



GOVERNMENT OF MAHARASHTRA

Revenue and Forest, Relief & Rehabilitation Department

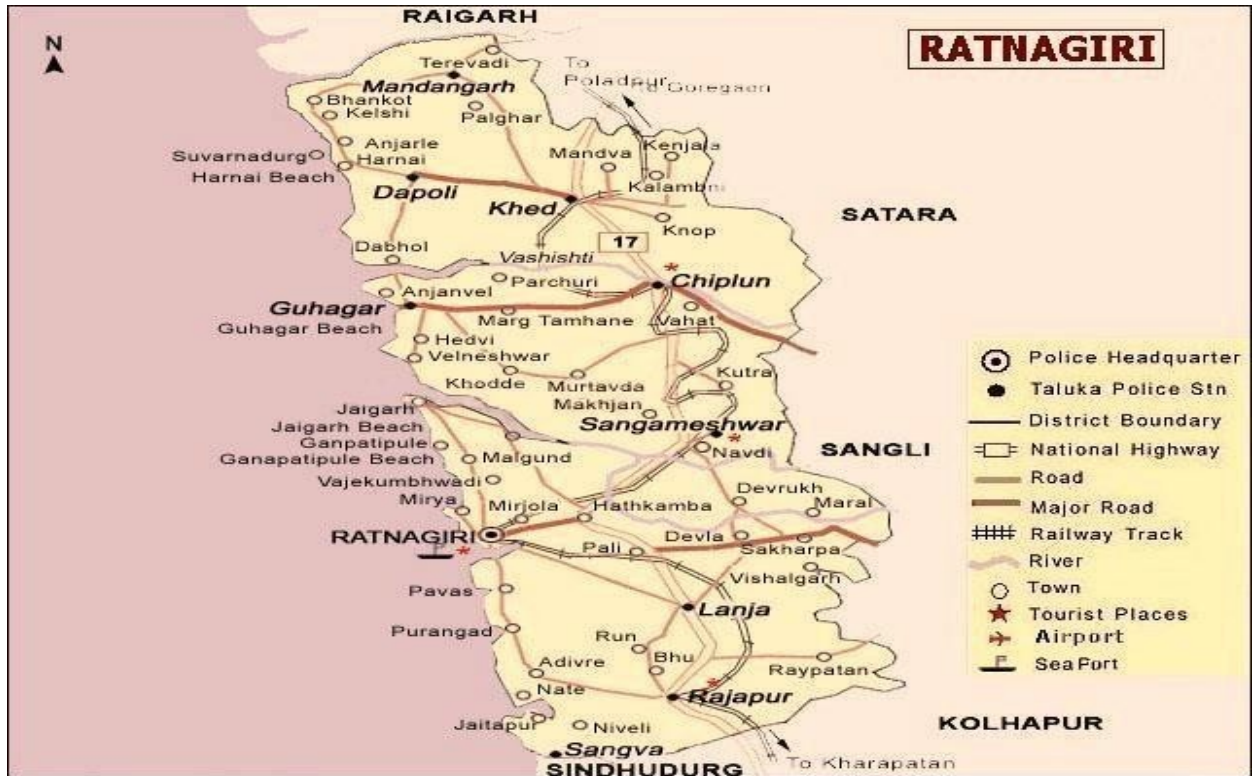
DISTRICT DISASTER MANAGEMENT PLAN (DDMP)

2023-24

DISTRICT RATNAGIRI

DISTRICT DISASTER MANAGEMENT AUTHORITY, (DDMA)

COLLECTOR OFFICE, RATNAGIRI



**Collector Office Ratnagiri,
Telephone : 02352-226248/222233
Website : - www.ratnagiri.nic.in**

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FOREWORD

The District Disaster Management Plan is a key part of an emergency management. District Disaster Management Plan is a part of multi-level planning advocated by the Maharashtra Disaster Risk Management Programme an initiative of the Government of Maharashtra. The plan is prepared to help the District administration not only for effective response during the disaster but also for proactive pre disaster prevention, mitigation and preparedness.

Ratnagiri district is prone to natural as well as man-made disasters. Earthquake, lightening, flood, landslide, Cyclone are the major Natural Hazard and fire, road accidents, industrial accidents etc. are the main man-made disasters of the district.

The Ratnagiri District Disaster Management plan includes facts and figures those have been collected from various departments. Ratnagiri Disaster management Plan is unique document of the district administration and is a comprehensive document which contains various chapters and each chapter has its own importance. The plan consist Hazard & Risk Assessment, Institutional Mechanism, prevention and mitigation measures, Preparedness Mechanism, Response Mechanism, Standard Operating Procedure, (SOP) inventory of Resources etc.

It is suggested that the District level officials of different department will carefully go through the plan and if have any suggestions & comments be free to convey the same so that we can include them in the next edition.

It is hoped that the plan would provide concrete guidelines towards preparedness and quick response in case of an emergency and help in realizing sustainable Disaster Risk Management & mitigate/minimizes the losses in the district in the long run.

M. Devender Singh (IAS)
Collector / Chairman, DDMA,
Ratnagiri

CHAPTER 1

INTRODUCTION

Under the DM Act 2005, it is mandatory on the part of District Disaster Management Authority (DDMA) to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedient for prevention as well as mitigation of disasters. These processes are to be incorporated in the developmental plans of the different departments and preparedness to meet the disaster and relief, rescue and rehabilitation thereafter, so as to minimize the loss to be suffered by the communities and are to be documented so that it is handy and accessible to the general public.

1.1 Objectives and Goal of the Plan

Section 31 of Disaster Management Act 2005 (DM Act), makes it mandatory to have a disaster management plan for every district. DDMP shall include Hazard Vulnerability Capacity and Risk Assessment (HVCRA), prevention, mitigation, preparedness measures, response plan and procedures. An indicative list with possible plan objectives is given below:

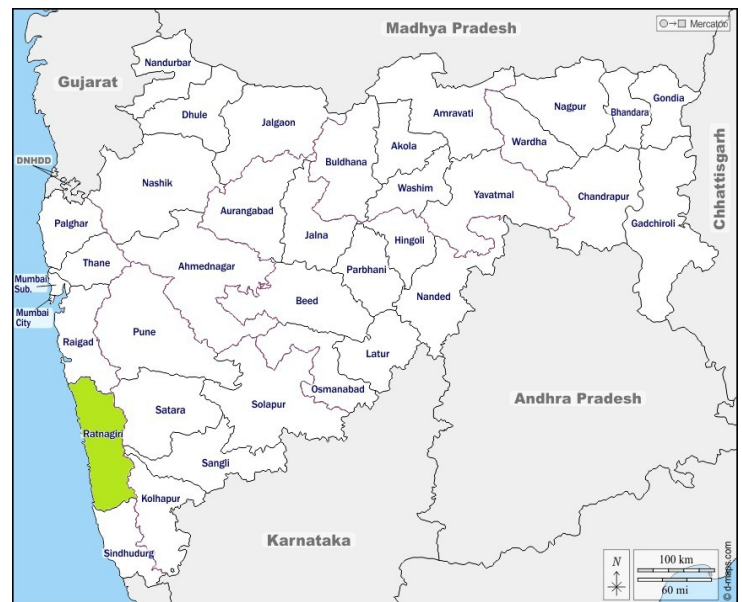
- i. To identify the areas vulnerable to major types of the hazards in the district.
- ii. To adopt proactive measures at district level by all the govt. departments to prevent disaster and mitigate its effects.
- iii. To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- iv. To enhance disaster resilience of the people in the district by way of capacity building.
- v. Reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
- vi. Manage future development to mitigate the effect of natural hazards in the district.
- vii. To set up an Emergency Operations Centre at the District level to function effectively in search, rescue, response.
- viii. To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently
- ix. To set up an early warning system so as to prepare the community to deal with the disaster and responsive communication system based upon fail-proof proven technology.
- x. To prepare a response plan based upon the guidelines issued in the State Disaster Management Plan so as to provide prompt relief, rescue and search support in the

disaster affected areas.

- xi. To adopt disaster resilient construction mechanism in the district by way of using Information, Education and Communication for making the community aware of the need of disaster resilient future development.
- xii. To make the use of media in disaster management.
- xiii. Rehabilitation plan of the affected people and reconstruction measures to be taken by different govt. departments at district level and local authority

1.2 Ratnagiri District Profile

- Ratnagiri district is located along the west coast of Maharashtra state and is a part of the Konkan area - a distinct geographical division extending from north to south comprising a narrow strip of land between the Arabian Sea to the west and the Western Ghats to the east.
- Ratnagiri district is located in the western part of the state of Maharashtra and lies between 16.30° to 18.04° North Latitudes and 73.02° to 73.52° East Longitudes.
- The district is bounded by the Arabian Sea to the west, Sindhudurg district to the south, Raigad district to the north and Satara, Sangli and Kolhapur districts to the east.

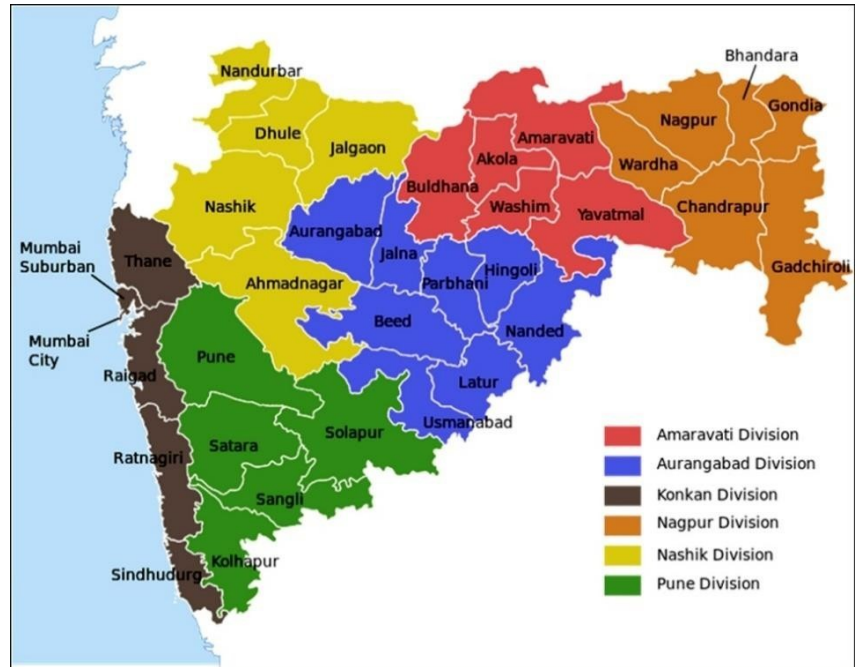


- The district headquarters Ratnagiri is well connected to the state Capital Mumbai (316 km to the north), and the main towns of Mahad, Chiplun, Khed, Rajapur, Kankavali, Kudal, Sawantwadi by the Mumbai – Goa National Highway No. 66.

- Ratnagiri is also well connected to other districts of Maharashtra by State highways and other roads.
- There is one railway line Roha to Manglore (Konkan Railway Track) which passes through Ratnagiri district. The total railway track distance in Ratnagiri district is 270 KM.

1.3 Area and Administrative Divisions

- The whole state of Maharashtra is divided into six Revenue divisions: Pune, Konkan, Nashik, Aurangabad, Amravati, and Nagpur. Ratnagiri district is part of the Konkan division along with the districts of Sindhudurg, Raigad, Thane, Palghar, Mumbai Urban and suburban.
- Ratnagiri district covers an area of 8208 sq. km. with an west of 164 km coast
- The district is divided into seven Sub Division and eleven administrative sub units (tahsils) – Rajapur, Lanja, Ratnagiri, Sangameshwar (Devrukh), Chiplun, Guhagar, Khed, Dapoli and Mandangad. Previously there was 3 Sub divisions - Ratnagiri, Chiplun and Dapoli. On 15th August 2013 additional 2 sub divisions created i.e. Rajapur and Khed for administrative purpose.



Map 3 Administrative Division Map

Table 1 Information on Ratnagiri Administration division

Sr. No.	Sub-Division	Taluka within the sub-division
1	Rajapur	Rajapur, Lanja
2	Ratnagiri	Ratnagiri, Sangameshwar (Devrukh)
3	Chiplun	Chiplun, Guhagar
4	Khed	Khed
5	Dapoli	Dapoli and Mandangad

Table 2 Ratnagiri District Profile

Sr. No.	Particulars	Unit of Measurement (UoM)	Ratnagiri District
1	Topography		
	1.1 Area	Sq. km	8208
	1.2 North Latitude	Degree	16.30° to 18.04°
	1.3 East Longitude	Degree	73.02° to 73.52°
2	Administrative Set up		
	2.1 Tehsils (Census 2011)	No.	9
	2.2 Towns(Including Census Towns) (Census 2011)	No.	16
	2.3 Total villages	No.	1537
3	Local Bodies		
	3.1 Municipal Council	No.	4
	3.2 Nagar Panchayat	No.	5
	3.3 Panchayat Samiti	No.	9
	3.4 Gram Panchayat	No.	845

1.4 Demographic Profile of Ratnagiri district

- Ratnagiri is one of the least urbanized districts in the state, having about 16.3 percent population in urban areas whereas about 45.2 percent of the state's population lives in urban area.
- Ratnagiri district has the highest sex ratio (1122) in the state (929).
- Literacy rate of Ratnagiri district (82.2 percent) and males and females literacy rate is reported (90.9 percent) and (74.5 percent) respectively.

