. 2 Satara		9665466705
23	Smt. Harne, Sub Divisional Officer Dhom Balkawadi Irrigation Sub-Division No. 2 Phaltan		8605072166

### 15.21 Satara Irrigation Board, Satara

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Arun Naik - Superintendent Engineer Satara Irrigation Board, Satara	02162-246071	9822220725
2	Mr. Nilesh Potdar - Ex. Eng. Koyna Irrigation Department, Koynanagar	02372-284343 02372-284521	7588619920
3	Mr. A V Patil - Ex. Eng. Koyna Construction, Koynanagar	02372-284340 294499	7972841384
4	Mr. Ashish Jadhav-Deputy Ex. Eng. (Dam)	02372-284406	9860818283
5	Mr. S. R. Shinde – Ex. Eng. Kolkewadi Dam Management, Alore, Ratnagiri	0255-230034	9890607774

6	Mr. Shubhām Kamthane- Branch Eng.		9370300496
7	Mr. Deepak Gaikwad – Sub Divisional Engineer Kolkewadi Dam Management, Alore		7066785100

## 15.22 Fire Officers

S.No.	Officials	Office Contact No.	Mobile No.
1	Amit Nikam – Fire Officer Satara Municipality Sunil Pardhe- Fireman Satara  Prabhakar Jadhav- Fireman Satara	02162-282636/234076	9594581791  9527533170 9011168877
2	Shrikant Devgire - Fire Officer Karad Municipality Vinod Katre- Karad	02164-221836	9324449847  9284503710 9420486101
3	Vinod Jadhav - Phaltan Municipality	02166-222325/220101	9860850350
4	Mr. Narayan Gosavi – Wai Municipality	02167-220022	9850070985
5	Mr. Sagar Sartape - Mhaswad Municipality	02373-270221	9763310010
6	Mr. Abaji Dhoble - Mahabaleshwar Municipality	02168- 260100/260220	9860465765
7	Vijay Chavan – Fireman Rahimatpur Municipality	02163-230223	9960323374 9096909446
8	Suryakant Kasurde – Pachgani Municipality	02168-240244	9822919133
9	Mr. Ghadge - Security Officer, Mr. Shingte – Labor Officer Ajinkyatara Co. Sugar Factory, Shendre Tal. Satara	02162-279266	9890991437 9850809130 8600110023
10	Mr. S. R. Shinde - Security Officer. Krishna Co. Sugar Factory Rethare Karad	02164-266222 266223/24/25	7030906681
11	Patan Purchase and Sale Association, Patan	02372-283026	
12	Mr. Sambhaji Barge - Security Officer Kisanveer Co. Sugar Cane, Bhuinj	02167-285240 8600110005/6/7/8	8600110019
13	Shri Atul Jagtap Asian Paint Security Officer		9579143002 9329047765
14	Shri. Sable Fire Officer Cooper Company MIDC Satara	02162240413	9923597100 7972928012
15	Shri. Gawade	9689931991	9689931991

	Chief Fire Officer Pune		
16	State Fire Control Room - Mumbai	022-26677777	

### 15.23 Public Works Department

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Santosh Rokde- Superintending Engineer	02162-234586	9168184518
2	Mrs. A. S. Dake - Assistant Superintending Engineer	02162-234586	9960900050
3	Mr. Shripad Jadhav- Working Engineer (East) Satara	02162-233792	9764518275
4	Mr. Rahul Ahire- Working Engineer (West)	02162-234329	9657272751 9309145329
5	Mr. Yuvraj Desai- Working Engineer Pradhan Mantri Gram Sadak Yojana	02162-237894	9420387799
6	P.S. Khairmode - Deputy Engineer Satara	02162-233795	9850242540
7	Mr. D.J. Patil - Deputy Engineer Koregaon	02163-220239	9823106212
8	Mr. Ravi Ambekar - Deputy Engineer Phaltan	02166-220554	9823213002
9	Mr. R. K. Pawar Deputy Engineer Dahiawadi	02165-220263	9422494981
10	Mr. S.D. Khot- Deputy Engineer Vaduz	02161-231260	7588637811
11	Mr. Y.S. Katkar Deputy Engineer Khandala	02169-252214	9922965804
12	Mr. D. H. Pawar Deputy Engineer Jawali	02378-285370	9404703423
13	Mr. M V Gonjari- Deputy Engineer ,Wai	02167-227029	9764518275
14	Mr. S Y Shinde Deputy Engineer Patan (North)	02372-283008	7588576296
15	Mr. G P Sawant Deputy Engineer Patan (South)	02372-282372	9922624895
16	Mr. A S Deshpande- Deputy Engineer Mahabaleshwar	02168-260204	9822970399
17	Mr. R B . Dhumal Deputy Engineer Karad (North)	02164-222637	9423865229
18	Mr. P V Chaudhary - Deputy Engineer Karad (South)	02164-222305	9423828326

20	Mr. Raskar Deputy Engineer Electricity Sub-Division Satara		9975845959
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### 15.24 National Highways Authority / Maharashtra Road Development Authority

S.No.	Officials	Mobile No.
1	Shri Sanjay Kadam Project Director National Highways Authority	9860010946 9921240909
2	Deputy Engineer (Karad – Chiplun Highway) National Highways Authority	9975975368
3	Shri Gandhi (Pune to Shendre Highway) Maintenance Repair National Highways Authority	8975450404 8999587811
4	Shri Bhoyar (Shendre to Karad Highway) Maintenance Repair, National Highways Authority	9022913401

### 15.25 Deputy Engineer, Rural Water Supply Sub-Division Panchayat Samiti

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Amir Mulla - P. Deputy Engineer, Satara	02162-232922	9764845786
2	Mr. R. B. Sathe – P. Deputy Engineer, Jawli (Mahabaleshwar)	02378-285662	9850103341
3	Mr. Sunil Metkari – Deputy Engineer, Wai	02167-227653	8888831024
4	Mr. Satish Bhujbal – Deputy Engineer, Phaltan	02166-223185	9403772559
5	Mr. Vaibhav Madke. – Deputy Engineer, Maan (Dahivadi)	02165-220884	9766437146
6	Mr. Shabbir Sheikh – Deputy Engineer, Khatav (Vaduj)	02161-231274	9579887966
7	Mr. Sunil Metkari (P.)– Deputy Engineer, Koregaon	02163-220108	8888831024
8	Mr. Jaydeep Patil - Deputy Engineer, Karad	02164-225025	9975284795
9	Deputy Engineer, Patan	02372-282525	-
10	Mr. Sanjay Bhosale Deputy Engineer Mahabaleshwar		7744955755
11	Sanjay Lad Deputy Engineer Khandala		9158939495

### 15.26 Maharashtra Jeevan Pradhikaran/ Urban Water Supply

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Gaikwad Working Engineer M.G.A. Satara	02162- 221680	9168496268
2	Mr. Patil - Working Engineer M.G.A. Karad	02164-229946	7798717014
3	Mr. Gaikwad, Deputy Engineer, Satara Division 1	-	8983529466
4	Mr. Bhopale, Deputy Engineer, Vaduz	02161-231206	9421173638
5	Mr. Belgaonkar - Deputy Engineer, Phaltan	02166-220733	9021776383
6	Mr. S. A. Kodak, Deputy Engineer Panchgani		9890604008
7	Mr. Dhonge, Deputy Engineer Karad Division 1	02164-222534	7977688073
8	Mr. S. M. Deshpande, Deputy Engineer Karad Division 2	02164-222534	9860376776

### 15.27 Forest Department

S.No.	Officials	Office Contact No.	Mobile No.
1	Mrs. Aditi Bhardwaj, Deputy Conservator of Forests, Satara	02162-220058 220057 / 59	9868346478
2	Reshma Rhorkate Asst. Forest Conservator Satara		9096067406
2	Mahesh Jhanjurne, Asst. Forest Conservator Satara	02162-220058	9561522631
3	Mr. Kiran Jagtap – Deputy Director Sahyadri Tiger Project Kolhapur (Karad)	02164-226151	7387068179
4	Shri. S.B. Chavan Asst. Conservator of Forests, Wildlife and Plants.		9403780326
5	Shri. A. L. Joshi Asst. Conservator of Forests, Western Ghat		9860252199
6	Shri. Patil - Forest Ranger Satara	02162-228670	9423593580
7	Shri. Dombale - Forest Ranger Jawali	02378-285350	9423593569
8	Shri. S. P Kulkarni - Forest Ranger Mahabaleshwar	02168-260281	9423593580
9	Shri.P. P. Bhudhanwar - Forest Ranger Wai	02167-227188	9403780343
10	Shri. A. V. Shinde - Forest Ranger Khandala	02169-252028	9423593569
11	Shri. Ghadge - Forest Ranger Phaltan	02166-226979	9423593597
12	Shri. R.B. Dhumal - Forest Ranger Maan	02165-220850	9423593563
13	Shri. Chavan - Forest Ranger Khatav	02161-231030	9423593601
14	Shri. Atole - Forest Ranger Koregaon	02163-220850	9423593576

15	Shri. B.S. Shinde - Forest Ranger Karad	02164-241462	9423593568
16	Shri. V. P. Kale Forest Ranger Patan	02372-283063	9423593582