According to Census 2011, demographic features in Ratnagiri district are as follows:

Table 3 Demographic Profile of Ratnagiri district

Sr. No.	Particulars	Rural	Urban	Total
1.	Households	335318	61797	397115
2.	Population	1351346	263723	1651069
3.	Male	630213	130908	761121
4.	Female	721133	132815	853948
5.	Sex Ratio	1144	1015	1122
6.	Scheduled Caste	57524	9424	66948
7.	Scheduled Tribe	18788	1586	20374
8.	Literates	979357	220035	1199392

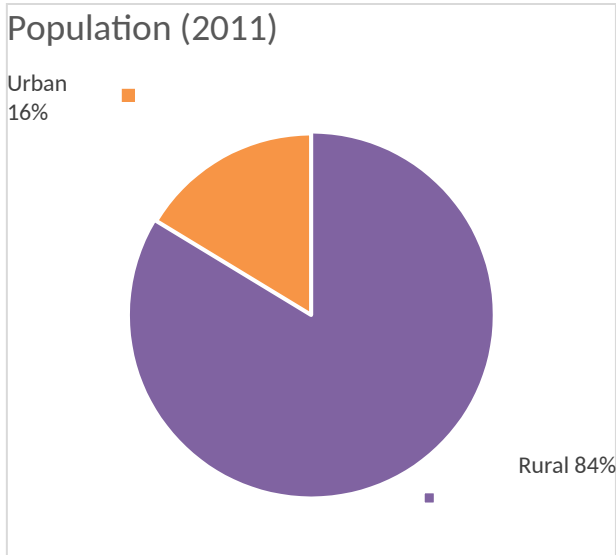


Chart 1 Population Rural Vs Urban

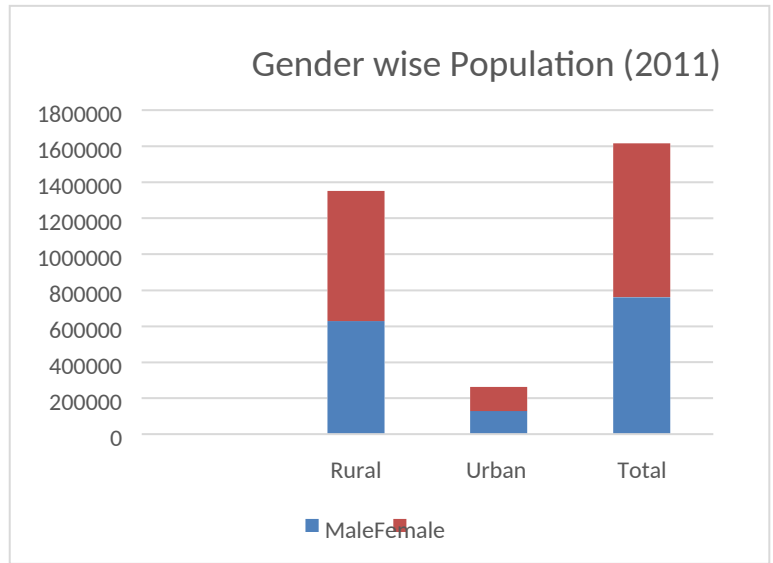


Chart 2 Genderwise Population of Ratnagiri district

Population Summary for Rural and Urban location

Urban Locations

Table 4 Urban Population in Ratnagiri district

Taluka	Area sq.km	No of cities	Population			No of families	Density of population	Sex ratio
			Total	Male	Female			
Mandangad	428.42	109	62123	27990	34133	16314	145	1219
Dapoli	26.81	4	34256	17161	17095	8020	1278	996
Khed	2.01	1	16892	8151	8741	3923	8404	1072
Guhagar	3.74	1	1621	823	798	361	433	970
Chiplun	21.39	2	67536	33791	33745	15895	3157	999
Sangameshwar	16.59	1	12689	6242	6447	3068	765	1033
Ratnagiri	21.75	5	106599	52728	53871	24903	4901	1022
Lanja	17.10	1	14377	7173	7204	3375	841	1004
Rajapur	6.19	1	9753	4839	4914	2252	1576	1015
Total	118.17	16	263723	130908	132815	61797	2232	1015

Rural Locations

Table 5 Rural Population in India

Taluka	Area sq.km	No of Villages	Population			No. of families	Density of population	Sex ratio
			Total	Male	Female			
Mandangad	428.42	109	62123	27990	34133	16314	145	1219
Dapoli	839.40	173	144084	65656	78428	37334	172	1195
Khed	1024.44	215	164723	78334	86389	40445	161	1103
Guhagar	642.92	121	121588	53873	67715	32098	189	1257
Chiplun	1098.64	165	211586	100997	110589	51064	193	1095
Sangameshwar	1242.80	198	185654	86549	99105	46733	149	1145
Ratnagiri	922.51	196	212850	102847	110003	49234	231	1070
Lanja	715.97	122	92609	42812	49797	22665	129	1163
Rajapur	1198.19	238	156129	71155	84974	39431	130	1194
Total	8089.83	1537	1351346	630213	721133	335318	167	1144

1.5 Physiography

- The eastern boundary of Ratnagiri district is more or less demarcated by the Sahyadri Mountain ranges, also called the Western Ghats.
- The district has a north-south span of about 180 km with about 167 km of coastline. The East West width is only 64 km at the broadest.
- The district can be divided into three natural divisions-
 - i) Hilly areas on the eastern part comprising the westerly offshoots of the Western Ghats
 - ii) Central portion of gently undulating landscape and
 - iii) Low lying coastal strip.
- The Deccan Trap formation of horizontally disposed basaltic lava flows is the major geological formation; hence trappean landforms dominate.
- Trappean landforms have a typical aspect of a plateau ; here also the two kinds of trappean landforms are
 - a. Laterite Plateau - gently sloping at the top with steep margins and
 - b. Highly Dissected Plateau - comprising the foothills of the Sahyadri range, characterized by steep valleys and high drainage density.

1.6 Soil

Based on the physical characteristics of the soils, they can be classified into five major groups as follows.

- 1) **Coarse Shallow Soil:** They are reddish brown in colour and occur on the slopes of the hills and are partly eroded, poor in fertility, shallow in depth and coarse in texture. These soils are ideal for Cashew and Mango plantations.
- 2) **Medium Deep Soil:** These are reddish yellow in colour and have various names depending upon the place of occurrence. Those situated at higher elevations are known as Mal, while at slightly lower levels are known as Kuyat. Near water courses, which have a fair supply of water during Rabi season are known as Panthal or Vaigan. Paddy is grown on these soils during Kharif. On Panthal soils pulses and summer paddy can also be grown.
- 3) **Deep Soil:** They occur along river banks or valleys and are usually of mixed origin and are yellowish red to brown in colour. They are light, easily workable, well drained and fairly fertile. Areca nut and coconut gardens are grown well on these soils.
- 4) **Coastal Alluvial Soil:** They are found along the coastal strip and consist of deep sandy loams suitable for Coconut and Areca nut.

- 5) **Coastal Saline Soil:** They are formed due to the inundation of the sea, where by part of coastal soils become salty. They are locally known as Khar, Khajan and Kharvat etc. They are found along coastal strip of Dapoli, Guhagar and Ratnagiri tehsils.

1.7 Land Use Patterns

The land use patterns of Ratnagiri district as follows:

Table 6 Land Use Pattern

Sr. No.	Particulars	UoM	Value
1	Inhabited Area	Ha	816433
2	Agricultural Area	Ha	291300
3	Industrial Area	Ha	1385.3
4	Forest	Ha	5835
5	Waste Lands	Ha	197918
6	Coastal Area	Km	167

The economy of the district is mainly dependent on both the agricultural as well as industrial sector. The chief agricultural products in the districts are mangoes, cashew nut, coconut, rice etc. Fishing is also main occupation of people, the 104 villages engaged in fishing activities. There are 80 fisherman societies working in district of which are 67615 people livelihood is fishing. Single crops are cultivated over about 80% of the land under agriculture – its fully depend on monsoon.

1.8 Climate and Rainfall

- Ratnagiri district has a climate typical of the Konkan region - humid tropical to semitropical with hot summers and mild winters.
- Summers (the season starts in March and continues till June) are hot and humid with temperatures reaching a maximum of 33.2°C.
- Winters (from November to February) are relatively milder with minimum temperatures of 18°C.
- Rainfall (average 3365 mm) is due to the South west monsoon and falls mainly during the months of July and August.
- There is no uniform pattern, but the rainfall is extremely heavy in the foothills of the Sahyadris.
- Within 24 hrs. up to rainfall 450 mm rainfall may occur at some places

Rainfall Pattern (1991 -2022)

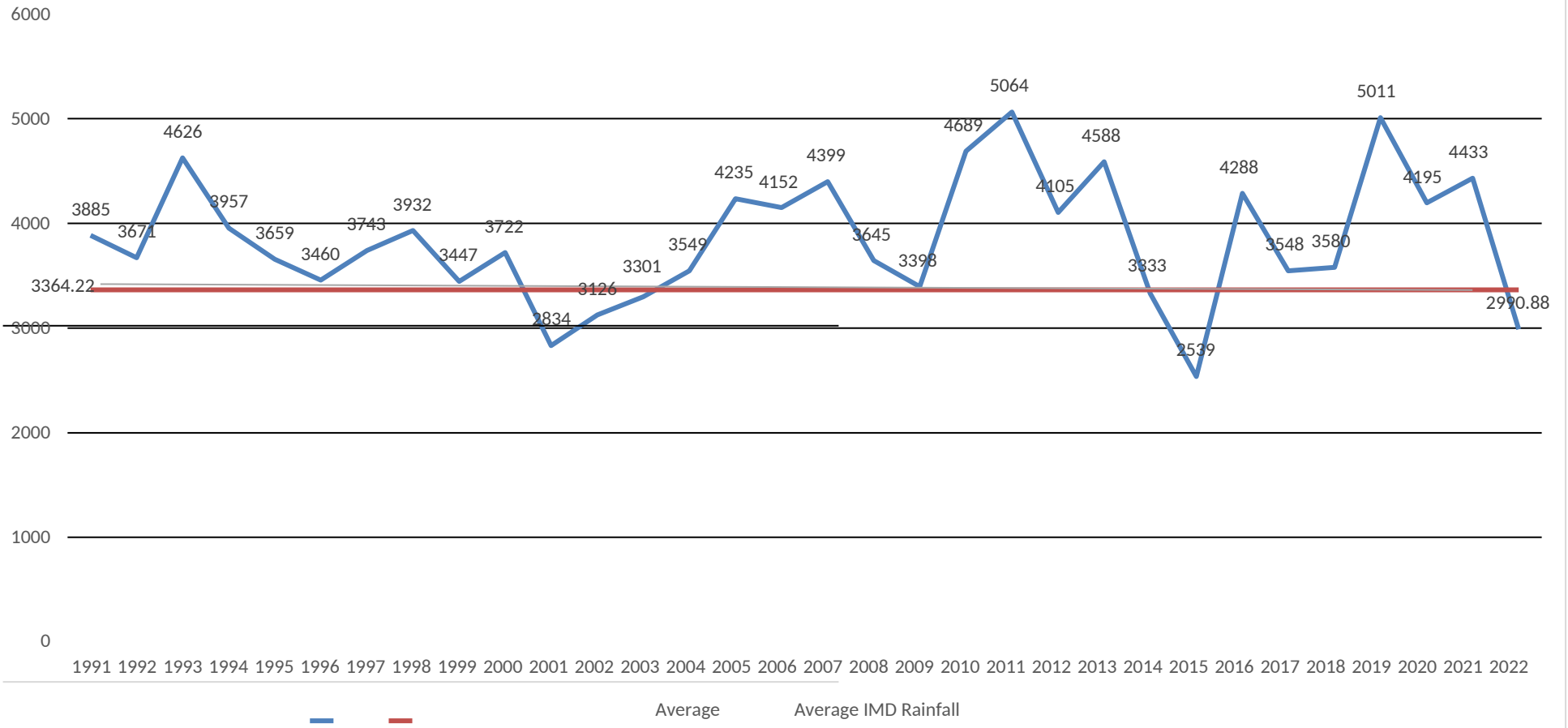
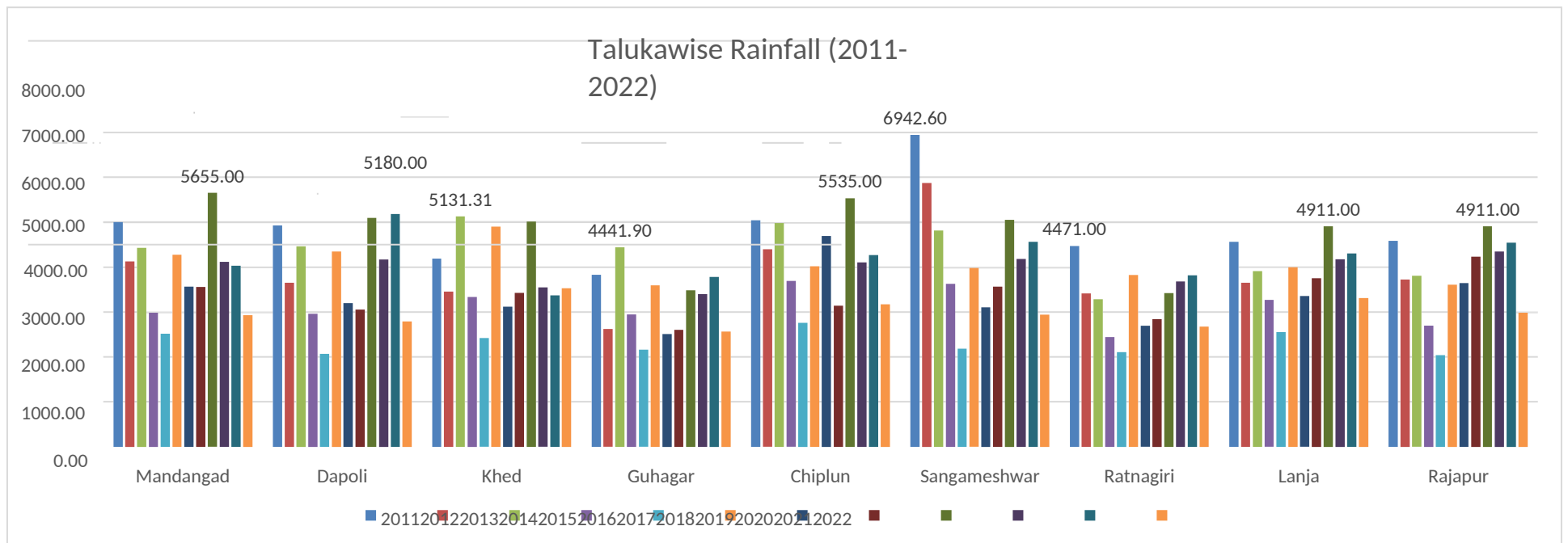


Chart 3 Rainfall Trend for Ratnagiri District (1991- 2022)

Table 7 Talukawise Rainfall details

Year	Avg. Rainfall (As per IMD)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Mandangad	3896.8	5002.00	4133.00	4429.00	2987.00	2520.07	4277.00	3566.20	3562.00	5655.00	4119.00	4031.00	2931.40
Dapoli	3585.8	4929.80	3654.00	4467.20	2962.72	2073.15	4353.37	3204.50	3060.14	5096.00	4169.00	5180.00	2789.90
Khed	3510.9	4191.00	3454.00	5131.31	3342.11	2424.52	4906.20	3119.20	3424.85	5014.00	3551.00	3378.00	3531.90
Guhagar	2585.9	3833.00	2622.00	4441.90	2945.20	2164.27	3595.20	2514.80	2607.00	3482.00	3405.00	3786.00	2566.45
Chiplun	3547.4	5045.00	4397.00	4982.32	3694.40	2760.57	4019.10	4699.10	3143.10	5535.00	4106.00	4270.00	3172.90
Sangameshwar	3548.7	6942.60	5874.00	4817.47	3627.54	2185.53	3984.00	3112.00	3568.00	5053.00	4185.00	4564.00	2942.90
Ratnagiri	2751	4471.00	3417.00	3289.89	2447.22	2108.40	3827.70	2694.00	2844.10	3419.00	3679.00	3817.00	2678.70
Lanja	3538.9	4567.00	3655.00	3909.74	3272.24	2554.18	3999.85	3359.00	3754.20	4911.00	4176.00	4303.00	3312.70
Rajapur	3312.6	4585.50	3730.00	3806.00	2700.38	2043.97	3612.10	3648.90	4235.12	4911.00	4348.00	4546.00	2991.10
Overall Ratnagiri District	30278	45577.9	36948	41287.8	29992.8	22849.7	38590.5	31934.7	32216.5	45095	37758	39896	26917.90
Average	3364.22	5064	4105	4588	3333	2539	4288	3548	3580	5011	4195	4433	2990.88



1.9 Historical and Religious Centres

Information on historical and religious centres is compiled to assess the possible influx of large populations on specific occasions and the service demands generated. This is important specifically with respect to administrations response for management of transport, health services, drinking water law and order, facilities for food and sanitation in order to control epidemics, avoid the road accidents and fires.