### 15.28 Maharashtra State Electricity Distribution Company

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Balasaheb Halnor - Superintendent Engineer	02162-244640	9029168222
2	Mr. Amit Bartakke - Working. Engineer Satara	02162-246015	9029168009
3	Mr. A B Navale - Additional Working. Engineer Divisional Satara	02162 -244641	9029108870
4	Mr. B. T. Mohite - Working. Engineer Karad Mr. S. E. Mane - Additional Working. Engineer Karad	02164-271797	9029128008 9029168613
5	Mr. V. E. Shitware - Working. Engineer Wai Mrs. R. M. Chittar - Additional Working. Engineer Wai	02167-227142	9029168012 9029168661
6	Mr. B D Maske - Working. Engineer Vaduz Mr. S. V. Ghatal - Additional Working. Engineer	02161-231188	9029168011 9029168625
7	Mr. P. P. Gramopadhye - Working. Engineer Phaltan Mr. M. S. Raut - Additional. Working. Engineer	02166-222463	9029168010 9029168809
8	Mr. Mulani - Deputy Working. Satara Rural	02162-283151	9029168866
9	Mrs. Manasi Vanarase - Deputy Engineer Karad Gram- 1	02164-228391	9029168609
10	Mr. Londhe – Deputy Commissioner Phaltan City	02166-222380	9029168810
11	Mr. Sandeep Pandharpotte - Deputy Engineer Satara Rural -2	02162-220818	9029108582
12	Mr. Nikam - Deputy Engineer Koregaon	02163-220332	9029168865
13	Mr. Adamane - Deputy Engineer Karad Rural -2	02164-255045	9029108610
14	Mr. Dehar - Deputy Engineer Phaltan Rural	02166-220502	9029168811
15	Mr. Rajesh Davre - Deputy Engineer Dahiwadi	02165-250563	9029168620
16	Mr. Kishore Shinde - Deputy Engineer Patan	02372-283050	7719878168
17	Mrs. Jadhav - Deputy Engineer Umbraj	02164-264048	9029168611
18	Mr. Reddy - Deputy Engineer Lonand	02169-225092	7875768813
19	Mr. Chandugade - Deputy Engineer Khandala	02169-226944	9029168814
20	Mr. Kode - Deputy Engineer Wai	02167-227080	9029108663
21	Mr. Bhutkar – Deputy Engineer Medha	02378-285516	9029108664
22	Mr. Ganji – Deputy Engineer Mahabaleshwar	02168/ 260292	9029168667

23	Mr. Divate – Deputy Engineer Vaduz		02161-231244	9029168618
24	Mr. Patole – Deputy Engineer Khatav		02375-242570	9029168619
25	Mr. Dhake – Deputy Engineer Rahimatpur		02163/ 231244	9029168868
26	Control Room		7875768554	7875768520
26	Mr. Pawar – Deputy Executive Engineer Wathar			9029168867
27	Mr. Aavke – Additional Executive Engineer Karad City			9029168612
28	Mr. Amit Adame – Additional Executive Engineer Malharpeth			9029168743
29	Mr. Londhe – Additional Executive Engineer Phaltan City			9029168810
30	Mr. Reddy – Additional Executive Engineer Lonand			9029168813
31	Mr. Bhosale – Additional Executive Engineer Panchgani			9029168665
32	Mr. Bodhe – Additional Executive Engineer Aundh			9029168621
33	Satara Division / Sub Division	Rajendra Barsingh - Additional Executive Engineer	Satara Division	9029168869
		S.P.Yele - Assistant Engineer	Rajvada	9029168588
		V.D. Parve - Assistant Engineer N.M. Badekar	Powai Naka-1 Powai Naka-2	9029118584 9029118587
		A.H. Sathe - Assistant Engineer	MIDC	9029108586
		S.D.Kulkarni - Assistant Engineer	Karanje	9029158585
34	Satara Rural Subdivision	M.S.Barge - Junior Engineer	Satara Rural 1	9029168581
		Sandeep Pandharpatte – Asst. Engineer	Satara Rural 1	9029108582
		D. R. Kundle - Junior Engineer	Limb	9029168577
		A. D. Bhosale – Asst. Engineer	Vaduth	9029168583
		V.S. Kharat – Asst. Engineer	Parli	9029168580
		Abhijeet Bhosale – Asst.	Padli	9029108579



		Engineer		
		T.M. Garud – Asst. Engineer	Nagthane	9029168578
		Sachin Chavan-Asst. Engineer	Atit	9029118576
35	Koregaon Subdivision	A.B.Yadav- Asst. Engineer	Koregaon City	9029168571
		M.D.Jadhav- Asst. Engineer	Koregaon Rural-1	9029168571
		S.S. Gaikwad -Junior. Engineer	Koregaon Rural -2	9029168602
		H.B.Mahamuni -Sixth.Abh.	Chimangaon	9029168601
36	Rahimatpur Subdivision	R.Y. Dharme-Asst. Eng.	Rahimatpur city	9029168573
		S.N. Metkari- Junior Eng.	Rahimatpur Rural	9029108572
		S.V. Patil-Asst. Eng.	Targaon	9029108574
		R.M. Deshmukh - Junior Eng.	Wathar Kiroli	9029118603
37	Wathar Division	Aniruddha Gurav- Junior Eng.	Deur	9029168590
		S.R. Shinde-Senior Eng.	Satara Road	9029168565
		Suhas Redekar - Junior Eng.	Kinhai	9029168591
		Shubham Chavan-Junior Eng.	Sonke	9029168605
		K.R. Mardhe-Senior Eng.	Pimpode	9029168592
		Namrata Patil-Senior Eng.	Wathar	9029108606
		S.K.Patil-Addnl. Ex. Eng.	Karad division	9029168613
38	Karad Division/ City Subdivision	D.A.Pawar, Asst. Eng.	Karad West	9029168717
		K.K.Jadhav-Asst. Eng.	Karad East	9029168715
		M.D.Domble-Asst. Eng.	Karad South	9029118716
		Tushar Kharade, Asst. Eng.	Oglewadi City	9029168724
		S.V.Gonjari, Asst. Eng.	Oglewadi Rural 1	9029108722
		A.K.Kharat, Asst. Eng.	Oglewadi Rural 2	9029168723
		G.A.PATSUTE, Asst. Eng.	Undale	9029168732
39	Karad Rural Subdivision 1	P. S. Panskar, Asst. Eng.	Savade	9029168740
		G.D. Tondale, Asst. Eng.	Kale	9029168744
		A.A.Jadhav, Asst. Eng.	Wathar	9029168730

		N.R. Bandrayani, Asst. Eng.	Ond	9029168725
		U.A. always, Asst. Eng.	Kolewadi	9029168718
		V. T. Gutu, Asst. Eng.	Tambave	9029168729
		Sheetal Habalder, Asst. Eng.	Wing	9029168735
40	Karad Rural Subdivision 2	Pravin Patil, Junior Eng.	Rethare Bu	9029168727
		D.S.Kathale, Junior Eng.	Vadgaon Haveli	9029108742
		Madhuri Yedge Junior Eng.	Shenoli	9029168743
		A.A.Dagle, Asst. Eng.	Malkapur	9029168738
		A.B.Sutar, Asst. Eng.	Warunji	9029128734
		Shailendra Kamble, Asst. Eng.	Mundhe	9029168721
		S.S.Gondhil, Asst. Eng.	Wahagaon	9029118733
41	Patan Subdivision	Prashant Kamble-Asst. Eng.	Patan City	9029168756
		A.B.Yadav.Junior. Eng.	Patan Rural 1	9029168755
		A.A.Ghadge- Asst. Eng.	Patan Rural 2	9029108750
		A.H.Shirke-Junior Eng.	Koynanagar	9029168753
		V.J.Madane-Asst. Eng.	Ra Sathi	9029168751
		Sandeep Deshmukh, Asst. Eng.	Marli	9029168749
42	Malharpeth division	Sneha Patil-Asst. Eng.	Malharpeth	9029168748
		Dhananjay Shede-Asst. Eng.	Talmavale	9029168752
		Sushant Nikam- Junior Eng.	Marul Haveli	9029168752
		S.S. Lade- Asst. Eng.	Dhebewadi	9029108757
43	Umbraj Subdivision	D.B.Kakade, Asst. Eng.	Umbraj Urban	9029168731
		Swaroop Guruv, Asst. Eng.	Umbraj Rural	9029168741
		Gadhawe, Junior Eng.	Chafal	9029108739
		Sheikh, Junior Eng.	Shirwade	9029108728
		Mahind, Asst. Eng.	Tarle	9029168745
		Hanmant Pisal, Asst. Eng.	Pal	9029168726
		Suryavanshi, Asst. Eng.	Masur Urban	9029168720
		Patil, Asst. Eng.	Masur Rural	9029168719
44	Phaltan division/city	G.D.Jamale, Additional Executive Eng.	Phaltan B	9029168809
		Kadam, Asst. Eng.	Phaltan Urban 1	9029128835
		Nanavare, Asst. Eng.	Phaltan Urban 2	9029168836
		Sunil Gond, Asst. Eng.	Phaltan Urban 3	9029118837
		Mane, Asst. Eng.	Somanthali	9029168834
45	Phaltan Subdivision Rural	Dakphade, JE	Phaltan Rural 1	9029168819
		Bhafkar, JE	Vidni	9029168846
		Thombre, AE	Bard	9029168817

		Dhembere, JE	Nimbalak	9029168845
		Sunil Mahadik, AE	Ashu	9029168816
		Hagre, JE	Rajale	9029168820
		Changan, AE	Sakhrwadi 1	9029168821
		Jadhav, AE	Sakhrwadi 2	9029168822
		Pandhare, AE	Girbi	9029168818
		Mujawar, AE	Adarki	9029168815
		Osmame, AE	Wathar ki	9029168825
46	Lonand Subdivision	Jadhav, AE	Lonand Urban	9029168833
		Patil, JE	Lonand Rural	9029168856
		Ajit Bhandare, JE	Wathar Colony	9029168838
		Vedhapathak, AE	Taradgaon	9029118850
		Pawan Mane, JE	Hingangaon	9029108844
47	Khandala Subdivision	Pravin Mahangere, JE	Khandala	9029168840
		Suranjit Roy, AE	Shirwal Urban	9029168824
		Vaibhav Bhosale, AE	Shirwal Rural	9029168823
		Shejwal, JE	Loham	9029168848
		Chhagan Mulik, AE	Ahire	9029168839
48	Wai Division/Subdivision	Dugane, Additional Executive Eng.	Wai Division	9029168661
		Nanaso Koli, AE	Wai Urban 1	9029168679
		Battase, AE	Wai Urban 1	9029168678
		Bhagwat, JE	Wai Rural 1	9029168690
		Dugane, AE	Wai Rural 2	9029108691
		Shivade, AE	Pachwad	9029168681
		Jadhav, AE	Bhuij	9029168672
		Sachin Lade, AE	Jamb	9029168673
		Priyanka Chougule, AE	Kenjal	9029168697
		More, AE	Surur	9029168676
		Rathod, JE	Kavathe	9029168696
		Sagar Magdum, JE	Vyahali	9029108698
		Madhekar, JE	Bavdhan	9029168694
49	Medha Subdivision	Kumbhar, AE	Medha	9029168702
		Jadhav, AE	Anewadi	9029108693
		Omkar Patil, AE	Kudal	9029108680
		Shinde, AE	Karhar	9029168695
		Mirkale, AE	Tapola	9029168677
50	Panchgani Division	Ganji, AE	Panchgani city	9029168683
		Arvind Suryavanshi, AE	Panchgani rural	9029108682