Table 8 List of Major Yatras in Ratnagiri district

Taluka	Name of the Historical and Religious Centre	Periods of Festive Occasions, Months	Estimated tourist or visiting population/ Pilgrim (Nos.)
Sangameshwar	Marleshwar	13-15 Jan	125000
Ratnagiri	Peer Babar Shaikh Dargah, Hatis	Magh Pournima	100000
	Narendra Maharaj, Nanij	Annual	100000
	Ganpatipule	Angaraki	90000
	Swami Swarupanand, Pavas	December	60000

Table 9 List of Other Yatras in Ratnagiri district

Taluka	Name of the Historical and Religious Centre	Periods of Festive Occasions, Months	Estimated tourist or visiting population/ Pilgrim (Nos.)
Sangmeshwar (Devrukha)	Sati Devi Yatra, Sakharapa	January – 2 days	100000
	Ambed Budruk – Daegah Urus	January – 2 days	10000
	Warchi aali daerga Urusdevrukha wachi aali	March - 1 days	2000
	Shridevi dhikaleshwar mahashivratri yatra	February - 7 day	10,000
	Shridevi marleshwar mahashivratri yatra maral	February-1 day	2000 to 3000
	Nawalai devi ninaveedevi yatra shivane karble shimewar	Shimga	2000 to 3000
	Mahashivratri yatra kasbakarne shwar mandir kasba	Mahashivratri	2000 to 3000
	Shinpne utsav Sangmeshwar bhandarwadi ninavdevi mandir –kasba chandika devishivne utsav	Shimga	4000 to 5000
	Shipne utsav manoba devachamakhjan		300 to 400
Guhagar	Dattajayanti utsav Palshet	Dattajayanti before 7 day	1000 to 4000
	Yatra gimavee zolai mandir	Ramnovami	1500 to 2000
	Ganpati utsav Pathpanhle	Maghi usav	1000 to 1500
	Ganpati utsav mudhr	Maghi usav	500 to 1000
	Urus, Parchuri Khurd	March	500
	Yatra, Tavsal	Gudhipadava	3000 to 4000
	Yatra, Bhatgaon	Gudhipadava	150 to 200
	Hedvi utsav hedvi	Maghi Ganesh Utsav	5000 to 6000
	Yatra Narvan	Gramdevi 1 day	1500 to 2000
	Velneshwar Yatra, Velneshwar	Mahashivratri 3 days	4000 to 5000
	Dattajayanti, Are	Dattajayanti – 7 days	2000 - 4500
	Kotluk utsav Kotluk	Hanuman Jayanti	1000 to 1500
	Dattajayanti, Guhagar	Dattajayanti before 7 day	3000 to 3500

Chiplun	Shri devi waghjai yatra Kolkewadi	February	3500 to 5000
	Peer ankhus kha Dargah, Urus pophali	February	10,000 to 15000
	Shri mahakali devi Yatra, Khubhali	February	20,000 to 25000
	Ramwardaini devichi Yatra, dadar		4000 to 5000
	Shiri devi karjeshwari Shimga utsav parshuram	Mahashivratri	10,000 to 12000
	Shiri dev parshuram mandir Utsav	Mahashivratri	10,000 to 12000
	Shiri devi zolai mandir yatra Walope	Trywarshik	1000 to 2000
	Gramdevatechi yatra mirjoli waiji shiral Rampur	April	1000 to 2000
	Dattajayanti utsav dattmandir Kherdi	Decembe	3000 to 4000
	Kartik-Swami darshan utsav ravtale Chiplun	Novembar	3000 to 4000
	Shardadevi navrati utsav	Nine day	3000 to 4000
	Mallikaarjun Gram devatechi girijai devi utsav	Mahashivratri	10,000 to 12000
Dapoli	Shridevi swayambhu chandika dhabhol	Dashra Navratri	9000 to 10,000
	Utsav kadyavaril ganpati anjle	Magh chaturati	1000 to 1500
	Mahalaxami Yatra yakubsarvli babacha Urus Velshi	Chaitra pornima Tithi nusar	1000 to 2000
	Urus wavaghar	Tithi pramane	500 to 1000
	Shri durgadevi Utsav murud	Dashra-navratri	1000 to 2000
	Ram-Navmi shriram mandir Panpandari	Ram-novami	3000 to 4000
Khed	Shri bhiri kotakeshower Yatra Aambe	Yearly	30,000 to 40,4000
	Shri devi bhavani yatra sukadr	Poush pornima	10,000 to 15000
	Daegah Urus, furus (gowthan)	December- one day	1500 to 2000
	Daegah Urus shakhroli	February 1 day	2000 to 3000
	Shri devi zolai Yatra dhamnad	Chatri pornimahanuman Jayanti	2000 to 3000
	Shri devi kadikar Yatra sakhr	After 4 day hanuman jayanti	2000 to 3000
	Shri dev vardan Yatra chorvane	Chatri pornima after 1 day hanuman jayanti	2000 to 3000
	Shri devvardan Yatra utekarwadi	Chatri pornima after 4 day Hanuman jayanti	2000 to 3000
	Shri dev chandikar Yatra Bhelsae	Margshish pornima	2000 to 3000
	Urus karimkhan bag Dargah dhaman-devi	April	4000 to 5000
	Urus Dargah veral	February	5000
	Shri devi zolai Yatra mandve	March	2000 to 3000
	Shri waghjai devi Yatra tale	February	1500 to 2500
	Urus Dargah savans	Falgun pournima	800 to 1000
	Shri zolai devi Yatra Ambwali	Tithi nusar	4000 to 5000
	Shri zolai devi Yatra chatv	Tithi nusar	1000 to 2000
	Shri kalkai zolai mandir Yatra ambwali kulwandi	Tithi nusar	2000 to 3000
	Shri kalkai zolai mandir Yatra tiragi	Tithi nusar	1000 to 3000
	Shri devi zolai Yatra	Tithi nusar	2000 to 3000
	Ratnagiri	Nav-ratri utsav Yatra bhagwati mandir	Navratri
Mandangad	Yatra Mandangad killa	Maghi ganpati utsav	5000 to 6000
	Jatra dhutaroli	Ram - Navmi	800 to 1000
	Jatra dhutaroli	Hanuman Jayanti	1000 to 2000
	Jatra kelawat	Hanuman Jayanti	1500 to 2000
	Jatra latwan	Hanuman jayanti	800 to 1000

	Jatra tulashi	Hanuman Jayanti	1000 to 2000
	Jatra adkhal	Hanuman Jayanti	400 to 500
	Jatra shurle	Hanuman jayanti	500 to 1000
	Jatra kuduk (khurad)	Hanuman jayanti	1500 to 2000
	Jatra palwani	Hanuman Jayanti	400 to 500
	Urus bankhot	July	1000 to 2000
	Urus mhaprwal	December	1000 to 2000
	Urus vesawli walmiki-nagar	August	2000 to 3000
	Urus shipole bandar	August	2000 to 3000
Rajapur	Sagve katradevi Yatra sagve	February	40,000 to 50,000
	Kasheli kankaditay Yatra Kasheli	February	10,000 to 15,000
	Dhutapeshwar mandir Yatra Dhopeswar	Mahashivratri	10,000 to 15000
	Mahakali mandir Navratri utsav adiware	October	10,000 to 20,000

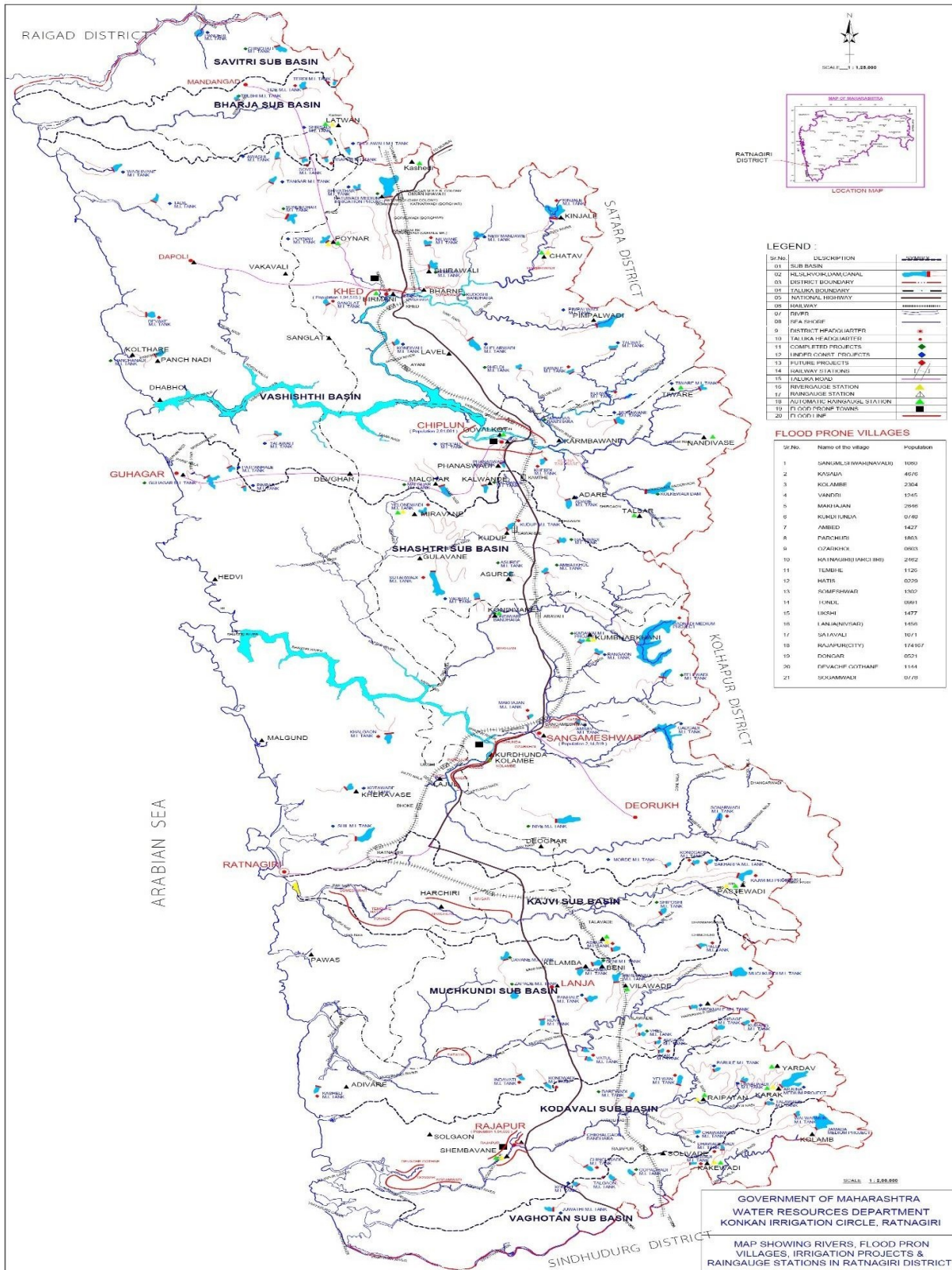
Photographs



Photo 1 Marleshwar Yatra – Maral, Taluka Sangameshwar

1.10 River System and Dams

Ratnagiri district has major rivers like Washishi, Jagbudi, Savitri, Baw, Shastri, Kodavali, Bharja, Kajavi, Waghetan and Muchkundi, etc. They swell in the Sahyadri Mountains and flows to the west and get access to Arabian Sea. Since the river basins are shallow, their flow is very speed in the monsoon season. Therefore, these rivers have limited use. Arjuna (Rajapur), Vashisthi (Chiplun) and Jagbudi (Khed) is the main flood prone rivers inthe district. The koyana dam situated in Koyananagar, Satara and 4th power generation plant buildup in near Pophli, Chiplun. In 4th power generation plant, used water direct to Vashishthi River.



Map 4 River Network of Ratnagiri district

Major Dams and its water level

Table 10 Major Dams in Ratnagiri district

Sr. No.	Taluka	Name of Dam	Capacity of Dam (Meter)	Maximum Water Level (Meter)	Gates (No.)
1.	Mandangad	Panderi	118.50	118.50	0
2		Chinchali	119.00	119.00	0
3		Tulshi	83.00	83.00	0
4		Bholavali	131.50	129.50	0
5	Dapoli	Shirsadi	116.00	115.15	0
6		Sondeghar	89.00	89.00	0
7		Sukondi	114.00	114.00	0
8		Awashi	142.00	142.00	0
9		Tangar	93.50	90.30	0
10		Panchanadi	108.00	108.00	0
11	khed	Natuwadi	92.50	87.50	3
12		Sheravali	39.50	39.50	0
13		Sheldi	110.00	110.00	0
14		Kondiwadi	129.00	125.80	0
15		Pipalwadi	132.00	125.50	0
16		Shelarwadi	84.00	77.50	0
17		Talvat	120.00	117.00	0
18	Guhagar	Guhagar	107.90	107.90	0
19		Pimpar	133.50	133.50	0
20	Chiplun	Tiware	139.00	139.00	0
21		Fanswadi	38.71	38.71	0
22		Malghar	32.00	32.00	0
23		Kalavande	101.50	101.50	0
24		Adare	124.00	124.00	0
25		Khopad	116.00	116.00	0
26		Moravane	112.00	112.00	0
27		Ambatkhoh	123.00	123.00	0
28		Asurde	141.50	141.50	0
29		Rajewadi	154.00	154.00	0
30	Sangameshwar	Sakharpa	132.00	132.00	0
31		Morde	108.00	108.00	0
32		Telwadi	82.00	82.00	0
33		Kadvai	122.00	122.00	0
34		Nive	123.00	123.00	0
35		Gadnadi	126.00	126.00	0
36		Rangav	91.00	91.00	0
37	Gadgadi	116.80	110.30	0	
38	Ratnagiri	Sheel	120.3	120.30	0
39	Lanja	Shiposhi	132.00	132.00	0
40		Vivel	112.00	112.00	0
41		Gavane	112.00	112.00	0
42		Zapade	180.00	180.00	0
43		Beni	113.00	113.00	0
44		Kelamba	107.00	107.00	0
45		Muchkadi	210.00	210.00	0
46		Panhale	136.00	136.00	0
47		Berdewadi	134.00	134.00	0
48		Hardkhale	112.00	112.00	0
49		Indavati	127.00	127.00	0
50	Kuva	122.00	122.00	0	
51	Rajapur	Kasheli	105.00	105.00	0

52		Arjuna Medium Pr.	177.00	177.00	0
53		Talavade	110.00	110.00	0
54		Diwalwadi	121.00	121.00	0
55		Barewadi	108.00	108.00	0
56		Ozar	124.50	124.50	0
57		Parule	128.00	128.00	0
58		Chichwadi	138.60	138.60	0
59		Kondhe	115.00	115.00	0
60		Kakewadi	85.00	85.00	0
61		Gopalwadi	77.85	77.85	0
62		Juwathi	127.00	127.00	0
63		Watul	119.00	119.00	0

Major River

Water level

Level

level

Table 11 Major Rivers and their water

Sr. No.	Name of River	Danger Level	Alert Level
1	Jagbudi	7.00	6.00
2	Washishti	7.00	5.00
3	Kajali	18.50	16.50
4	Kondawali	8.13	4.90
5	Shasri	7.80	6.20
6	Sonawi	8.60	7.20
7	Muchkundi	4.50	3.50
8	Bav river	11.00	9.40

1.11 Power Stations and Electricity Installations

- More than 15431 villages have access to electricity facility.
- The Presence of electricity department and its coverage has explained in following table.

Table 12 Scenario of MSEDCL in Ratnagiri district

Particulars	Division Wise information			Ratnagiri District
	Ratnagiri	Chiplun	Khed	
Sub Division Office	8	4	5	17
Branch Offices	34	19	18	71
High Pressure Sub Center	6	2	2	10
33/11 KV Sub Center	27	14	12	53
High Pressure Line (KM)	3433	1864	7234.16	12531.16
Low Pressure Line (KM)	5766	2230	9665.38	17661.38
Transformer (No.)	3132	1924	2364	7420
Customer (No.)	275990	151155	151513	578658
Covid Hospital (No.)	15	16	12	43
Oxygen Plant (No.)	3	1	1	5

Resources available with MSEDCL

Table 13 Resources available with MSEDCL

Particulars		Division Wise information			Ratnagiri District
		Ratnagiri	Chiplun	Khed	
MSEDCL	Team	34	19	18	71
	No. of Staff	385	325	200	910
Contractor	Team	13	10	10	33
	No. of Staff	134	94	75	304
Total	Team	47	29	28	104
	No. of Staff	519	419	275	1214

Industries

- There are around 390 factories available in district.
- Around 375 factories are operational where around 21054 workers are employed.
- Major factories are producing fish processing, PVC Pipes, Chemical factories, Cement Industries, fertilizer production, Food processing, etc.
- The extent of industrialization is reflected in the number of industrial estates and industrialisation activity in terms of movement of cargo.
- The details of companies in Ratnagiri district are attached in Annexure.

Extent of Industrialisation:

Table 14 Extent of Industrialisation

Sr. No.	Particulars	Unit of Measurement (MoM)	Value	Description
1	Industrial Estates	No.	3	Ratnagiri, Chiplun, Khed
2	Type of Industries	Text		Plastic, Chemical, Medicine
3	Total Workforce in industries	No.	25066	
4	Industries and Industries Tank farms	No.	1209	
5	Chemical Industries and Industries Tank farms	No.	122	Chemical Units
6	Pipelines carrying chemicals / Gas	No.	1	Huhgar to Kolhapur Pipeline
7	Potentially Hazardous Locations	No.	122	
8	Vehicles carrying hazardous Raw materials for industries (During Month)	No./ Day	30 to 50	
9	Vehicles carrying hazardous finished products from industries (during a months)	No./ Day	180	
10	Vehicles passing though the district carrying hazardous materials for industries (during a month)	No./ Day	30 to 50	
11	Container terminals	No.	Nil	

1.12 Transport and Communication Network

- The district has a fairly well developed transport and communication systems.
- Railway network is main transportation source to the Konkan railway (Mumbai - Goa) railway line (194 km long) which carries passenger as well as goods traffic.
- Road network is good, 275 km of the National Highway No.66 and 239 passes through the district; there are 1098 km of State highways and 1529 km of other district roads.
- There is a low power Doordarshan transmitter making Doordarshan accessible to almost all villages; there is a low power All India Radio transmitter for AM band. Dish antennas have also proliferated throughout the district.
- All taluka headquarters are linked to the district headquarters by wireless, telephone and fax.

Table 15 Transportation Network

Sr. No.	Particulars	UoM	Value
1	National Highways (NH 66 and 239)	No	2
2	Total Length of National Highway (NH 66 and 239)	KM	275
3	State Highways	KM	1098
4	District Roads	KM	1529
5	Other Roads	KM	1453
6	Rural Roads	KM	5240
7	Bridges on River	No	48
8	S. T. Depot	No	51
9	Ports or Jetties	No	
10	Boats	No	3950
11	Railway stations with mail/express halts.	No	15
12	Railway major bridges	94	94
13	Railway minor bridges	773	773
14	Longest bridge of railway	Meter	420
15	Tunnel of railways	No	67
16	Non-electrified railway routes	KM	124
17	Electrified railway routes	KM	Nil
18	Number of Airports / air strips	1	1

1.13 Educational Profile

- Educational facilities span the whole range from Anganwadis to professional degree colleges.

Particulars	Quantity
Anganwadi	2295
Schools	3115
Degree Colleges	62
ITI (Govt. & Non Govt.)	14

- Around 106 School has been identified for Shelter during emergency which are in safe location.

1.14 Health Profile

- Overall district level availability of Hospitals and supporting infrastructure are described in following table.

Table 16P Health facilities coverage in Ratnagiri district

Sr. No.	Particulars	Quantity
1	Rural Hospitals	12
2	Special Hosptials (Cancer, TB, etc)	3
3	Dispensaries	4
4	Maternity home	14
5	Primary Health Care Center	67
6	Sub Centers	378
7	Total Bed Capacity	1436
8	Doctos and Specialist	232
9	ANM & LHB	615

CHAPTER 2

RISK ASSESSMENT AND VULNERABILITY ANALYSIS

2.1 Hazard Profile of the District:

A hazard profile should consider four factors:

- Magnitude
- Frequency
- Duration
- Speed of onset

2.2 Disaster Probability

According to district administration, the probability of disaster occurrence and the possible intensity of disasters, based on the earlier history is given below.

Table 17 Disaster Probability

Damage	Earthquake	Floods	Cyclones	Epidemics	Industrial and chemical accidents	Fires	Road accidents	Landslide
Loss of lives	Medium	Medium	Medium	Low	Medium	Low	Medium	Medium
Injuries	Medium	Low	Medium	Low	Low	Low	Medium	Medium
Damage to and Destruction of property	Medium	Medium	Medium	Low	Low	Low	Low	Medium
Damage to Cattle and Livestock	Low	Medium	Low	Medium	Low	Medium	Medium	Low
Damage to subsistence and crops	Low	Medium	Medium	Low	Low	Medium	Low	Low
Disruption of life style	Medium	Medium	Medium	Low		Low	Low	Medium
Disruption of Community life	Medium	Medium	Medium	Low	Medium	Low	Low	Medium
Loss of livelihood		Medium	Medium	Low	Medium	Low	Low	Medium
Disruption of services	Medium	Medium	Medium	Low	Medium	Low	Medium	Medium
Damage to infrastructure and/or disruption of Govt. system	Medium	Medium	Medium	Low	Low	Low	Low	Low
Impact on National Economy	Medium	Medium	Medium	Low	Low	Low	Low	Low
Social and psychological after effects	Medium	Medium	Medium	Low	Medium	Low	Low	Medium

According to the district administration, the probability of disaster occurrence and the possible intensity of disasters, based on earlier history is given below.

2.3 Specific Vulnerability of Systems and Services to Disaster

Table 18 Specific Vulnerability of Systems and Services to disaster events vulnerable

Specific Vulnerability	Earthquake	Floods	Cyclones	Epidemics	Fire	Road accident	Industrial and chemical accidents
Transport Systems (Road network)	Yes	Yes	Yes	No	Yes	Yes	No
Transport system (rail network)	Yes	No	Yes	No	No	No	No
Power supply	Yes	Yes	Yes	No	No	No	Yes
Water supply	Yes	Yes	Yes	Yes	No	No	Yes
Sewage	Yes	Yes	Yes	No	No	No	Yes
Hospitals	Yes	Yes	Yes	No	No	No	Yes
Food stocks and supplies	Yes	Yes	Yes	No	No	No	No
Communication Systems	No	Yes	Yes	No	No	No	No

2.4 Ranking and Probability of Disaster Episodes in the District

Event	Probability of future occurrence		
	High	Medium	Low
Earthquake		Medium	
Floods		Medium	
Cyclones		Medium	
Epidemics		Medium	
Industrial & Chemical Accidents			Low
Fires			Low
Road Accidents		Medium	

2.4.1. Ranking and Probability of disaster episodes at taluka level

Taluka	Flood	Landslide	Cyclone	Earthquake	Chemical Accident	Water Scarcity	Disease Outbreak	Road Accident
Mandangad	Low	Low	High	High	Low	High	Low	Low
Dapoli	Low	High	High	High	Low	Low	High	High
Khed	High	High	High	High	High	High	High	High
Guhagar	Low	Low	High	High	Low	Low	High	Low
Chiplun	High	High	High	High	High	High	High	High
Sangameshwar	High	High	High	High	Low	High	Low	High
Ratnagiri	High	Low	Low	High	Low	High	High	High
Lanja	Low	Low	Low	High	Low	High	Low	Low
Rajapur	High	High	High	Low	Low	Low	High	Low

2.5 Disaster Specific Proneness

2.5.1. Flood

- There are 3 main rivers are flood prone Chiplun – Vashisthi, Rajapur – Arjuna, Khed- Jagbudi. The flood situation is depend upon Hide and low tide of sea.

- If heavy rainfall could occurs and high tide at same time the flood situation will be created.
- The flood situation may be create for 4-5 hrs. All there rivers may caused flood situation in district.
- The monsoon period starts in the month of June with the maximum precipitation in Julyand August.
- Total rainfall is 3364.2 mm of the district. All talukas average rainfall is more than 3500 mm
- The Khed, Chiplun and Rajapur city is flood pone and each year this areas facing problem of flood.
- Release of excess water from the Koyana dams 4th power generation plant into Vashisthi River, if heavy raibfall could occurs and high tide at same time the flood situation will becreated.

Table 19 Assessment of flood frequency of major rivers in the district

Taluka	Name of River	Flood Frequency (No./Year)	Affected Area (Sq. KM)	No of villages affected	Village Name
Rajapur	Arjuana	Once	4.9	5	Rajapur, Kajilada, Dongar, Bhgari Kurhd, Bhablewadi
Chiplun	Vashisthi	Twice	2.2	5	Chiplun, Kherdi, Petmap, Govlkot, Majarekashi
Khed	Jagbudi	Twice	3	5	Khed, Prabhuwadi, Chichkhari, Suseri, Alsure
	Narangi	Twice/ Thrice	2		
Samgameshwar	Bav	Twice/ Thrice	2.5	9	Sakharapa, Kasaba, Kurdhunda, Navadi, Mhasale, Vashi Tarf Samgameshwar, Kolambe, Bhadkhamba, Pangari
	Muchkundi	Twice	0.35		
	Saptalingi	Once	0.15		
	Shastri	Twice	6.9		
Ratnagiri	Kajali	Thrice	0.75	4	Someswar, Harcheri, Tembhe, Chandera
	Sonvi	Once	1.02		
	Gadgadi	Once	0.60		
	Gad	Once	0.65		

2.5.1.1 Preventive and preparedness measures taken to reduce damage due to flood:

- There are 130 Rainfall Monitoring Stations (MAHARAIN – Revenue – 65, MAHAVEDH, Agril. Department – 65) operational in the district.
- Daily basis rainfall data has been collected and based on alert received from IMD department respective alert has been disseminated to tehsil level, department level.
- Disaster preparedness Orientation meeting conducted at district level including all respective departments and necessary instruction has been given through DDMA.
- 24 x 7 Operational Control room established at district headquarter and during monsoon period control room established in respective taluka headquarter and department level

such as PWD, National Highway, Port etc. All distrial level officials, Tahsildars, SDOs and BDOs are advised to alert.

- Flood prone areas are demarked by Water Resources Department and prepared list of most flood prone villages.
- Taluka level, Village level disaster forces – Search & Rescue team, First aid team, Shelter management team formed and orientation has been given through technical experts in respective areas.
- For flood prevention, de-silting work is under progress for Vashishthi and Shiv River in Chiplun bloc. Till date around 7.45 Lack CuM Silt has been removed through WRD Department.



Photo 2 Desilting of silt at Vashiti River

- Orientation on Search and Rescue Operation conducted for Rajapur, KHed, Chiplun Nagar Parishad and Devrukh and Dapoli Nagar Panchayat.
- Around 11 Mock Drills for creating awareness for Flood Operation in Police Departments.