		Kare, AE	Mahabaleshwar city	9029168675
		Gurav, JE	Mahabaleshwar rural 1	9029168689
		Padwal, JE	Mahabaleshwar rural 2	9029168674
51	Waduj division/ subdivision	H N Dhoke, Addnl., Executive Eng.	Waduj Division	9029168625
		Umesh Patil, JE	Waduj Rural	9029168655
		Lokhande, AE	Mayani	9029168632
		Amol Desai, AE	Waduj Urban	9029168633
		Vaibhav Madane, AE	Katar Khatav	9029168634
		Vishal Ghutukde, AE	Nimsod	9029168635
52	Dahiwadi subdivision	Pol, AE	Dahiwadi Urban	9029168650
		Ranjit Deshmukh, AE	Dahiwadi Rural	9029108717
		Dheerajkumar Pawar, AE	Malavadi	9029168639
		S. Vedpathak, JE	Tattooed	9029168639
		Sanap, JE	Devapur	9029168642
		Kare, AE	Mhaswad city	9029168640
		Rajput, AE	Mhaswad Rural	9029168641
53	Oudh Division	Wagh, AE	Oudh	9029168644
		Dombre, AE	Pusesavali	9029168658
54	Khatav Division	Tarlekar, AE	Budh	9029168636
		Jadhav, JE	Khatav	9029168656
		Menkudle, JE	Pusegaon	9029147298

### 15.29 Bharat Sanchar Nigam Limited (BSNL)

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Suryavanshi – Deputy General Manager	02162-232000	9422601516
2	Vijay Kamble – Branch Engineer Satara		9422605756
3	Mr. C. N. Sawat – Deputy Engineer Satara		9423034998
4	Mr. B. N. Desai – Deputy Engineer, Karad	02164-222246	9421214242
5	Mr. J. S. Khandagale – Divisional Engineer, Phaltan	02166-220000	9404504022

6	Mr. O. N. Mokashi- Deputy Engineer Mahabaleshwar	02168-261122	9423863400
7	Mrs. Purnadare – Deputy Engineer Jawali	02378-285300	9423508242
8	Mrs. V. N. Avachat – Deputy Engineer Khandala	02169-225400	9422987445
9	Mr. A. S. Lawand – Deputy Engineer Khatav	02161-231000	9421185777
10	Mr. S. Y. Kallur – Deputy Engineer Patan	02372-283080	9423862600
11	Mr. D. G. Chavan – Deputy Engineer Dahiwadi	02165-220000	9422604900
12	Mr. D. S. Navadkar – Sub.V.Abhi. Koregaon		9423874798
13	Mr. Vi. L. Deshpande – Sub.V.Abhi. Y		942240222

### 15.30 Industrial Safety and Maharashtra Industrial Development Corporation

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Irfan Khan - Joint Director Industrial Safety and Health, Satara	02162-234694	9922644557
2	Mr. Kharatmal - Deputy Director Industrial Safety and Health, Satara	02162-234694	9860451424
3	Mr. Pawan Sonune – Assistant Director Industrial Safety and Health, Satara	02162-234694	9067757789
4	Mr. Umesh Dandgwal, General Manager District Industries Centre Satara		9604901139
5	Mr. Ashok Chavan, Working. Engineer Maharashtra Industrial Development Corporation Kolhapur	0231-2656582	9552566972
6	Amit Sondage -Regional Manager, Satara MIDC	02162-245716	9049110999
7	Mr. S. D. Sonawane - Deputy Engineer Maharashtra Industrial Development Corporation	02162-244610	880983439
8	Mr. S. S. Pawar - Junior Engineer	02162-244610	7773977333
9	Mr. Dhairyasheel Bhosale – M A S sec.	02162-240240	9422402700
10	Mr. Barapatre – Bharat Petroleum Plant Wai	02167 –265117	9850563016
11	Shradha Bagal Bharat Trolliam Plant (Security)	02167 –265117	9403080091

12	Manoj Kshirsagar- Asian Paint Shirwal	9921211669	9136821907
13	Shri Atul Jagtap – Security Officer Asian Paint Shirwal		9579143002
14	Sandeep Kamble – Security Officer DAT Wyler Pharma Company		9823421528 8380088348

### 15.31 Seismological and meteorological station

S.No.	Officials	Office Contact No.	Mobile No.
1	Mr. Jadhav, Seismological Station, Satara (Circuit House Satara Area)		9422380315
2	Mr. Kadam, Seismological Station, Patan	02372-284405	8407970086
3	Mr. Tikhe, Meteorological Station, Krishna Nagar, Satara	2162-231869	9420630083
4	Mr. Shedge, Meteorological Station, Krishna Nagar, Satara	2162-231869	9881087891
5	Mr. Vishal Meteorological Station, Mahabaleshwar	02168-260471	9422600718
6	Meteorological Station, Colaba, Mumbai	022-22160824	
7	Meteorological Department, Pune	020-25535886	020-25530201

### 15.32 Railway Department

S.No.	Office/Officials	STD Code	Telephone No.
1	Shri Rajkumar Salve, Manager Railway Station Satara	02162- 270050	8856805568
2	Railway Station Karad	02164	271034
3	Railway Station Koregaon	02163	220261
4	Railway Station Rahimatpur	02163	230900
5	Railway Station Shenali	02164	269398
6	Railway Station Lonand	02169	225050
7	Railway Station Wathar	02163	252228

### 15.33 Automatic Weather Stations in Satara District

District	Tehsil	Revenue Circle	Village	Latitude	Longitude
Satara	Javali	Anewadi	Songaon	17.815314	73.88815
Satara	Javali	Bamnoli	Bamnoli Kasabe	17.731945	73.758767

Satara	Javali -	Javali (Meda)	Medha	17.79185	73.829028
Satara	Javali	Karhar	Hateghar	17.85729	73.82047
Satara	Javali	Kelghar	Ambeghar	17.848474	73.778234
Satara	Javali	Kudal	Kudal	17.833392	73.916099
Satara	Karad	Indoli	Indoli	17.439291	74.077491
Satara	Karad	Kale	Kale	17.196996	74.154455
Satara	Karad	Karad	Vahagaon	17.331576	74.144324
Satara	Karad	Kawathe	Kawathe	17.418226	74.117461
Satara	Karad	Kole	Kusur	17.24156	74.049918
Satara	Karad	Koparde-Haveli	Koparde Haveli	17.355927	74.173435
Satara	Karad	Malkapur	Malkapur	17.268673	74.187308
Satara	Karad	Masur	Masur	17.407243	74.162016
Satara	Karad	Saidapur	Saidapur	17.298851	74.195798
Satara	Karad	Shenoli	Shere	17.204451	74.253321
Satara	Karad	Supane	Supane	17.297855	74.121087
Satara	Karad	Umbraj	Belwade Haveli	17.354463	74.138505
Satara	Karad	Undale	Salshirambe	17.147768	74.097073
Satara	Khandala	Khandala	Pargaon	18.056171	74.011151
Satara	Khandala	Lonand	Golegaon	18.051763	74.167752
Satara	Khandala	Shirval	Shirval	18.144617	73.982557

Satara	Khandala	Wathar Bk	Bhade	18.11745	74.096727
Satara	Khatav	Pusegaon	Pusegaon	17.7098	74.3227
Satara	Khatav	Aundh	Aundh	17.542	74.3412
Satara	Khatav	Budha	Budha	17.7778	74.3259
Satara	Khatav	Katarkhatav	Katar Khatav	17.5669	74.5295
Satara	Khatav	Khatav	Khatav	17.6634	74.3689
Satara	Khatav	Mayani	Mayani	17.4541	74.5425
Satara	Khatav	Nimsod	Mhasurne	17.407794	74.434508
Satara	Khatav	Pusesavali	Pusesavali	17.4631	74.3174
Satara	Khatav	Waduj	Vaduj Madhavnagar	17.6101	74.4698
Satara	Koregaon	Kinai	Kinai	17.793248	74.176602
Satara	Koregaon	Koregaon	Koregaon	17.706125	74.159321
Satara	Koregaon	Kumathe	Chimangaon	17.731799	74.227809
Satara	Koregaon	Pimpode Bk	Pimpode Bk	17.918281	74.089791
Satara	Koregaon	Rahimatpur	Rahimatpur	17.575897	74.190266
Satara	Koregaon	Satara Rd	Palashi	17.824625	74.119208
Satara	Koregaon	Shirambe	Shirambe	17.658216	74.19168
Satara	Koregaon	Wathar Kiroli	Wathar Kiroli	17.528722	74.195467
Satara	Koregaon	Wathar Stn	Wathar Station	17.879761	74.138411



Satara	Mahabaleshwar	Lamaj	Waghware	17.762429	73.638098
Satara	Mahabaleshwar	Mahabaleshwar	Mahabaleshwar	17.938281	73.67517
Satara	Mahabaleshwar	Pachgani	Pachgani	17.926987	73.802782
Satara	Mahabaleshwar	Tapola	Tapola	17.761747	73.743016
Satara	Man	Dahiwadi	Dahiwadi	17.6914	74.5554
Satara	Man	Gondawale Bk	Gondawale	17.6692	74.5784
Satara	Man	Kukudwad	Kukudwad	17.5508	74.6485
Satara	Man	Malwadi	Malwadi	17.766	74.4529
Satara	Man	Mardi	Mardi	17.7433	74.6939
Satara	Man	Mhaswad	Mhaswad	17.6364	74.7886
Satara	Man	Shinganapur	Shinganapur	17.8515	74.6605
Satara	Patan	Chaphal	Majgaon	17.394357	74.043008
Satara	Patan	Dhebewadi	Janugadewadi	17.253618	73.942526
Satara	Patan	Helwak	Rasati	17.371938	73.747447
Satara	Patan	Kuthare	Kuthare	17.209051	73.96136
Satara	Patan	Malharpeth	Urul	17.36295	74.025801
Satara	Patan	Marali	Gavhanwadi	17.324442	73.954531
Satara	Patan	Mhawashi	Mhawashi	17.3877	73.919135
Satara	Patan	Morgiri	Lendhori	17.339375	73.810611
Satara	Patan	Patan	Patan	17.358909	73.885871