2.5.1.2 Available Equipments with District Administration:

Sr. No.	Particulars	Unit of Measurement	Quantity
1	Accessory Cord 6 mm	Coils	5
2	Accessory Cord 8 mm	Coils	5
3	Adjustable Double Lanyard For Self Anchor & Positioning	No.	25
4	Anchor Plate	No.	10
5	Ascender – Right	No.	25
6	Assorted Pitons	No.	50
7	Ball Bearing Swivel	No.	10
8	Bolt Anchor	No.	300
9	Cam Loaded Rope Clamp	No.	10
10	Compact Self Braking Descender	No.	25
11	Connector - Wide Auto Lock	No.	50
12	Connector Auto Lock	No.	50

14	Descender Rescue	No.	5
15	Descender With Brake Bar	No.	10
16	Descender With Integrated Progress Capture Pulley	No.	5
17	Fiber Boat - 30 Hp OBM	No.	10
18	Floating Rope	Coils	10
19	Foot Loop For Ascenders	No.	25
20	Gloves	No.	25
21	Hammer	No.	20
22	Hand Drill Bit	No.	10
23	Harness For Rescue Personal	No.	25
24	Harness Rescue Victim With Shoulders Straps	No.	10
25	Headlamp	No.	25
26	Indian Kit Bag	No.	20
27	Knife	No.	25
28	Life Boye	No.	146
29	Life Jacket	No.	570
30	Oval Shape Connector	No.	75
31	Portable Iniftable Led Lighting System	No.	42
32	Prusik Loop	No.	25
33	Pulley – Rescue	No.	20
34	Pulley – Single	No.	20
35	Pulley Carabiner	No.	10
36	Pulley Carabiner With Locking	No.	10
37	Quick Link For Footape	No.	25
38	Rescue Helmet	No.	25
39	Rescue Throw Bag	No.	5
40	Rope Bag	No.	20
41	Rope Protector	No.	100
42	Safety Rope 10.5 mm	Coils	25
43	Safety Rope 12.5 mm	Coils	5
44	Search Light	No.	10
45	Self Jamming Pulley	No.	20
46	Stretcher	No.	5
47	Walkie-Talkie	No.	25
48	Webbing Sling Closed Loop	No.	150
49	Webbing Sling Tubular 300' (Feet)	Feet	1500
50	Winch For Materials Lifting	No.	5
51	Boat	No.	15
52	Tent	No.	14
53	Life Jacket	No.	870
54	Life Boye	No.	146
55	SAT Phone	No.	12
56	Public Addresssing System	No.	405
57	Portable Iniftable Led Lighting System	No.	42

Key Initiatives (2022-23)

Under Distric Planning Committee, through Innovatioue Scheme – around 42 Portable Inflatable Emergency Light distributed to 5 Sub Divisional Offices.



Orientation on Seach and Rescue Operation for all block level key officials including Homeguard, Police Department.

Information dissemination through Media about Monsoon preparedness, trainings etc.

लोकमत

जीवित तसेच वित्तहानी टाळण्याकरिता आराखडे

प्रत्येक तालुक्यातील धोकादायक गावे निश्चित

योग्य नियोजन केल्यास नुकसानाची तीव्रता घटणार

पूर्वानुभव लक्षात घेत प्रशासन सज्ज

सांगना निसर्गाशी-१

शोभना कांबळे

लोकमत न्यूज नेटवर्क

रत्नापूर : जिल्ह्यात घडलेल्या मोठ्या

आपत्तीचा

पूर्वानुभव

लक्षात

येऊन

जिल्हा

प्रशासनाचे आज

पावसाळ्यातील

संभाव्य

आपत्तीची

सामना

करण्याच्या

दृष्टीने

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सज्जतेबाबत

जिल्हाधिकारी

डॉ. वी. एन. पाटील

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करण्याबाबत

नागरिकांच्या

सुरक्षिततेच्या

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संबंधी

बाळग्याच्या

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व्यवस्थान अतिशय अजय सुरवंसी हा विभाग सक्षमतेने सांभाळत आहेत. जिल्ह्यात २००९ साली फयान चर्चिवाटवने जिल्हाचे नुकसान केले. २ जुलै २०१६ साली अतिवृष्टीत तिलेर (ता. फिचळूण) येथे धरणफुटी झाली. २०२० साली निसर्ग चर्चिवाटवने तर मंडणगड, दापोली या तालुक्यातील धरे आणि झाडांचे कोटकधीचे नुकसान केले. रत्नापूर २०२१ सालच्या त्र्याघ्यापेक्षा अधिक हानेच्या तीव्रते वाटवनेही जिल्हाचे कोटकधीचे नुकसान केले. पावसाळ्यात सातत्याने येणाऱ्या महापूर, चर्चिवाटव, रस्ते अपघात, भूस्खलन आदी आपत्तीचा पूर्वनुभव लक्षात घेऊन येथे पावसाळ्यात येणाऱ्या संभाव्य आपत्तीच्या अनुषंगाने खबरदारी घेण्याच्या दृष्टीने विशेष यंत्रणांचा तालुकू सरतसर आपली व्यवस्थान आराखडा तयार करण्यात आला आहे. आपत्तीप्रसंगी मदतकार्य व बचाव कार्य करण्याच्या दृष्टीने उपकार्योजना करण्यात आल्या आहेत.

प्रत्येक तालुक्यातील यात इतरयत्त, खाडी, नटकिगारी घसलेली, पुरवत गावे, धोकादायक पूल, झरतीरी, बांधकामे निश्चित करण्यात आली आहेत. आपत्ती फाटत सर्व यंत्रणांना बचावकार्यासाठी विशेष प्रकरणांच्या यंत्रणासुद्धा सज्ज व सतर्क राहण्याच्या सुचना जिल्हा प्रशासनाकडून देण्यात आल्या आहेत.

या सर्व यंत्रणांनी आपली व्यवस्थापन आराखडात आपल्याकडील असलेल्या यंत्रणासुद्धा अद्यावत तसेच आपत्तीकाळात संपर्कसाठी नोडल ऑफिसर नियुक्त केले आहेत. तालुकूसतरतर २० मेघासून निवृत्त कक्ष स्थापन झाले आहेत.

२०२० साली आलेल्या निरग्न पावसाचे अवघिनिह हानी केलेली. त्यानंतरच्या तीव्रते पावसाची तीव्रता वाढवणे अधिक होतो. मात्र, पूर्वसूचना मिळाल्याने प्रशासनाचे नागरिकांचे संभाषण केले. त्यामुळे निसर्गाकडे नुकसान झाले नाही.

Key Initiatives (2022-23)

Under Distric Planning Committee, through Innovatiove Scheme – A total 342 Gram Pnachyat and 62 Urban areas of Landslide and flood prone have installed Public Addressing System



Tent Training

Apada Mitra Training for 300 Volunteer's in Ratnagiri District under NDMA and SDMA



Monsson Preparedness Meeting



Information dissemination through Media about Monsoon preparedness, trainings etc.

पावसाळ्यातील आपत्कालीन परिस्थितीसाठी यंत्रणा सज्ज ठेवा

रत्नागिरी, ता. १७ : पावसाळ्यातील आपत्कालीन परिस्थितीला सामोरे जाण्यासाठी सर्व शासकीय यंत्रणा सज्ज ठेवा, असे आदेश जिल्हाधिकारी एम. देवेंद्र सिंह यांनी दिले. पूरपरिस्थिती हाताळण्यासाठी यंत्रणा, लघु व मध्यम प्रकल्पांची दुरुस्ती, ब्रिटिशकालीन पुलांची पाहणी व दुरुस्ती, धोकादायक इमारतींची माहिती घेऊन तेथील नागरिकांचे स्थलांतर अशा उपाययोजना करा, अशा सूचनाही त्यांनी दिल्या.

जिल्हा आपत्ती व्यवस्थापन प्राधिकरणामार्फत मान्सून पूर्वतयारीसाठी जिल्हाधिकारी कार्यालयात आढावा बैठक झाली. या वेळी जिल्हाधिकारी एम. देवेंद्र सिंह, मुख्य कार्यकारी अधिकारी कीर्तिकुमार पूजार, जिल्हा पोलिस अधीक्षक धनंजय कुलकर्णी, निवासी उपजिल्हाधिकारी चंद्रकांत सुर्यवंशी, जिल्हा आपत्ती व्यवस्थापन अधिकारी अजय सुर्यवंशी यांच्यासह सर्व विभागाचे अधिकारी उपस्थित होते. सर्व विभागांनी आपत्ती



रत्नागिरी : आपत्ती व्यवस्थापन बैठकीत मार्गदर्शन करताना जिल्हाधिकारी एम. देवेंद्रसिंह. सोबत अन्य अधिकारी.

व्यवस्थापन आराखडा अद्ययावत करा, जिल्हास्तरावर नोडल ऑफिसर म्हणून सक्षम अधिकाऱ्यांची नियुक्ती करा, नियंत्रण कक्ष २४ तास कार्यान्वित करा, अशा सूचना जिल्हाधिकारी यांनी या वेळी दिल्या. मुख्य कार्यालयात एसएमएस ब्रॉडस्टर यंत्रणा असल्यामुळे सर्व मोबाईलधारकांना हवामानाच्या पूर्वसूचना प्रसारित केल्या जातात. लाईफ जॅकेट्स, लाईफ बोजायज व रिग्स, रबर बोट, होड्या आदी साहित्य उपलब्ध असल्याचे आपत्ती व्यवस्थापन

अधिकाऱ्यांनी सांगितले. दरडग्रस्त गावांसाठी संपर्क अधिकारी, पर्जन्यमापक यंत्राची सद्यस्थिती तपासणी, धरणनिहाय संपर्क अधिकारी, वायरलेस यंत्रणा सज्ज ठेवा, तालुक्यातील घाट परिसरात वारंवार दरडी कोसळून वाहतूक खंडित होत असल्याने तेथे संपर्क अधिकारी नेमणे, राष्ट्रीय महामार्ग किंवा जिल्हामार्गावर झाडे व दरड कोसळून वाहतूक विस्कळीत होऊ नये याची पूर्वतयारी करा, पुरामुळे संपर्क तुटणाऱ्या गावात

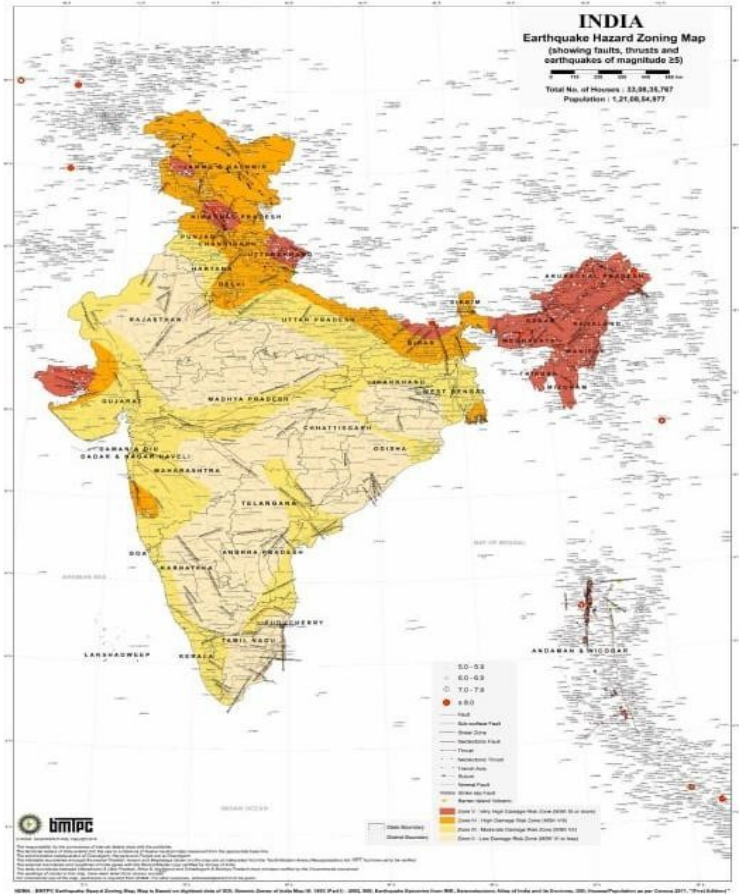
धोकादायक इमारती, पुलांची वर्गवारी करा

■ ब्रिटिशकालीन जुन्या पुलांचे कार्यकारी अभियंता राष्ट्रीय महामार्ग, सार्वजनिक बांधकाम विभाग यांनी तपासणी करून संबंधित पूल वाहतुकीस सक्षम असल्याचे प्रमाणपत्र जिल्हाधिकारी कार्यालयास तत्काळ सादर करावे. धोकादायक इमारती, पूल यांची वर्गवारी करावी. त्या इमारतीबाबत मान्सूनपूर्वीच योग्य ती कार्यवाही करावी, अशा सूचनाही जिल्हाधिकारी यांनी दिल्या.

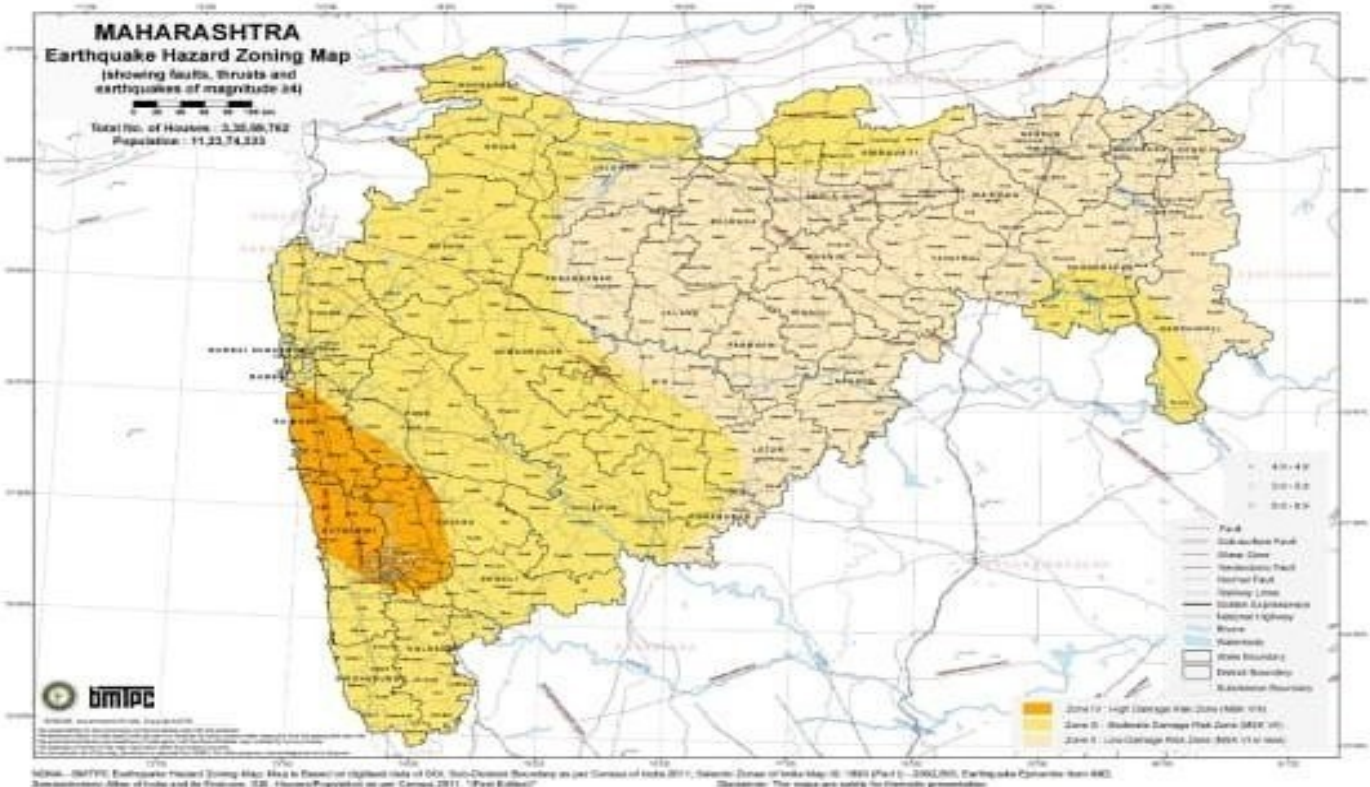
धान्यसाठा करा अशा सूचना यंत्रणांना दिल्या. जिल्ह्यातील लघु व मध्यम प्रकल्पांची संयुक्त पाहणी करून धरणांची आवश्यकता असल्यास पावसाळ्यापूर्वी दुरुस्ती पूर्ण करून घ्यावी.

2.5.2 Earthquakes:

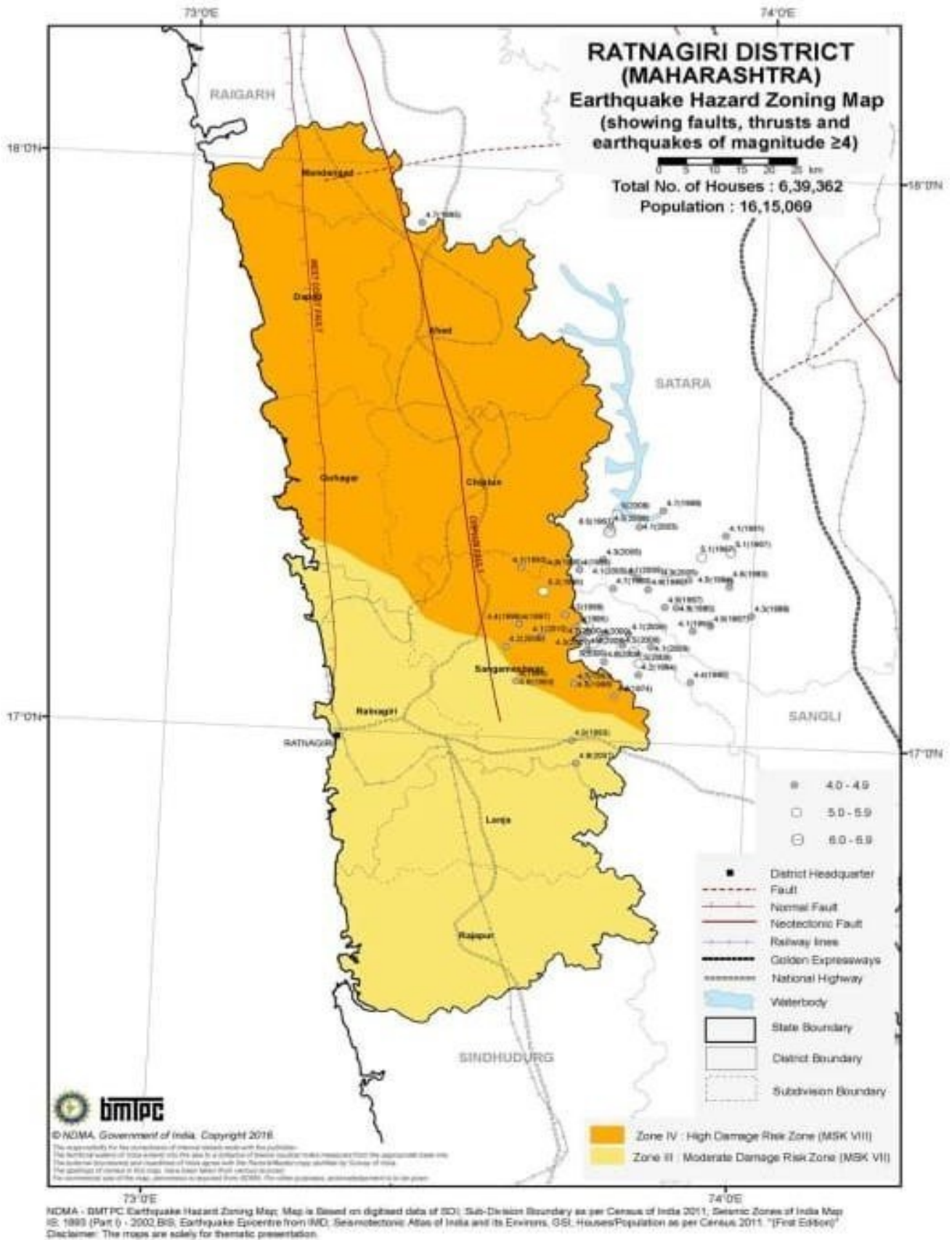
- The district administration has ranked earthquakes at number one in terms of past occurrences and has indicated a high probability for future occurrences.
- This is mainly due to the high incidence of seismic activity in the Koyna valley and its west side of district, which also was the epicenter of the famous 1967 Koyna earthquake -the strongest seismic event after the 1993 Killari earthquake.
- Earthquakes have been recorded here from 1963 and till 2010 more than 95000 tremorshave been recorded.Even presently about 2 to 3 magnitude earthquake records per day is a commonoccurrence.



Map 5 Earthquake Hazard Zoning Map India



Map 6 Earthquake Hazard Zoning Map - Maharashtra



Map 7 Earthquake Hazard Mapping of Ratnagiri district

☛ Hence the regular tremors of magnitude 2 to 3 are not strongly felt outside the district; slightly larger tremors do cause some minor damage to houses in parts of the valley.

- A major earthquake here of magnitude more than 6 could cause substantial damage not only in Ratnagiri district but also in the neighboring more industrialized districts of Satara, Sangali and Kolhapur.

Table 20 Earthquake Seismic Zone of Ratnagiri district (I – Low, VI – High)

Sr. No.	Taluka	Earthquake Seismic Zone
1	Mandangad	IV
2	Dapoli	IV
3	Khed	IV
4	Guhagar	IV
5	Chiplun	IV
6	Sangameshwar	IV
7	Ratnagiri	IV
8	Lanja	IV
9	Rajapur	III

2.5.2.1 Preventive and preparedness measures taken to reduce damage due to earthquake:

- Orientation on Search & Rescue operation during earthquake has been conducted in all block levels of Ratnagiri district.

2.5.1. Landslide

- Eastern Boundary Demarcated by Shayadri Ranges.
- No uniform pattern, but the rainfall is extremely heavy in the foothills of the Sahyadris.
- Due to steep slopes and heavy rainfall, the soil cover in most parts has been steadily eroded away over the years and is very thin, holding little moisture.
- The Combination of heavy rains and low water retaining capacity of the soil causes landslides in the form of Mudflows and the occasional Rockfalls along the Sahyadri Foothills.
- The most of the parts of district is hilly areas and villages placed on mountain slope
- From 2005 the many villages facing problem of mounting cracks on slope
- The all 9 talukas of the district has landslide prone areas

2.5.3.1 Landslide prone Area

- With help of GSI landslide prone villages survey conducted in the year 2015-16, 2019-2020 and 2020-21. Also GSDA has conducted Survey in 2019-20.

■ Around till date, overall 208 villages identified which are landslide prone.

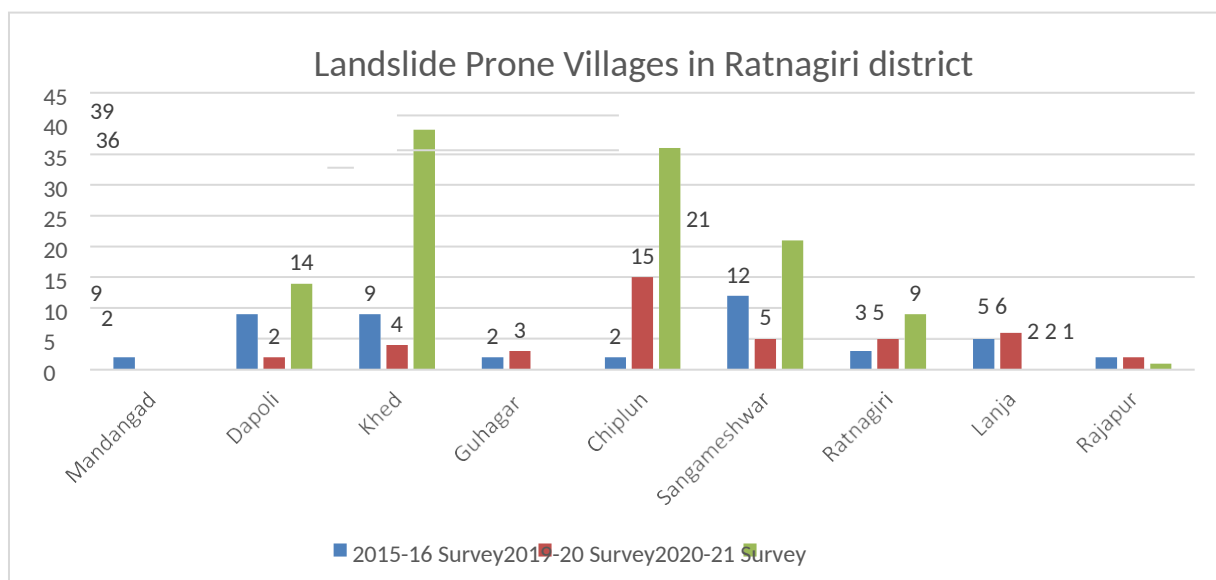


Chart 4 Occurance of Landslide events in block level

2.5.3.2 Landslide Incident occurred in Ratnagiri district

Till date around 7 major landslide incidents occurred in district which impacted on 47 deaths and 16 house damaged. Incidents wise damage details are presented below table.

Table 21 Landslide Incident occurred in Ratnagiri district

Sr.No.	Date	Name of village	Taluka	Death	Houses Damaged
1	26/07/2005	Mundhe- Payarwadi	Chiplun	5	1
2	30/09/2009	Vadad Hasol	Rajapur	8	1
3	18/06/2010	Harnai – Rajwadi	Dapoli	8	2
4	21/06/2015	Dabhol – Tembkarwadi	Dapoli	5	2
5	22/7/2021	Pedhe (Kumbharwadi)	Chiplun	3	2
6	22/7/2021	Posare	Khed	16	7
7	22/07/2021	Birmani	Khed	2	1
Total				47	16

■ Around 22 locations on National Highway are identified as landslide prone area.

Name of Ghat	National Highway
Kashedi Ghat	Mumbai- Goa National Highway 66
Bhoste Ghat	Mumbai- Goa National Highway 66
Parshuram Ghat	Mumbai- Goa National Highway 66
Kamathe Ghat	Mumbai- Goa National Highway 66
Agave Ghat	Mumbai- Goa National Highway 66
Nivali Ghat	Mumbai- Goa National Highway 66
Devadhe Ghat	Mumbai- Goa National Highway 66
Vaked Ghat	Mumbai- Goa National Highway 66
Vatul Ghat	Mumbai- Goa National Highway 66

Khevad Ghat	Mumbai- Goa National Highway 66
Rajapur	Mumbai- Goa National Highway 66
Amba Ghat	Ratnagiri- Nagpur National Highway 239
Kumbharli Ghat	Chiplun - Karad State Highway No.78
Palpani Ghat	Bankot - Mandagad- Bhor - Pandharpur State Highway No. 107
Khevad Ghat Shanale Ghat	Purar Mhrapal Mandangad Khed State Highway 107
Mahad- Latavane - Visapur - Palgad	Visapur- Palgad Dapoli State Highway 107
Ajarle	Kadavali Gharadi Dahagaon Road
Mandangad	Palwani Kherdi Road
Dapoli	Burondi Panchnadi Vanoyi Road
Raghuveer Ghat	Khed Veral Khopi Road
Kadai Ghat	Khopi Dhamnand Road
Chinchghar Koregaon	Mumbake Ahirwali Road

2.5.3.3. Preventive and preparedness measures taken to reduce damage due to Landslides:

- All block level Machinery kept ready for emergency response for landslide.
- Also 24 x 7 Control room established during monsoon season by PWD, National Highway for immediate response.

Key Initiative (2022-23)

District Administration organized Awareness Session for Key officials of block level for predicting of landslide occurrences, measures to be taken during landslide, etc. for Dapoli, Chiplun, Khed, Lanja and Sangameshwar block.



Media coverage

लोकमत

पूरुषवण भागात आपत्तीची लढा देण्यासाठी शासकीय यंत्रणा आणि लोकप्रतिनिधींसाठी रंगीत वालीम

जिल्हा दरडसाक्षर करण्यासाठी प्रशासनाची सुरु आहे विशेष धडपड

सातना निरुपार्जित-२

कोसकणे
कोसकणे मध्ये शेतकरी संघटनांनी २००५ सालापासून पावसाळ्यात सातनाचे आपत्ती येत आहेत. त्यामुळे दरडसाक्षर आणि सुरक्षित गावचे सर्वेक्षण करण्यात आले आहे. त्या त्या गावातील लोकाला मातब्ब्या सुरक्षेसाठी दरड साक्षर करण्याचे अधिष्ठाता जिल्हा प्रशासनाने हुकी देत आहे. सुरक्षित भागात आपत्तीची कट्टा बांधून घ्यायला, गावातील प्राथमिकीचे दुरुवले जात असून, रंगीत वालीमही घेतले जात आहे. यूपीए, पाटल आणि भुषणे सरकारने आपत्तीचे संवेदनपूर्वीच लक्षी असल्यासाठी मांडणी केली आहे. मुझमनी दडव हाके रंगीत नैचा



करी रमजत म्हासुर आणि दरड कोसकण्याचे प्रकार घडतानाच त्याची रचनावा अन्वयक समितीवर नियुक्ती केली आहे. आचार्यन शिंदेबाबू या घटनेचे गांधीसंस्था प्रमुख शिंदेबाबूकरांनी डॉ. बी.ए. पाटल आणि भुषणे सरकार यांना, गांधीसंस्था यांना संवेदनपूर्वीच शिंदेबाबू आपत्ती व्यवस्थान प्राधिकरणमार्फत

नदीकिनारी गावात हानी

जिल्हातून दूर नै संवेदन काळजात काळजात २०२०-२० मधीलही पाऊस पडला. हुकी पावसाचे प्रमाणही जाहीर असून काळजातील बाजू लागला आहे. डॉ. शिंदेबाबू, सांगलीकर, राजासुरी व शिंदेबाबू संस्थेतील कार्ये गवळी नदीकिनारी असल्याने पावसाळ्यात घुसणू पाटला का लागल्यात आहेत.