Satara	Patan	Talmawale	Kumbhargaon	17.219723	74.012204
Satara	Patan	Tarale	Tarale	17.492451	73.982503
Satara	Phaltan	Adarki Bk	Adarki Bk	17.920891	74.217693
Satara	Phaltan	Asu	Asu	18.052324	74.653436
Satara	Phaltan	Barad	Barad	17.951386	74.586341
Satara	Phaltan	Girawi	Girawi	17.885729	74.454003
Satara	Phaltan	Hol	Sakharwadi	18.054901	74.34084
Satara	Phaltan	Phaltan	Phaltan	18.003928	74.427069
Satara	Phaltan	Rajale	Rajale	18.024268	74.540421
Satara	Phaltan	Taradgaon	Taradgaon	18.024059	74.249126
Satara	Phaltan	Wathar (Ni)	Wathar Nimbalkar	17.962421	74.36847
Satara	Satara	Kaner	Kanlabe	17.746286	73.936849
Satara	Satara	Dahiwad	Wadgaon	17.695327	73.860713
Satara	Satara	Ambawade	Karandi	17.626193	73.956328
Satara	Satara	Apshinge	Apshinge	17.569021	74.069385
Satara	Satara	Khed	Mahagaon	17.690492	74.08794
Satara	Satara	Nagthane	Nagthane	17.566316	74.046358
Satara	Satara	Parali	Tosheghar	17.598141	73.873584
Satara	Satara	Satara	Hemdabaj	17.722995	73.966023

Satara	Satara-	Shendre	Shendre	17.636079	74.023425
Satara	Satara	Tasgaon	Angapur	17.595885	74.130763
Satara	Satara	Varye	Mardhe	17.832965	73.984101
Satara	Satara	Waduth	Aarfal	17.766828	74.057708
Satara	Wai	Bhuij	Bhuij	17.882746	73.971717
Satara	Wai	Dhom	Dhom	17.980627	73.834341
Satara	Wai	Ozarde	Ozarde	17.912867	73.950922
Satara	Wai	Pachwad	Pachwad	17.860903	73.949604
Satara	Wai	Pasarani	Borgaon	17.94023	73.74929
Satara	Wai	Surur	Surur	17.952157	73.983731
Satara	Wai	Wai	Bopardi	17.984772	73.899653
Satara	Man	Aandhali	Aandhali	17.763228	74.478435
Satara	Man	Var-Malwadi	Var-Malwadi	17.508762	74.813888
Satara	Koregaon	Sap	Pimpari	17.566991	74.231326
Satara	Khatav	Kaledhon	Kaledhon	17.431795	74.648758
Satara	Satara	Kodoli	Kodoli	17.676021	74.022206
Satara	Satara	Kanrje Trf Satara	Godoli	17.677193	74.018041
Satara	Phaltan	Kolki	Jadhav Wadi	17.969556	74.423951
Satara	Patan	Mharul Haveli	Mharul Haveli	17.305989	74.009051
Satara	Patan	Yerad	Banpeth	17.354273	73.84919

Satara	Patan	Aavarde	Ambale	17.505561	73.947538
Satara	Karad	Yelgaon	Yelgaon	17.132549	74.026108

### 15.34 Information about villages in talukas that are prone to landslides

Taluka- Patan						
S. No.	Taluka	Name of Village	No. of Families	No. of Persons	Name of safe place to be shifted to during heavy rains	Remarks
1	Patan	Ambeghar Turf Marli (Lower)	8	31	Z.P.School Koynanagar	
2	Patan	Ambeghar Turf Marli (Upper)	30	112	Z.P.School Koynanagar	
3	Patan	Shidrukwardi (Dhavde)	82	320	Z.P.School Shidrukwardi	
4	Patan	Dhokavale (Riswad)	92	355	1.New English School Chafer (Mirgaon) 2. Z.P.Primary School Chafer (Mirgaon) 3. Z.P.School Riswad.	
5	Patan	Kahir	36	152	Z.P. Primary School Kahir	
6	Patan	Jitkarwardi (Jinti)	88	341	Daiditya Vijay Kamble Vidyalaya Jitkarwardi (Jinti)	
7	Patan	Mirgaon, Katewadi, Dhokavale	195	588	Z.P.Primary School Koynanagar	
8	Patan	Palasari (Van Kuswade)	65	252	Z.P.Primary School Vankuswade (5 rooms)	
9	Patan	Masugadewadi	50	180	Z.P. Primary School 1 km from Padaloshi and shelter shed	

10	Patan	Baglewadi	64	240	Z.P.Primary School Bhokarwadi (5 rooms)	
11	Patan	Baje	47	178	Netaji Subhash Chandra High School Helwak	
12	Patan	Humbarli	247	910	Netaji Subhash Chandra High School Helwak	
13	Patan	Miraswadi	123	470	Z.P. Primary School Shiral (8 rooms)	
14	Patan	Jugaiwadi (Ghot)	95	380	Z.P. Primary School Ambewadi (4 rooms)	
15	Patan	Borgewadi (Mendhoshi)	95	375	Z.P. Primary School Sadawaghapur (7 rooms)	
16	Patan	Luhdewadi (Keral)	40	151	Z.P. Primary School Dhadamwadi	
17	Patan	Shidrukwardi	37	145	Z.P. Primary School Shidrukwardi	
18	Patan	Dikshi (4 Bastya )	35	132	Z.P. Primary School Gureghar (Morana)	
19	Patan	Kamargaon	20	72	Z.P.School Koynanagar	
20	Patan	Ghot (Borgewadi)	14	50	Nivara shed	

**Taluka- Jawali**

S. No.	Taluka	Name of Village	No. of Families	No. of Persons	Name of safe place to be shifted to during heavy rains	Remarks
1	Jawali	Bondarwadi	127	226	Z.P.Primary School room -3 Anganwadi room, 1 temple	
2	Jawali	Wahite	42	88	Kaleshwari Temple, Sabha	

					Mandap Deepak Maruti Jambhale House	
3	Jawali	Hanumanwadi, Mukawli	57	119	Z.P.P. School Room-2, Anganwadi-1, Sabha Mandap-1	Total 250 fami lies, 12 fami lies living
4	Jawali	Rengadiwadi	66	128	Z.P. Primary School - 4, Hanuman Temple	
5	Jawali	Bahule	22	49	Z.P. Primary School- 6 rooms	
6	Jawali	Watambe	67	131	Z.P. Primary School - 4 rooms, Community Temple	
7	Jawali	Bhuteghar	117	218	Z.P. Primary School - 6 rooms, Community Temple	
8	Jawali	Divdev	15	35	Z.P.Primary School - 2, Temple - 2	
9	Jawali	Mayani (Vele)	24	188	Currently relocated from the original location and living in the Forest Limits	
10	Jawali	Taldev- Vele	28	300	Currently relocated from the original location and living in the Forest Limits	
11	Jawali	Katrewadi- Kargaon	12	60	Currently relocated from the original location and living in the Forest Limits	
12	Jawali	Manti (Raghuchiwadi)	8	42	Z.P.Primary School Manti	
13	Jawali	Narafdev	28	105	Shed	
14	Jawali	Dhanagarpetha-	59	267	Shed	

		Morghar				
15	Jawali	Ranjani	52	149	Government shed	
16	Jawali	Apati	198	1510	Z.P.Primary School - 7 rooms	
17	Jawali	Bhairavnath Wadi (Mukavali)	20	121	Z.P.Primary School - 4 rooms, Sabha Mandap	
18	Jawali	Waluwadi	63	312	Z.P.Primary School - 3 rooms	
19	Jawali	Taloshi	38	174	Z.P.Primary School - 2 rooms	

**Taluka- Mahabaleshwar**

S. No.	Taluka	Name of Village	No. of Families	No. of Persons	Name of safe place to be shifted to during heavy rains	Remarks
1.	Mahabaleshwar	Renoshi	67	150	Z.P.Primary, School Renoshi, Jananimata Mandir	
2.	Mahabaleshwar	Jhanjwad (Shindevti)	6	21	Z.P. Primary, School Jhanjwad	
3.	Mahabaleshwar	Hatlot	90	135	Z.P.Primary School Hatlot, Kumbhaljaidevi Temple	
4.	Mahabaleshwar	Kumthe	150	380	Z.P.Primary School and Zholaimata Temple Kumthe	
5.	Mahabaleshwar	Vivir	60	102	Jananimata Mandir Vivar	
6.	Mahabaleshwar	Amshi	87	203	Z.P. School, Amshi	
7.	Mahabaleshwar	Phanswadi	32	22	Z.P. School Birwadi and Temple Birwadi	
8.	Mahabal	Malusar	42	105	Jananimata Temple Malusar	

	eshwar					
9.	Mahabal eshwar	Javali	59	179	Z.P.School, Javali Bhairavanath Temple, Javali	
10.	Mahabal eshwar	Machuthar	109	586	Z.P. School, Machuthar	
11.	Mahabal eshwar	Nivli	60	86	Padmavati Temple Utteswar	
12.	Mahabal eshwar	Shirwali	54	145	Pucca house in Koyana Development College, Shiravli and Mukhya village	
13.	Mahabal eshwar	Kasrud	45	95	Z.P.School, Kasrud and Shirvali Temple	
14.	Mahabal eshwar	Warsoli Koli	75	207	Z.P. School Warsoli Koli	
15.	Mahabal eshwar	Warsoli Dev	70	457	Z.P. School Warsoli Dev	
16.	Mahabal eshwar	Deulwadi (Birwadi)	82	62	Z.P. School Birwadi and Temple Birwadi	
17.	Mahabal eshwar	Dhardev	60	158	Dharaswar Temple Dhardev	
18.	Mahabal eshwar	Harchandi	42	276	Z.P.School Harchandi	
19.	Mahabal eshwar	Lamaj	115	285	Z.P. School Lamaj and Lamajai Temple Lamaj	
20.	Mahabal eshwar	Devsare	16	42	Z.P. School, Saundry	
21.	Mahabal eshwar	Majarewadi	13	45	Z.P. School, Saundry	



22.	Mahabal- eshwar	Adhal	56	485	Z.P. School, Adhal	
23.	Mahabal eshwar	Manghar	135	140	Z.P. School, Manghar	
24.	Mahabal eshwar	Birwadi (East)	80	48	Z.P. School Birwadi and Temple Birwadi	
25.	Mahabal eshwar	Parut	62	85	Z.P. School Parut	
26.	Mahabal eshwar	Yerne Khu	14	33	Z.P. School Yerne Bu	
27.	Mahabal eshwar	Yerne Bu.	61	159	Z.P. School Yerne BU	
28.	Mahabal eshwar	Dare	56	72	Z.P. School, Haroshi	
29.	Mahabal eshwar	Dudhoshi	39	219	Jananimata Mandir Dudhoshi, Ch. Shivaji High School Kumbharoshi	
30.	Mahabal eshwar	Ghawari	108	160	Z.P.School, Ghawari	

**Taluka- Satara**

S. No.	Taluka	Name of Village	No. of Fami lies	No. of Pers ons	Name of safe place to be shifted to during heavy rains	Rem arks
1	Satara	Morewadi (Parli Mandal)	24	52	Plot No. 20/1 (Katkacha Mal) Temporary Shelter Shed	
2	Satara	Bondarwadi (Parli Mandal)	13	34	Z.P. School Bondarwadi	
3	Satara	Alawadi (Dahiwad	82	107	Z.P. School, Pateghar	

		Mandal)				
4	Satara	Dhawali (Dahiwad Mandal)	22	35	Wagheshwar Temple and Wagheshwar Vidyalyaya, Dhawali	
5	Satara	Kasani (Dahiwad Mandal)	10	21	Z.P.Primary School and community temple and Janai temple	
6	Satara	Sandavali (Dahiwad Mandal)	23	52	Sandavali, Plot No. 6/3 Temporary Shelter Shed	
7	Satara	Petri (Dahiwad Mandal)	6	11	Peteshwar Secondary School Petri	
8	Satara	Bhairavgad (Nagthane)	106	550	Mandve temporary shelter shed	
9	Satara	Kaloshi (Ambawade)	137	455	Z.P. Primary School Kaloshi and Ambawade High School	

**Taluka- Wai**

S. No.	Taluka	Name of Village	No. of Families	No. of Persons	Name of safe place to be shifted to during heavy rains	Remarks
1	Wai	Kochlewadi	30	152	Gram Panchayat Office, School and Community Hall	
2	Wai	Gundewadi	35	222	Gram Panchayat Office, School and Community Hall	
3	Wai	Pirachiwadi	25	258	Gram Panchayat Office, School and Community Hall	
4	Wai	Gherakenlaja	110	330	Gram Panchayat Office, School and Community Hall	
5	Wai	Jambhali	330	859	Gram Panchayat Office, School and Community Hall	

6	Wai	Vashivali	112	902	Gram Panchayat Office, School and Community Hall	
7	Wai	Ohali	99	442	Gram Panchayat Office, School and Community Hall	
8	Wai	Vasole	315	1176	Gram Panchayat Office, School and Community Hall	
9	Wai	Kondavale	180	927	Gram Panchayat Office, School and Community Hall	
10	Wai	Duichiwadi	56	35	Gram Panchayat Office, School and Community Hall	
11	Wai	Kironde	90	259	Gram Panchayat Office, School and Community Hall	
12	Wai	Wadkarwadi	165	918	Gram Panchayat Office, School and Community Hall	
13	Wai	Vaigaon	250	508	Gram Panchayat Office, School and Community Hall	
14	Wai	Dahyat	104	541	Gram Panchayat Office, School and Community Hall	
15	Wai	Borgaoan Bu.	260	640	Gram Panchayat Office, School and Community Hall	
16	Wai	Golegaon	15	71	Gram Panchayat Office, School and Community Hall	
17	Wai	Jor	128	742	Gram Panchayat Office, School and Community Hall	

### 15.35 Flood prone villages and towns in Satara based on different discharge levels

S. No.	Dam Name	Name of the River	Name of riverside villages / towns	Discharge level (cusecs) that cause for inundation
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				<b>Estimated discharge (Cusecs)</b>
1.	<b>Koyna</b>	<b>Koyna River (Upto Karad)</b>	Koynanagar	109625
2.			Helwak	109625
3.			Shivandeshwar	109625
4.			Rasaati	109625
5.			Mirgaon (Sangamnagar Dhakka)	109625
6.			Maneri	109625
7.			Shiral	109625
8.			Yerad (Banpetwadi)	109625
9.			Patan	109625
10.			Gunjali	136222
11.			Tripudi	136222
12.			Navadi	136222
13.			Abdarwadi	140722
14.			Mandula Haveli	140722
15.			Mhawsi	140722
16.			Yerfale	140722
17.			Shiral	140722
18.			Girewadi	140722
19.			Adul	140722
20.			Nisre	140722
21.			Kirpe	140722
22.			Chinchgaon	140722
23.			Yerawale	140722
24.			Anneke	140722
25.			Karad	158358
26.	<b>Tarli</b>	<b>Tarli River</b>	Tandoshi	53000

27.			Gorewadi	
28.			Lorewadi	
29.			Bambwade	
30.			Avre	
31.			Amble	
32.			Dhangarwadi	
33.			Conjawade	
34.			Tarle	
35.			Katewadi	
36.			Nune	
37.			Rahude	
38.			Dutalwadi	
39.			Saspade	
40.			Pali	
41.			Harpalwadi	
42.			Shirgaon	
43.			Vadgaon	
44.			Umbraj	
45.			Indoli	
46.			Korti	
47.			Chafal	
48.			Majgaon	
49.			Khalkharwadi	
50.			Charegaon	
51.			Bhavanwadi	
52.			Umbraj	
			<b>Right Bank</b>	<b>Estimated discharge</b>
53.	<b>Dhom</b>	<b>Krishna River</b>	Vyahli	30000
54.			Eksar	25000

55.			Pasrani	25000
56.			Wai	10000
57.			Bavdhan	10000
58.			Kodegaon	8500
59.			Asle	8000
60.			Pirachiwadi	8000
61.			Pachwad	8000
62.			Udtare	8000
63.			Arle	77869
64.			Patkhal	77869
65.			Sangam Mahuli	102660
66.			Pandharwadi	102660
67.			Jaitapur	102660
68.			Chichner Vandan	102660
69.	<b>Dhom and Kanher</b>	<b>Krishna River</b>	Tasgaon	102660
70.			Jihe	124308
71.			Kameri	124308
72.			Nandgaon	124308
73.			Venegaon	124308
74.			Kopde	124308
75.			Kashil	124308
76.			<b>Left bank</b>	<b>Estimated Discharge</b>
77.			Dhom	30000
78.			Bhogaon	25000
79.	<b>Dhom</b>	<b>Krishna River</b>	Menwali	25000
80.			Wai	10000
81.			Khanapur	8500
82.			Ozhde	8500

83.			Bhuinj	8000
84.			Chindhwali	8000
85.			Limb	10000
86.			Chindhwali Taluka Wai	8000
87.			Khadki Taluka Wai	8000
88.			Mardhe Taluka Satara	8000
89.	<b>Dhom and Kanher</b>	<b>Krishna River</b>	Waduth	77869
90.			Borkhal	77869
91.			Songaon	77869
92.			Shetra Mahuli	102660
93.			Mahagaon	102660
94.			Chinchnar S. Nimb	102660
95.			Manglapur	102660
96.			Kathapur	102660
97.			Dhamaner	102660
98.			Targaon	124308
99.			<b>Right Bank</b>	<b>Estimated Discharge</b>
100	<b>Kanher</b>	<b>Venna River</b>	Hamdabaz	35000
101			Khed	35000
102			Sabgam Mahuli	35000
103	<b>Kanher</b>	<b>Venna River</b>	<b>Left Bank</b>	<b>Estimated Discharge</b>
104			Kidgaon	35000
105			Nele	35000
106			Vaye	35000
107			Mhaswe	35000
108			Wate	35000

### 15.36 List of Doctors

S.No.	PHC	Name	Contact No.	Qualification	Appointment
<b>Satara Taluka</b>					
1	Chinchaner V	Dr. Sagar Vitthalrao Pawar	8668244015	MBBS	Permanant
2		Dr. Priyanka Vijay Nalavade	9923204564	MBBS	Permanant
3					
4	Kanhher	Dr. Sudarshankumar Rameshchandra Mehta	7350236998	BAMS-MD	Permanant
5		Dr. Prashant Maroti Jadhav	9579502896	MBBS	Permanant
6	Kumathe	Dr. Kishor Rajendra Hajare	8149656020	MBBS	Permanant
7		Dr. Umesh Balasaheb Shende	8329336329	BAMS	Contractual
8	Limb	Dr. Pramod Netaji Dhumal	9503721952	MBBS	Permanant
9		Dr. Ranjana Lende	7083633207 7507963593	BAMS	Permanant
10	Nagthane	Dr. Mahesh Aananda Jagade	8788632640	MBBS	Permanant
11		Dr. Ashwini Badrinath Mahalkar	9834194288	MBBS	Permanant
12	Auy Disp Atit	Dr. Parag Vasant Joshi	9637870595	BAMS	Permanant
13	Nandgaon	Dr. Snehal Sunil Sarwade	8080301165	MBBS	Permanant
14		Dr. Swapnil Vasantrao Jadhav	8830521058	MBBS	Permanant
15	Parali	Dr. Urmila Vishnu Bangar	9096249616	MBBS	Permanant
16		Dr. Suyog Vijaykumar Katkar	8668490282	MBBS	Permanant
17	Thoseghar	Dr. Vaishali Dattatray Mane	9423826921	BAMS	Contractual
18		Dr. Veena Mukund Kakade	9423091707	BAMS	Contractual
19	Angapur V	Dr. Prasanna Ramesh Kanase	9665717116	MBBS	Permanant
20		Dr. Madhuri Mohan Pawar	8855971098	BAMS	Contractual
21	Kshetr Mahuli	Dr. Anandrao Shankarrao Patil	7588212799	MBBS	Permanant
22		Dr. Bapu Maruti Bhosale	9423336944	BAMS	Permanant
23	Vaduth	Dr. Vijay Prabhakar	9766451959	BAMS	Permanant