११ वेळा आला पूर...

पूर काळजातील असून, काही काळात नदीकिनारी गावाची संख्या २०६, इतकी असून २०१५ सालापासून आतापर्यंत आलेल्या सर्वेक्षणानुसार पाटला गावाची संख्या २११ इतकी आहे. २००५ सालापासून दरड कोसकण्याच्या घटनांमध्ये ४०० जणांचे मृत्यू झाले आहेत. हाच संख्या २०१५-२०१६ या पावसाळ्यात नोंदविले गेले.

गावचा सर्वाधिक मृत्यू

जिल्हात मृत्यू, आदी आणि नदीकिनारी लागलेल्या गावाची संख्या २०६, इतकी असून २०१५ सालापासून आतापर्यंत आलेल्या सर्वेक्षणानुसार पाटला गावाची संख्या २११ इतकी आहे. २००५ सालापासून दरड कोसकण्याच्या घटनांमध्ये ४०० जणांचे मृत्यू झाले आहेत. हाच संख्या २०१५-२०१६ या पावसाळ्यात नोंदविले गेले.

दरडी कोसकणे याबले

शिवीत घुसल्यातून गावात घडताना दरड कोसकण्याच्या घटना पावसाळ्यात सातनाचे घडत आहेत.

करी संस्था करावे, यासाठीही प्राथमिकी घेतली जात आहे. यासाठी शिवीत संस्था आणि गांधीसंस्था यांच्यात सातनाचे घडताना दरड कोसकण्याच्या घटना पावसाळ्यात सातनाचे घडत आहेत.

2.5.2. Cyclones

- Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather.
- The Ratnagiri District, located on the western coast of Maharashtra state of India, having coastline of the district extends to about 167 km area.
- The district has a tropical humid climate with maximum and minimum average annual temperatures of 33.28 C and 18 C respectively, while the average annual rainfall received is more than 3500mm.
- The relief features are highly diverse and uneven, distinguished with five physiographic aspects viz. the coastline, estuary, alluvial plains, and basins of the major rivers (Vashishthi, Jagbudi, Savitri, Jog, and Muchkundi), laterite plateaus, and highly eroded remnant hills.
- Over 85 percent of the land surface of the district is hilly.
- The coast here is rocky, broken, with small bays and creeks with fringes of islands.
- The highest contour value is about 1100 m above mean sea level (MSL) towards the east of the district, reducing towards the coast with an average elevation of 150 m above MSL.
- The lateritic hill ranges running parallel to the coastline, are deeply eroded by several Konkan Rivers. The Sahyadri hill range (Western Ghats) is dissected by west flowing rivers, having mostly a parallel drainage pattern, producing very narrow riverine plains along the coastline.
- Rising from the Sahyadrian scarp, these rivers drain the waters to the Arabian Sea. Some major rivers like Savitri, Vashisthi, Shastri, Ratnagiri, Jagbudi, and Vagothan River, etc. flow from narrow and rocky lateritic uplands.
- The coastline is marked with several islands which are resulted from drowned topography, shallow sea, and silted estuaries. Along with SLR, storm surges, extensive rainfall, and flash floods due to orographic precipitation are making the area more vulnerable.
- Since 1978, high tide levels rose to 5–6 cm, causing recession of the beaches and damage to estuaries and flatlands.
- Due to coastal recession, the loss of shoreline up to few feet has become a frequent phenomenon. The occurrence of coastal recession is observed along Harnai and Mirya beaches. Therefore, the threat of coastal vulnerability to such hazards have increased manifold with the growing population

2.5.3. Road Accidents:

- The district administration has ranked road accidents at second spot on the basis of past incidences and has indicated a medium probability of future occurrence.
- There is an extensive network of roads throughout the district; 275 km of the Mumbai – Goa National Highway No.66 and Ratnagiri – Nagpur, NH-239 passes through the district; there are 1098 km of State highways and 1529 km of other district roads.
- Three major accident prone spots have been identified by the district authorities
- The stretch of the National Highway between Khed, Chiplun, Ratnagiri, Sangameshwar, Lanja and Rajapur is the most accident prone part of the highway. Kumbharli Ghat, Kashedi Ghat, Amba Ghat, are most vulnerable for the accidents - more than 10000 people have died till present.
- The Kashedi, Kumbhari ghat and most of the section of the highway is also prone to accidents due to the narrow road and ghat sections.
- Chiplun, Harkhambha Pali, where the National Highway crosses the State highways, there is frequent problem of traffic jams and accidents - an overhead bridge is required.
- More than 50 to 60 vehicles pass through the district carrying diesel, petrol and other inflammable materials.
- Khed, Chiplun, Sangameshwar, Lanj, Rajapur is some towns on the NH 66, have significant number of industries which receive hazardous materials.

2.5.4. Dam Burst

- Due to heavy rain on 2nd July 2019 Dam burst in Bhendwadi, Tivre Tal – Chiplun.
- Around 13 people died.
12 deadbodies recovered with help of local, NGOs and NDRF. The Search & Rescue operation runned more than 10 days.



2.5.5. Epidemics:

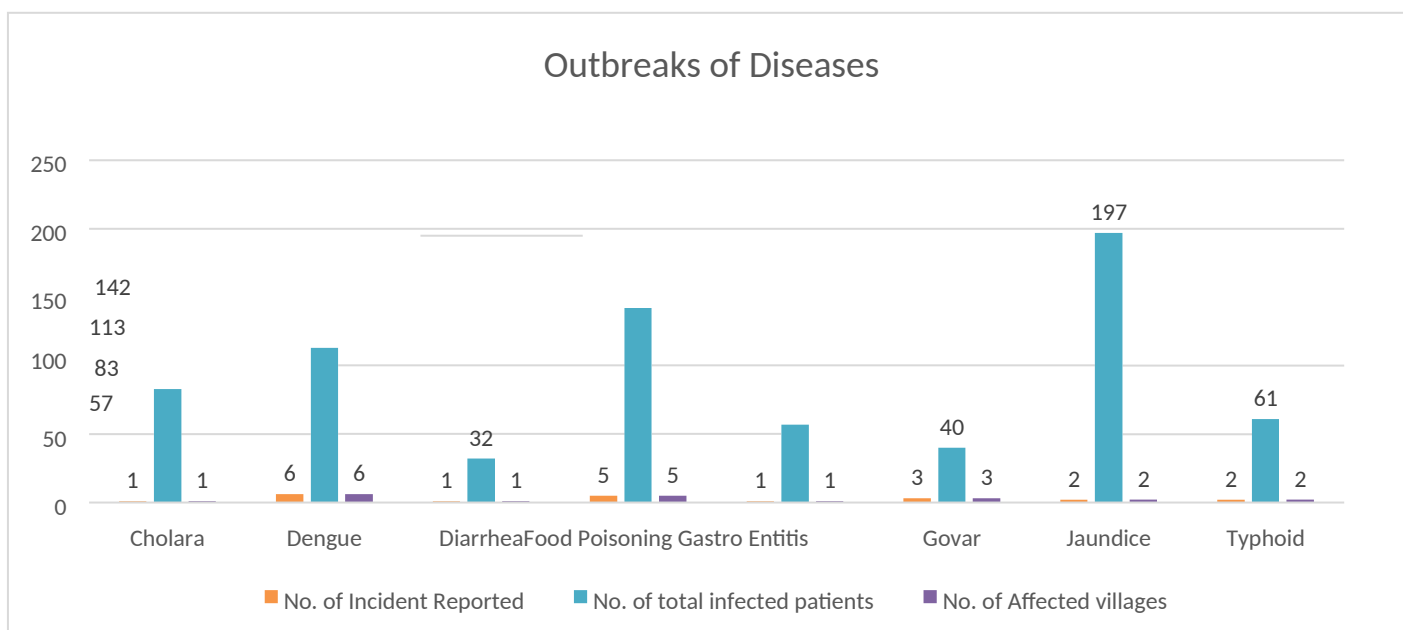
- Epidemics are common throughout the district during the monsoon period, as in many other districts in Maharashtra.
- The common cause for the outbreaks are polluted water and contaminated food.

- Gastro-enteritis, Cholera, Dysentery, Pneumonia, Jaundice, Typhoid, Diarrhoea etc. are the common diseases.
- During the summer season, large no. of food poisoning cases reported due to unhygienic conditions in small hotels and canteens.
- Epidemics have been ranked at 5 on the basis of past occurrences and the district administration has indicated a medium probability of future occurrence.
- Quick Response medical team deployed as soon as epidemic outbreak reported and efforts made to minimize risk of spread diseases and as well as treatment of patients initiated.

2.5.7.1 Major Outbreak in Ratnagiri district

Table 23 Outbreak of Diseases in Ratnagiri district

Name of Diseases	No. of Incident Reported	No. of total infected patients	No. of Affected villages
Cholera	1	83	1
Dengue	6	113	6
Diarrhea	1	32	1
Food Poisoning	5	142	5
Gastro Entitis	1	57	1
Govar	3	40	3
Jaundice	2	197	2
Typhoid	2	61	2
Total	21	725	21



2.5.7.2 COVID-19 Outbreak

- First Patient of Coronavirus identified in Ratnagiri March 2020.
- Highest Positive Case Observed during May 2021 around 22409.
- Till date, around 2534 deaths due to COVID 19.
- Around 6 Hospitals, 34 PHC, and 36 Sub Center reserved for treatment of COVID-19 patients.
- Around 2920 Beds kept for COVID-19 patients and 485 Bed kept for Suspected COVID-19.
- Around 152 ICU Bed and 78 Ventilators available in district level.

Table 24 Positive Cases in Ratnagiri district

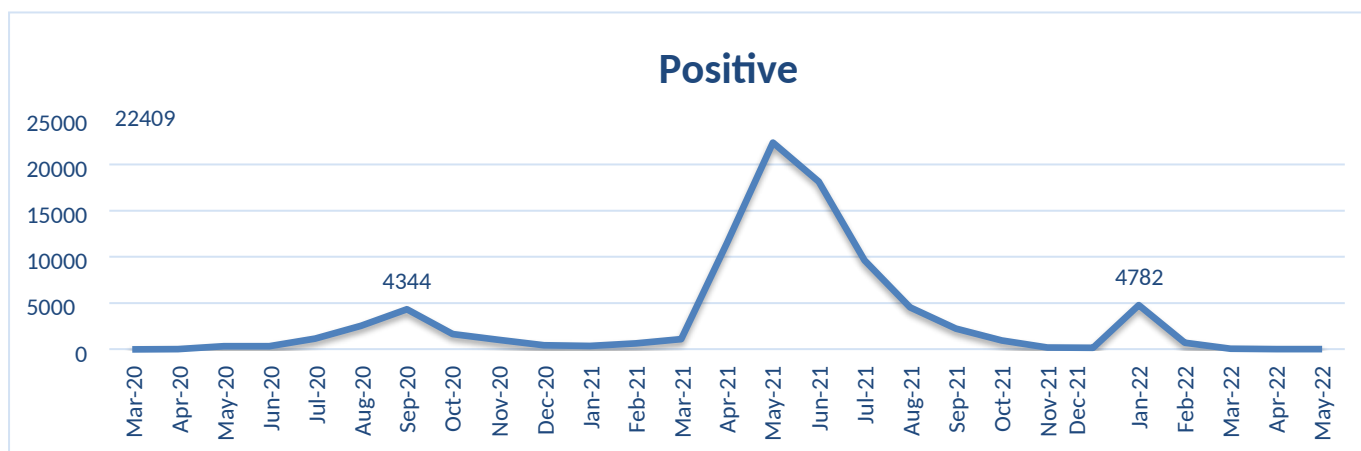
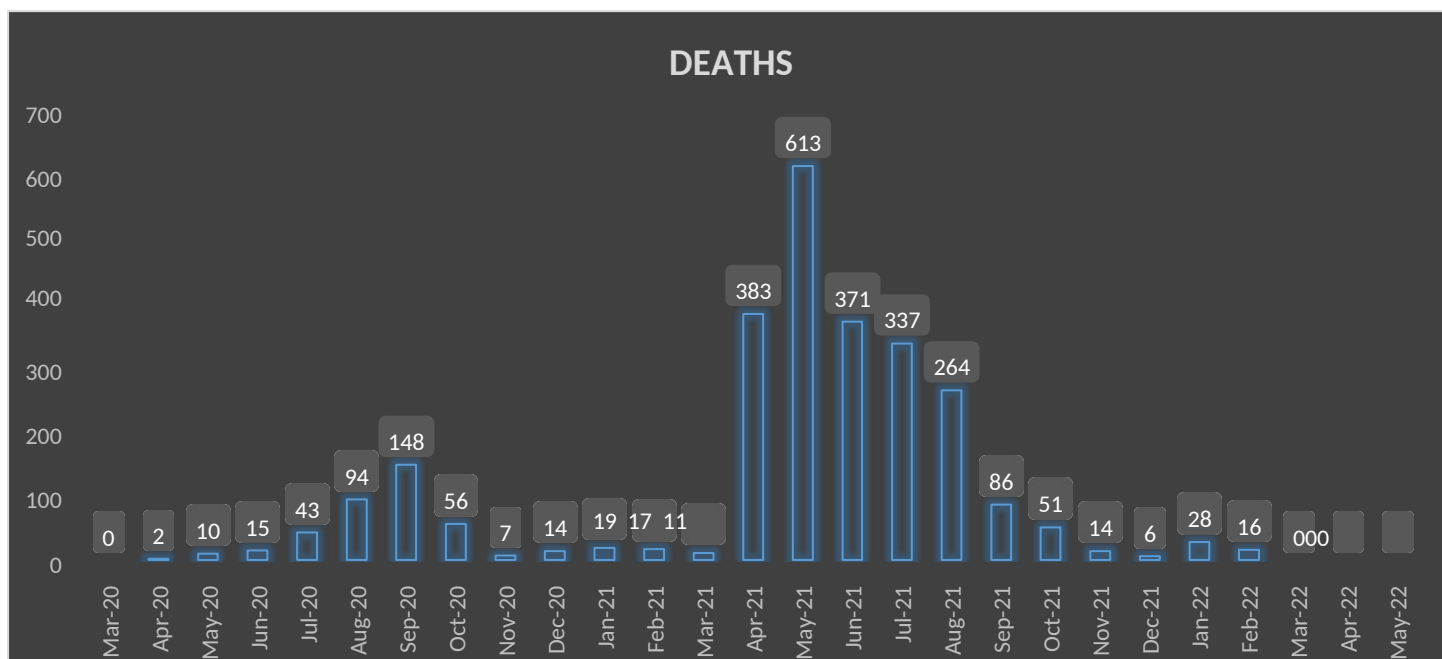