		Shingade			
24		Dr. Namrata Barmappa Hirekurbaru	9767917085	MBBS	Permanant
25	Venegaon	Dr. Sneha Rajendra Sadigale	9923162383	BAMS	Contractual
26		Dr.Aishwarya Raviraj Nikam	9011389589	BAMS	Contractual
Taluka: Karad					
27	Helgaon	Dr. Arun Dnyandev Jadhav	9822421755	MBBS	Permanant
28		Dr. Kshitija Bhaskarrao Patil	9730365161	BAMS	Contractual
29	Kole	Dr. Supriya Dilip Bankar	7058993500	MBBS	Permanant
30		Dr. Prakash Ramchandra Kadam	9850414879	MBBS	Permanant
31	Indoli	Dr. Krushal Kakaso Jadhav	9096259881	MBBS	Permanant
32		Dr. Neha Nilesh Gaikwad	7507147077	MBBS	Permanant
33	Kale	Dr. Tabassum Ganibhai Kagadi	9423826665	MBBS	Permanant
34		Dr. Komal Arun Patil	9403370849	MBBS	Permanant
35		Dr. Sayali Vilas Dongare	9146314886	MBBS	Permanant
36	Masur	Dr. Maithili Prafull Mirje	9421400535	MBBS	Permanant
37		Dr. Sneha Shrikant Badal	8888972755	MBBS	Permanant
38	Rethare Bk	Dr. Kiran Balaji Dhaigude	9860598234	MBBS	Permanant
39		Dr. Vijaykumar Gokhale	9422234728	BAMS	Permanant
40	Sadashivgad	Dr. Sanjay Baburao Kumbhar	8275481481	MBBS	Permanant
41		Dr. Sunita Suresh Thorat	7719914888	MBBS	Permanant
42	Supane	Dr. Amit Ravindra Thigale	9960890415	MBBS	Permanant
43		Dr. Bharati Prakash Maskar	9765666857	BAMS	Contractual
45		Dr. Swapnil Savalaram Udugade	8668629183	BAMS	Contractual
46		Dr.Shreya Khandagale	9552210079	MBBS	Contractual
47	Vadgaon Haveli	Dr. Ravindra Gulab Kambale	9403684689	MBBS	Permanant
48		Dr. Sunil Dattatray	9404351993	MBBS	Permanant

		Jadhav			
49	Yevati	Dr. Chandrakant Pandurang Satpute	8378989483	MBBS	Permanant
50		Dr.Prafful Bhupal Kambale	7083810135	BAMS	Contractual
51	Maskarwadi	Dr. Priyanka Suhas Pandit	8055577001 8766863336	BAMS	Contractual
54	Mhasoli	Dr. Rajnandini Annaso More	8600681155	BAMS	Contractual
55		Dr.Snehal Laxman Thorat	8788184325	BAMS	Contractual
56	Yelgaon	Dr. Subhash Bajirao Patil	9403684844	MBBS	Permanant
57		Dr. Anita Vishal Kadam	9850677799	MBBS	Permanant
Taluka: Koregaon					
58	Kinhai	Dr. Abhijit Balkrushn Pawar	8888654808	MBBS	Permanant
59		Dr Rutuja Balkishna More	8421272981	MBBS	Contractual
61	Palashi	Dr. Milind Pandurang Raibole	9665620780	MBBS	Permanant
62		Dr. Ranjeetsinh Sambhajirao Sawant	9226832589	MBBS	Contractual
63	Rahimatpur	Dr. Mahesh Trimbak Bole	9359307915	MBBS	Permanant
64		Dr. Neelam Milindkumar Madane	8421344353	MBBS	Permanant
65	Satararoad	Dr. Mahesh Atmaram Patil	8275457294	MBBS	Permanant
67	Tadavale	Dr. Shankar Gangaram Gandhile	9922460156	MBBS	Permanant
68		Dr. Mohini Sachin Salunkhe	9699620945	BAMS	Contractual
69		Dr.Raviraj Vasant Nikam	9890389589	BAMS-MD	Contractual
70	Wathar Kiroli	Dr.Ghvari Anil Mahadik	9421550942	MBBS	Contractual
71		Dr.Nikita Jagganath Sonavale	8147262409	BAMS	Contractual
72	Wathar Station	Dr Prashad Anil Latane	9359850494	MBBS	Contractual
73		Dr Nilesh Ravindra Ingawale	9307460657	MBBS	Contractual
Taluka: Khatav					
74	Katarkhatav	Dr. Suhas Pralhad Alure	8805409930	MBBS	Contractual

75		Dr.Tushar Anil Khade	9561593656	MBBS	Contractual
76	Khataav	Dr. Yunus Rashid Shaikh	9822896379	MBBS	Permanant
77		Dr. Milind Aakarm Bhandare	9881632589	MBBS	Permanant
78	Mayani	Dr. Amol Chandrakant Deshmukh	8484895571	MBBS	Permanant
79		Dr.Priyanka Manohar Babar	9156207435	BAMS-MD	Contractual
80	Nimsod	Dr. Ajinkya Sunil Pustake	9767232384	MBBS	Permanant
81		Dr. Rutuja Dattatray Tambavekar	8484920394	BAMS	Contractual
83	Pusegaon	Dr. Omkar Sunil Hendre	7721036018	MBBS	Permanant
84		Dr. Neha Manik Mandavkar	9699566174	MBBS	Contractual
85	Pusesavali	Dr.Diksha Kumar Pandharbale	7887925905	BAMS	Contractual
86		Dr Madhu Kale	9404781597	MBBS	Contractual
87	Padal	Dr. Shital Dadasaheb Khade	9766984485	MBBS	Permanant
88		Dr. Sonal Tanaji Sajagane	8329256546	BAMS	Contractual
89	Gursale	Dr. Parag Gajanan Randive	8380840857	BAMS	Contractual
90		Dr.Pranay Pandurang Bhangare	9763559267 8380800719	MBBS	Contractual
91	Diskal	Dr. Akshay Hanumant Baradkar	8447823184	MBBS	Permanant
92		Dr.Harishchandra Uttam Pawar	8169396913	BAMS	Permanant
Taluka: Man					
93	Mardi	Dr. Sagar Uttam Jankar	9604114140	MBBS	Permanant
94		Dr. Anuja Abaso Kharat	7028194880	MBBS	Contractual
95	Malavadi	Dr. Ashwini Gangadhar Bhandewad	7709097392	MBBS	Permanant
96		Dr. Govind Vitthal Jadhav	9421324231	MBBS	Permanant
97	Mhaswad	Dr.Supriya Appa Virkar	9373509700	MBBS	Contractual
98		Dr. Yogesh Nandkumar Kulkarni	9623500978	BAMS	Contractual

100	Palashi	Dr. Prajakta Shrikant Dorge	7410538530	BAMS	Contractual
101		Dr.Prathamesh Sanjay Dombé	9421856258	MBBS	Permanant
102	Pulkoti	Dr. Balaji Popat Jedage	9527919115	MBBS	Permanant
103		Dr. Pooja Rajendra Burungale	7588334864	MBBS	Permanant
105	Shinganapur	Dr. Shashikant Shatrughn Jagadale	9970703590	BAMS	Contractual
106		Dr. Pramod Narayan Narayane	9423875717	BAMS	Contractual
Taluka: Phaltan					
107	Barad	Dr. Pranjali Sharadrao Shelake	9403024236	MBBS	Permanant
108		Dr. Abhaykumar Anandlal Mehta	9552248333	MBBS	Permanant
110	Ayr Disp Gunavare	Dr.Geetanjali Dinkar Salunkhe	9527424028	BAMS	Permanant
111	Giravi	Dr. Yogesh Hiralal Gandhi	7588930356	BAMS	Contractual
112		Dr. Anil Tukaram Kadam	9922074835	MBBS	Permanant
113	Bibi	Dr. Ganesh Popatrao Madane	9403685602	BAMS-MD	Permanant
114		Dr. Pratidnya Sadashiv Pawar	7709605679	BAMS	Contractual
116	Rajale	Dr. Munjabhau Rangnathrao Parve	9527186858	MBBS	Permanant
117		Dr. Pratiksha Manikrao Sonwalkar	8080619044	BAMS	Contractual
118		Dr.Anuja Pradiprao Ghadage	9404997121	BAMS	Permanant
119	Ayr Disp Nimbalak	Dr. Ajay Vijay Sangale	9307706055	BAMS	Permanant
120	Sakharwadi	Dr. Santosh Balasaheb Kondake	8007056401	MBBS	Permanant
121		Dr. Rameshwar Arun Sodmise	7709903037	BAMS	Contractual
122	Taradgaon	Dr. Vaibhav Bharat Rathod	9028721117	MBBS	Permanant
123		Dr. Himanshu Bodare	9657109889	MBBS	Permanant
124	Tathavada	Dr. Sandip Aabasaheb Khatal	9881975907	MBBS	Permanant
125		Dr.Poonam Jalindar Mohite	8378011125 9922555945	BAMS	Permanant
Taluka: Khandala					

126	Ahire	Dr. Lata Avinash Patil	9284500146	BAMS	Contractual
127		Dr. Shruti Sudhakar Jagatap	8888934588	BAMS	Contractual
128	Lonand	Dr Soniya Mundel	8824384711	MBBS	Contractual
129		Dr Deepika Jakhotiya	7740923023	MBBS	Contractual
130	Lohom	Dr. Sushant Dadaso Padalkar	8975018414	MBBS	Permanant
131		Dr. Avinash Pandharinath Patil	9421060017	MBBS	Permanant
132	Ayr Disp Asavali	Dr. Sujata Chandrakant Mane	9834246020	BAMS	Permanant
133	Shirwal	Dr. Kirti Baban Pawar	8652892424	MBBS	Permanant
134		Dr. Mrudula Shivaji Chavan	7350838815	BAMS	Contractual
136	Ayr Disp Wathar C	Dr. Madhavi Bhaskar Bhole	7447358997	BAMS	Permanant
<b>Taluka: Wai</b>					
137	Bavadhan	Dr Shreya Subhash Bagade	8080113073	MBBS	Contractual
138		Dr Sneha Chanadanwale	9518591522	MBBS	Contractual
139	Bhuinj	Dr. Shyam Ramesh Gite	9158797555	MBBS	Permanant
140		Dr Shanket Chandrkant Bendre	8888019296	MBBS	Contractual
141	Kavathe	Dr. Dilip Janardan Bhojane	8805363454	MBBS	Permanant
143	Malatpur	Dr. Vinay Vitthal Bhoite	8275059920	MBBS	Permanant
144		Dr. Devendra Bhimrao Yadav	9975856370	BAMS	Contractual
145	Auy Disp Aakoshi	Dr. Revati Ramchandra Joshi	9422264213 7666898750	BAMS	Permanant
<b>Taluka: Mahabaleshwar</b>					
146	Pachgani	Dr. Mithila Prithviraj Undare	9834212423	MBBS	Contractual
147		Dr. Dhanashree Vitthal Gole	8999248465	BAMS-MS	Contractual
148	Taladev	Dr Yugandhar Joshi	9421347508	BAMS	Belair
149		Dr Sneha Koyale	7588256203	BAMS	Belair
150	Tapola	Dr Mayur Khamkar	7276780233	BAMS	Belair
151		Dr Amol Kadam	9403348058	BAMS	Belair

<b>Taluka: Jawali - - -</b>					
153	Bamnoli	Dr. Satyaprabha Dipakrao Dhainje	9172685673 9359427370	BAMS	Contractual
154		Dr. Mosina Shahabuddin Pathan	7757928642	BAMS	Contractual
155	Kelghar	Dr. Kedar Dattatray Kulakarni	8805124985	MBBS	Permanant
156		Dr Anand Prashant Gole	7774003489	MBBS	Contractual
157	Kudal	Dr. Vinod Motiram Gadade	8668619886	MBBS	Permanant
158		Dr. Anant Shamsundar Velkar	9175601164	BAMS	Contractual
159	Ayr Disp Kharshi Baramure	Dr. Amar Subhash Shelar	9665903781	BAMS	Permanant
160	Kusumbi	Dr. Ankur Rajaram Jagadale	7066909056	BAMS	Contractual
162	Saigaon	Dr. Tejashri Govind Patil	9373811477	MBBS	Contractual
<b>Taluka: Patan</b>					
164	Chafal	Dr. Chetan Anil Bhosure	9145327134	MBBS	Permanant
165		Dr. Jeevan Blakrushn Majgaonkar	9890776916	BAMS	Permanant
166	Helwak	Dr. Rani Arjunrao Mudgal	9764511123	BAMS	Permanant
167		Dr. Rajashree Bhausahab Kambale	9096297799 9860222133	BAMS	Permanant
168	Kalgaon	Dr. Rajaram Laxman Jagatap	8975700251	MBBS	Permanant
169		Dr. Nilam Sanyal Tasgaonkar	9112303804	BAMS	Permanant
171	Keral	Dr. Jayraj Avinash Molawade	7775909878	MBBS	Permanant
172		Dr. Sneha Yallappa Hundare	9766077157	BAMS	Contractual
173	Malharpeth	Dr. Dattatray Sampat Nikam	8390761674	BAMS	Permanant
174		Dr. Jasmin Shahid Khan	7387867884 9860672703	BAMS	Contractual
175	Marali	Dr. Shubhalaxmi Shashikumar Deshpande	9890488356	MBBS	Permanant
176		Dr. Abhishek Bhratrao Varekar	9730101127	BAMS	Contractual

177	Morgiri	Dr. Nageshwar Dattarao Nanvare	9767051581	MBBS	Permanant
178		Dr. Sakshi Prithviraj Molawade	7499643393	BAMS	Contractual
179	Murud	Dr. Pratiksha Dipak Gunnal	8806805810	BAMS	Permanant
180		Dr. Snehal Sunil Ghorpade	7741942908	BAMS	Contractual
181	Salave	Dr. Digvijay Ranjitsinh Yadav	7066099000	MBBS	Permanant
182		Dr. Shubhangi Babaso Dange	8329078088	BAMS	Contractual
183	Sanbur	Dr. Raghunath Bapusaheb Patil	9659571111	MBBS	Permanant
184		Dr. Aakanksha Rajendra Chavan	9867008543	BAMS	Contractual
185	Sonwade	Dr. Abhishek Rajaram Dubal	7709539538	MBBS	Permanant
186		Dr. Swati Abhijit Desai	8308008004	BAMS	Contractual
187	Talamavale	Dr. Abhaysinh Uttamrao Pawar	9850493866	MBBS	Permanant
188		Dr. Nitin Kakaso Wangikar	9225800955	MBBS	Permanant
189	Ayr Disp Jambhulwadi	Dr. Aparna Kondibhau Thikekar	9763580738	BAMS	Permanant
190	Tarale	Dr. Vidya Mahesh Patil	8275457291	MBBS	Permanant
191		Dr. Shruti Arun Kale	7353803747	BAMS	Contractual

### 15.37 Satara District 108 Ambulances Base Locations Details

Sr no	108 Ambulance Base Location
1	Bamnoli Primary Health Center-Satara
2	Barad Primary Health Center-Satara
3	Bhuinj Primary Health Center-Satara
4	Dahiwadi Rural Hospital(Dahiwadi)-Satara
5	Dhebewadi Rural Hospital-Satara
6	Karad Sub District Hospital-Satara
7	Karad-Chiplun Highway- Helwak Primary Health Center-Satara
8	Kelghar Primary Health Center-Satara
9	Khandala Rural Hospital-Satara
10	Kudal Primary Health Center-Satara

11	Lonand Primary Health Center-Satara
12	Mahabaleshwar Rural Hospital-Satara
13	Malkapur Nagar Panchayat-Satara
14	Mayani Primary Health Center-Satara
15	Mhaswad Primary Health Center-Satara
16	Parli Primary Health Center-Satara
17	Patan Rural Hospital-Satara
18	Phaltan Sub District Hospital-Satara( Spare Amblance)
19	Pune-Kolhapur Highway- Karad Krishna Charitable Hospital-Satara
20	Pune-Kolhapur Highway- Nagthane Primary Health Centre-Satara
21	Pune-Kolhapur Highway- Shirwal Primary Health Center-Satara
22	Pusegaon Primary Health Center-Satara
23	Rahimatpur Primary Health Center-Satara
24	Satara Aryangla Ayurveda Rugnalaya-Satara
25	Satara District Hospital-Satara
26	Tapola Primary Health Center-Satara
27	Tarale Primary Health Center-Satara
28	Umbraj Primary Health Center-Satara
29	Undale Rural Hospital-Satara
30	Waduj Rural Hospital-Satara
31	Wai Rural Hospital-Satara

### 15.38 Post Disaster Damage and Need Assessment

Sr. No.	Sector	Damage Types	Source of Fund
1	Agriculture	Crop loss due to floods	State Disaster Response Fund (SDRF)
2	Infrastructure	Road and bridge damage	National Disaster Response Fund (NDRF)
3	Housing	Damage to residential buildings	Pradhan Mantri Awas Yojana (PMAY)
4	Health	Damage to health facilities	State Health Department
5	Education	Damage to schools and educational institutions	Sarva Shiksha Abhiyan (SSA)
6	Water Supply and Sanitation	Damage to water supply systems	Jal Jeevan Mission
7	Power	Damage to electrical infrastructure	State Electricity Board
8	Livelihood	Loss of income due to disaster	Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)



9.....	Environment _	Soil erosion and deforestation	Ministry of Environment, Forest and Climate Change
10	Transport	Damage to public transport systems	Ministry of Road Transport and Highways

### 15.39 Industrial extent of Satara District

Sr. No.	Name and Address of the factories	Type of Hazardous Process Involved
1	Yashwantrao Mohite Krishna Sahakari Sakhar Karkhana Ltd., 5309, 364/327,1,760, At. Rethre Bk., Post. Shivnagar, Tal. Karad, Dist. Satara – 415108	Manufacturing of RS, ENA & Ethenol
2	Satyam Petrochemicals, Gat No. 120 /A, At. Wanyachiwadi, Post. Masur, Tal. Karad, Dist. Satara – 415106	Manufacturing of Ethenol
3	Privilege Industries Ltd., (Distillery Unit), Plot No. B - 1, MIDC Lonand, Tal. Khandala, Dist. Satara – 415521	Manufacturing of Absolute Alcohol
4	Sahyadri Sahakari Sakhar Karkhana Ltd., A/p. Yashwant Nagar, Tal. Karad, Dist. Satara – 415115	Manufacturing of RS, ENA & Ethenol
5	Jarandeshwar Sugar Mills Pvt. Ltd., A/p. Chimangaon, Tal. Koregaon, Dist. Satara – 415501	Manufacturing of RS, ENA & Ethenol
6	Ajinkyatara Sahakari Sakhar Karkhana Ltd., Building 270, 314, 319, 322, 323, 324, 326, 331, 307/2, 173/1, Near National Highway No. 4 Bhavani Mata Mandir, A/p. Shahu Nagar Shendre, Tal & Dist. Satara – 415519	Manufacturing of RS, ENA & Ethenol
7	Yashraaj Ethenol Processing, Kushi, Near Limb Phata, Pune - Bangalore Highway, Tal. & Dist. Satara – 415015	Manufacturing of Absolute Alchol
8	Bharat Petroleum Corporation Ltd., Plot No. C - 12 MIDC Wai, Tal. Wai, Dist. Satara - 412803	Use and storage of LPG
9	Kisan Veer Satara Sahkari Sakhar Karkhana Ltd., Bhuinj, Po. Kisanveer Nagar, Tal. Wai, Dist. Satara – 415530	Manufacturing of RS, ENA & Ethenol
10	Jaywant Sugars Ltd., Gat No. 83 - 127, At. Dhawadwadi, Post. Chore, Tal. Karad, Dist. Satara – 415109	Manufacturing of RS, ENA & Ethenol
11	Panache Aluminium Extrusions Pvt. Ltd., Gat No. 187, Plot No. 1, Shivaji Nagar Road, Village. Ahire, Tal. Khandala, Dist. Satara – 412802	Use and storage of LPG
12	Asian Paints Ltd., Plot No. A-1, Khandala Industrial Area, Tal. Khandala, Dist. Satara –	Use and storage of highly flammable chemicals and solvents.

	412802	
13	Thermax Babcock & Wilcox Energy Solutions Ltd., Plot No. A-2 & A-3, Khandala MIDC, Phase I, A/p. Kesurdi, Tal. Khandala, Dist. Satara – 412801	Use and storage of LPG
14	Datwyler Pharma Packaging India Pvt. Ltd., Plot No. 3/4/5, Kesurdi Industrial Area, Phase - 1 (SEZ), Tal. Khandala, Dist. Satara - 412801	Use and storage of Propane and LPG
15	Bharat Gears Ltd., Gat No. 232/2/1, 232/3/1, 232/12, 232/13, 236/2, A/p. Lonand, Tal. Khandala, Dist. Satara - 415521	Use and storage of LPG
16	Green Power Sugars Ltd, A/P Gopuj, Gat No. 467, 605, 606, 609, 611 to 614, 616, 622, 624, 625, 635, 656, Tal. Khatav, Dist. Satara – 415510	Manufacturing of RS, ENA & Ethenol
17	Sharayu Agro Industries Ltd, 241 A/P. Kapashi (Motewadi) Tal. Phaltan, Dist. Satara - 415537	Manufacturing of RS, ENA & Ethenol

## **1. Disaster Management Act-2005- DISTRICT DISASTER MANAGEMENT AUTHORITY**

### *CHAPTER IV*

#### *DISTRICT DISASTER MANAGEMENT AUTHORITY*

25. *Constitution of District Disaster Management Authority.* —(1) Every State Government shall, as soon as may be after issue of notification under sub-section (1) of section 14, by notification in the Official Gazette, establish a District Disaster Management Authority for every district in the State with such name as may be specified in that notification.

(2) The District Authority shall consist of the Chairperson and such number of other members, not exceeding seven, as may be prescribed by the State Government, and unless the rules otherwise provide, it shall consist of the following, namely:— (a) the Collector or District Magistrate or Deputy Commissioner, as the case may be, of the district who shall be Chairperson, ex officio; (b) the elected representative of the local authority who shall be the co-Chairperson, ex officio: Provided that in the Tribal Areas, as referred to in the Sixth Schedule to the Constitution, the Chief Executive Member of the district council of autonomous district, shall be the co-Chairperson, ex officio; (c) the Chief Executive Officer of the District Authority, ex officio; (d) the Superintendent of Police, ex officio; (e) the Chief Medical Officer of the district, ex officio; (f) not exceeding two other district level officers, to be appointed by the State Government.

(3) In any district where zila parishad exists, the Chairperson thereof shall be the co-Chairperson of the District Authority.

(4) The State Government shall appoint an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner, as the case may be, of the district to be the Chief Executive Officer of the District Authority to exercise such powers and perform such functions as may be prescribed by the State Government and such other powers and functions as may be delegated to him by the District Authority.

**26. Powers of Chairperson of District Authority.** —(1) The Chairperson of the District Authority shall, in addition to presiding over the meetings of the District Authority, exercise and discharge such powers and functions of the District Authority as the District Authority may delegate to him.

(2) The Chairperson of the District Authority shall, in the case of an emergency, have power to exercise all or any of the powers of the District Authority but the exercise of such powers shall be subject to ex post facto ratification of the District Authority.

(3) The District Authority or the Chairperson of the District Authority may, by general or special order, in writing, delegate such of its or his powers and functions, under sub-section (1) or (2), as the case may be, to the Chief Executive Officer of the District Authority, subject to such conditions and limitations, if any, as it or he deems fit.

**27. Meetings.** —The District Authority shall meet as and when necessary and at such a time and place as the Chairperson may think fit.

**28. Constitution of advisory committees and other committees.** —(1) The District Authority may, as and when it considers necessary, constitute one or more advisory committees and other committees for the efficient discharge of its functions.

(2) The District Authority shall, from amongst its members, appoint the Chairperson of the Committee referred to in sub-section (1).

(3) Any person associated as an expert with any committee or sub-committee constituted under sub-section (1) may be paid such allowances as may be prescribed by the State Government.

**29. Appointment of officers and other employees of District Authority.**—The State Government shall provide the District Authority with such officers, consultants and other employees as it considers necessary for carrying out the functions of District Authority.

**30. Powers and functions of District Authority.**—(1) The District Authority shall act as the district planning, coordinating and implementing body for disaster management and take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the National Authority and the State Authority.

(2) Without prejudice to the generality of the provisions of sub-section (1), the District Authority may—

(i) prepare a disaster management plan including district response plan for the district;

(ii) coordinate and monitor the implementation of the National Policy, State Policy, National Plan, State Plan and District Plan;

- (iii) ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities;*
- (iv) ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all departments of the Government at the district level and the local authorities in the district;*
- (v) give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary;*
- (vi) lay down guidelines for prevention of disaster management plans by the department of the Government at the districts level and local authorities in the district;*
- (vii) monitor the implementation of disaster management plans prepared by the Departments of the Government at the district level;*
- (viii) lay down guidelines to be followed by the Departments of the Government at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefor;*
- (ix) monitor the implementation of measures referred to in clause (viii);*
- (x) review the state of capabilities for responding to any disaster or threatening disaster situation in the district and give directions to the relevant departments or authorities at the district level for their up gradation as may be necessary;*
- (xi) review the preparedness measures and give directions to the concerned departments at the district level or other concerned authorities where necessary for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation;*
- (xii) organise and coordinate specialised training programmes for different levels of officers, employees and voluntary rescue workers in the district;*
- (xiii) facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organisations;*
- (xiv) set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public; (xv) prepare, review and update district level response plan and guidelines;*
- (xvi) coordinate response to any threatening disaster situation or disaster;*
- (xvii) ensure that the Departments of the Government at the district level and the local authorities prepare their response plans in accordance with the district response plan;*
- (xviii) lay down guidelines for, or give direction to, the concerned Department of the Government at the district level or any other authorities within the local limits of the district to take measures to respond effectively to any threatening disaster situation or disaster;*
- (xix) advise, assist and coordinate the activities of the Departments of the Government at the district level, statutory bodies and other governmental and non-governmental organisations in the district engaged in the disaster management;*
- (xx) coordinate with, and give guidelines to, local authorities in the district to ensure that measures for the prevention or mitigation of threatening disaster situation or disaster in the district are carried out promptly and effectively;*
- (xxi) provide necessary technical assistance or give advise to the local authorities in the district for carrying out their functions;*
- (xxii) review development plans prepared by the Departments of the Government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation;*
- (xxiii) examine the construction in any area in the district and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being or has not been followed, may direct the concerned authority to take such action as may be necessary to secure compliance of such standards;*
- (xxiv) identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places;*

(xxv) establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at short notice;-----

(xxvi) provide information to the State Authority relating to different aspects of disaster management;

(xxvii) encourage the involvement of non-governmental organizations and voluntary social welfare institutions working at the grassroots level in the district for disaster management;

(xxviii) ensure communication systems are in order, and disaster management drills are carried out periodically;

(xxix) perform such other functions as the State Government or State Authority may assign to it or as it deems necessary for disaster management in the District.

### **31. District Plan —**

(1) There shall be a plan for disaster management for every district of the State.

(2) The District Plan shall be prepared by the District Authority, after consultation with the local authorities and having regard to the National Plan and the State Plan, to be approved by the State Authority.

(3) The District Plan shall include—

(a) the areas in the district vulnerable to different forms of disasters;

(b) the measures to be taken, for prevention and mitigation of disaster, by the Departments of the Government at the district level and local authorities in the district;

(c) the capacity-building and preparedness measures required to be taken by the Departments of the Government at the district level and the local authorities in the district to respond to any threatening disaster situation or disaster;

(d) the response plans and procedures, in the event of a disaster, providing for—

(i) allocation of responsibilities to the Departments of the Government at the district level and the local authorities in the district;

(ii) prompt response to disaster and relief thereof;

(iii) procurement of essential resources;

(iv) establishment of communication links; and

(v) the dissemination of information to the public;

(e) such other matters as may be required by the State Authority.

(4) The District Plan shall be reviewed and updated annually.

(5) The copies of the District Plan referred to in sub-sections (2) and (4) shall be made available to the Departments of the Government in the district.

(6) The District Authority shall send a copy of the District Plan to the State Authority which shall forward it to the State Government.

(7) The District Authority shall, review from time to time, the implementation of the Plan and issue such instructions to different departments of the Government in the district as it may deem necessary for the implementation thereof.

**32. Plans by different authorities at district level and their implementation.**—Every office of the Government of India and of the State Government at the district level and the local authorities shall, subject to the supervision of the District Authority,—

(a) prepare a disaster management plan setting out the following, namely:—

(i) provisions for prevention and mitigation measures as provided for in the District Plan and as is assigned to the department or agency concerned;

(ii) provisions for taking measures relating to capacity-building and preparedness as laid down in the District Plan;

(iii) the response plans and procedures, in the event of, any threatening disaster situation or disaster;

*(b) coordinate the preparation and the implementation of its plan with those of the other organisations at the district level including local authority, communities and other stakeholders;*

*(c) regularly review and update the plan; and*

*(d) submit a copy of its disaster management plan, and of any amendment thereto, to the District Authority.*

**33. Requisition by the District Authority.** —*The District Authority may by order require any officer or any Department at the district level or any local authority to take such measures for the prevention or mitigation of disaster, or to effectively respond to it, as may be necessary, and such officer or department shall be bound to carry out such order.*

**34. Powers and functions of District Authority in the event of any threatening disaster situation or disaster.**—*For the purpose of assisting, protecting or providing relief to the community, in response to any threatening disaster situation or disaster, the District Authority may—*

*(a) give directions for the release and use of resources available with any Department of the Government and the local authority in the district;*

*(b) control and restrict vehicular traffic to, from and within, the vulnerable or affected area;*

*(c) control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area;*

*(d) remove debris, conduct search and carry out rescue operations;*

*(e) provide shelter, food, drinking water and essential provisions, healthcare and services;*

*(f) establish emergency communication systems in the affected area;*

*(g) make arrangements for the disposal of the unclaimed dead bodies;*

*(h) recommend to any Department of the Government of the State or any authority or body under that Government at the district level to take such measures as are necessary in its opinion;*

*(i) require experts and consultants in the relevant fields to advise and assist as it may deem necessary;*

*(j) procure exclusive or preferential use of amenities from any authority or person;*

*(k) construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster;*

*(l) ensure that the non-governmental organisations carry out their activities in an equitable and non-discriminatory manner;*

*(m) take such other steps as may be required or warranted to be taken in such a situation.*