Chart 5 Positive Cases in Ratnagiri

Table 25 Total Death in Covid-19



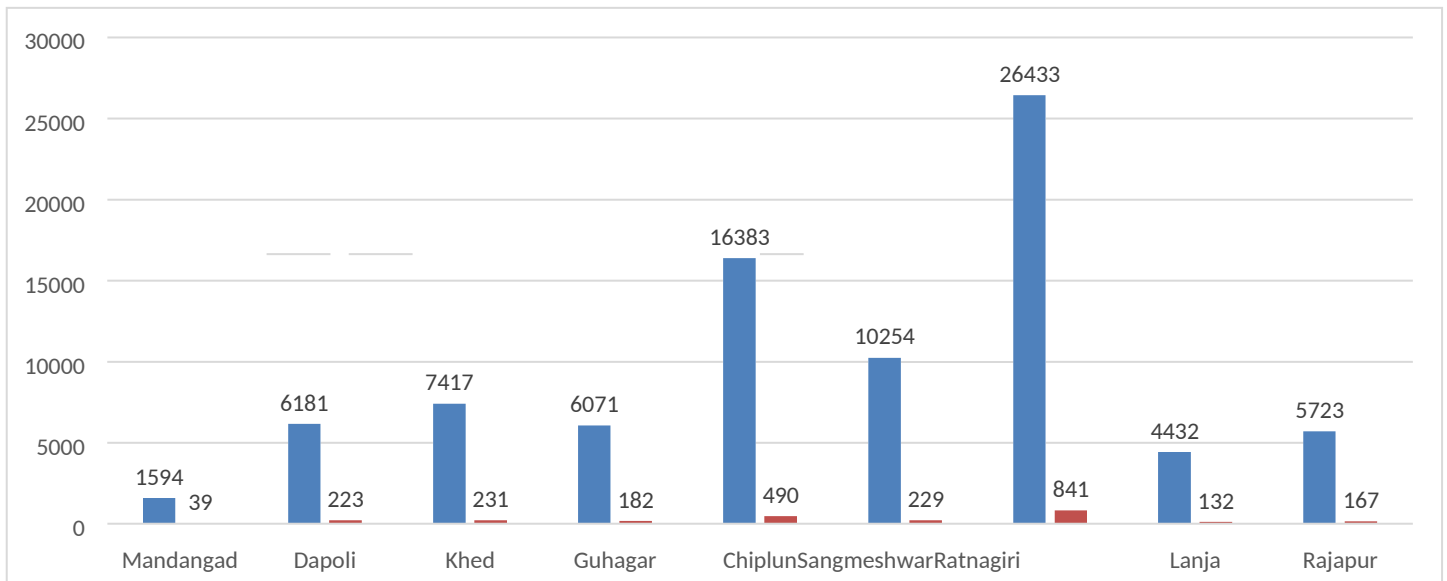


Chart 6 Block wise Positive Cases Vs Death

Preventive Measures taken for Control of COVID -19

- District Administration has issued circulars, guidelines for public for awareness about COVID19, Use of Mask, Social distancing, Vaccination through all departments.
- All govertmnet employees, HCW, FLWs Vaccination Campaign organized.

Vaccination Status

BENEFICIARY CATEGORY	TARGET	VACCINE TYPE				TOTAL			
		COVISHIELD		COVAXIN		1ST DOSE	1ST DOSE (%)	2ND DOSE	2ND DOSE (%)
		1ST DOSE	2ND DOSE	1ST DOSE	2ND DOSE				
HCW	21636	16246	13746	1804	1661	18050	83.43	15407	71.21
FLW	35750	29223	26362	8935	8405	38158	106.7	34767	97.25
18 TO 44 AGE GROUP	665900	399518	3303322	97190	83269	496708	74.59	413591	62.11
45 TO 59 AGE GROUP	243900	244578	216419	35040	31851	279618	114.64	248270	101.79
60 + AGE GROUP	172100	197486	168669	26395	22961	223881	130.09	191630	111.35
TOTAL (Inc. HCW & FLW)	1081900	887051	755518	169364	148147	1056415	97064	903665	83.53
TOTAL 18+ Coverage						1960080			
12 TO 14 AGE GROUP	46374	Corbevax				32008	69.02	17438	37.6
15 TO 17 AGE GROUP	71744	Covaxin				52782	73.57	41728	58.16
Precaution Dose 18+ Age Group	1081900	38329				3.54			
District Total Doses Administered						2142365			

- Awareness about Covid Appropriate behavior through IECs, Street play in the district.
- Around 13 PSA Plant established in district through different scheme.

Sr. No.	Facility Name	Facility Type Govt/Prvt	PSA Plant capacity (LPM)	PSA capacity (MT)	Patient treat on PSA (Max.) (No.)	Fund Source	Approx. Cost (Lakh)
1	General Hospital Ratnagiri	Govt.	200	0.37	25	Central Govt	PM care
2	General Hospital Ratnagiri 2	Govt.	960	1.8	120	CSR	CSR
3	Women Hospital Ratnagiri	Govt.	800	1.5	100	DPC	102
4	SDH Dapoli	Govt.	470.6	0.88	60	DPC	63.4
5	SDH Dapoli	Govt.	200	0.37	25	Central Govt	PM care
6	S D H Kalambani	Govt.	470.55	0.88	60	DPC	63.4
7	DCH Oni,	Govt.	100	0.19	25	DPC	32.44
8	RH Pali	Govt.	100	0.17	25	DPC	53.1
9	RH Guhagar	Govt.	100	0.19	25	Central Govt	PM care
10	R H Sangameshwar	Govt.	470	0.88	60	DPC	63.4
11	R H Raipatan	Govt.	600	1.12	85	CSR	CSR
12	B K Walawalkar Hospital, Dervan	Private	95	0.18	25		
13	Shri Siddhivinayak Hospital, Chiplun	Private	55	0.1	15		

LMO Tanks

- Around 10 LMO tanks available in district.

Sr. No.	Hospital / Facility Name	Tank Size (KL)	Tank Capacity (MT)	Facility Type Govt/Private	Fund source	Approx. Cost (Rs. Lakh)
1	Women's Hospital Ratnagiri DCH	20	22.8	Govt	DPC	75.57
2	SDH Kalambani DCH	6	6.84	Govt	DPC	36.73
3	SDH Dapoli DCH	13	14.82	Govt	DPC	40
4	R H Sangameshwar DCHC	6	6.84	Govt	DPC	36.74
5	R H Raipatan DCHC	6	6.84	Govt	DPC	36.74
6	Women's Hospital Ratnagiri DCH 2	20	22.8	Govt	DPC	55
7	SDH Kamathe DCH	10	11.4	Govt	DPC	43.76
8	RH Guhagar	10	11.4	Govt	ECRP2	59
9	RH Mandangad	10	11.4	Govt	ECRP2	59
10	B K Walawalkar Hospital, Dervan DCH	13	14.82	Private	-	-

COVID-19 Relief Support for families who lost their lives due COVID

- Maharashtra State Government through SDMA announced to provide financial support of Rs. 50000 to kin or immediate relatives of people who lost their lives due to COVID-19 through government relief.
- Till date around 304 application has been approved for relief support.

Sr. No.	Particulars	Numbers
1	Total Death due to COVID-19	2534
2	Total Application received for Relief through Online Portal	3398
3	DDMA Approved Application	1800
4	GRC Level Application	609
5	Approved in GRC	304

2.5. 8. Industrial and Chemical Accidents and Fires Extent of Industrialisation:

- There are seven industrial estates in the district including four MIDC estates at Ratngiri, Chiplun and Khed.
- Plastic, chemical, Cement, medicines, Fish processing based industries, ice factories are the major types of industries.
- There are 122 chemical industries out of which the district administration has indicated that only 122 are hazardous.
- All these factories have their emergency action plans ready.
- Due to these reasons, industrial and chemical accidents have been ranked last in terms of past occurrences, and a medium probability of future occurrence.
- On an average about 100-150 incidents occur every year, most of them involving burning of huts due to blowing winds during the hot summer afternoons.
- Movement of vehicles laden with hazardous materials along the NH 66 and NH 239 and other state highways also constitute a major hazard.
- With Collaboration of Hazardous companies prepared MARK team of chemical experts and they handle on site and off site emergencies.

2.5.8.1 Do and Don't For Chlorine Gas Leakage

Do's	Don't's
<ul style="list-style-type: none">• Use safety appliances.• Cover the face wet cloth or use gas masks.• Find out the source of leakage using ammonia torch.• Bring leaking part of Chlorine Cylinder on upward direction.• Stop leakage from valves by tightening gland nut or putting valve cap. Use the yoke clamp.• Move vehicle with leaking Chlorine Cylinder to open area.• Keep public away from danger area.• Inform Police/Fire brigade in case uncontrolled leakage.• Seek help from manufacturer.• Inform about the leakage to the concerned authorities of the plant.• Only approved tools should be used for making connections and valve operation.• Tonnages should be kept horizontal position in such a way that the walls are in vertical plane.• Do ensure that all the containers are properly fitted with appropriate hoods.• Do use Mechanical / Electrical hoists for unloading purpose.• Observe wind direction and face in opposite direction and run away if required.	<ul style="list-style-type: none">• Never pour water on leaking cylinder.• Use Chlorine Cylinder within three months from date of filling and otherwise return it to manufacturer.• If manufacturing process is likely to be closed due to some reason return cylinder to suppliers.• Never throw leaking cylinder into River, Pond or Swimming Pool.• Liquid Chlorine is more harmful than gas because its one part gives 458 parts of gas. Hence never keep leaky part towards ground.• Never keep vehicle with leaky cylinder under Sun or near Public Place.• Never store containers near/elevator or gangways or any location where heavy objects may fall and strike them.• Don't store Chlorine Cylinder with Acid and Articles or corrosives and inflammable nature.• Never force connection that doesn't fit.• Do not try to re-air the container valve.• Do not heat the container.• Do not allow any unauthorised person in storage area.• Do not roll the cylinders for unloading purpose.

2.5.8.2 Authorities & Functions for Prevention, Control & Management Of Chemical Accidents.

Sr.No.	FUNCTIONS	AGENCIES	LEGAL BACKING
1.	Inventorisation and main tenance of date bank.	Environmental Protection Authority	Environment (Protection) Act, 1986
2	Notification of hazardous Chemicals.	Environmental Protection Authority	Environment (Protection) Act, 1986
3	Provisions of emergency services in case of accident. Post-emergency management Including rechabilitation and Compensation.	Environmental Protection Authority -----do-----	Environment (Protection) Act, 1986 -----do-----
4	Zoning for location of hazardous Installations.	State Town Planning Organisation.	Environment (Protection) Act, 1986
5	Preparation of Hazardous / Risk Analysis Reports	Preparation of Plan By Installations	Environment (Protection) Act, 1986
6	Indentification of hazardous Installations.	Factory Inspectorate	Environment (Protection) Act, 1986
7	Implementation of direction Procedures for location and Manufacture.	Factory Inspectorate.	Environment (Protection) Act, 1986
8	Implementation of directions And procedures reg. storage and disposal.	Pollution Contral	Environment (Protection) Act, 1986
9	Implementation of direction and Procedures regarding road Transport.	Road Transport Authority	Environment (Protection) Act, 1986
10	Implementation of directions and Procedures regarding Railways	Railways.	Environment (Protection) Act, 1986
11	Implementation of directions and procedures regarding transport By Ships.	Port Authorities	Environment (Protection) Act, 1986
12	Implementation of directions and Procedures reg. trans. by Air	Civil Aviation Authorities.	Environment (Protection) Act, 1986
13	Implementation of directions And procedures regarding use in Consumer Products.	State Health Authority.	Environment (Protection) Act, 1986
14	Preparation and implementation of On-Site Emergency Plans.	Preparation and Implementation by Indl. Supervision by Factory Inspectorate	Factories Act, 1948.
15	Preparation of Off-Site Emergency Plans	District Emergency Authority	Environment (Protection) Act, 1986
16	Provisions of Emergency Services.	-----do-----	Environment (Protection) Act, 1986
17	Information regarding remedial Actions.	-----do-----	Environment (Protection) Act, 1986
18	Medical Treatment and rehabilitation of victims.	State Health Authority.	Environment (Protection) Act, 1986
19	Co-ordination of the activities of State & District Agencies.	State Departments of Environment	Environment (Protection) Act, 1986
20	Social rehabilitation of victims	State Government.	Environment (Protection) Act, 1986

2.5.9. Others

2.6. Completing the Risk Analysis:

After completing the district profile, the next step is to quantify the community's risk by merging the information. Risk is the predicted impact that hazard would have on the people, services and specific facilities in the community. Quantifying risk enables district to focus on those hazards that poses higher threat to life, property and environment.

Quantifying risk involves:

- Identifying the elements of the community that are potential at risk from specific hazard
- Develop Digital elevation model
- Develop response priorities
- Assign severity ratings based on potential impact to life, essential facilities and Critical Infrastructure and Key Resources (CIKR)
- Compiling risk data into the community risk profile that shows the areas of the community that are at highest risk from hazard.

1) In analyzing risks, it is helpful to develop the response priorities:

- Priority 1: Life safety
- Priority 2: Essential facilities
- Priority 3: CIKR (Critical Infrastructure and Key Resources)

2) Severity Rating or Risk Index: Develop a risk index for each hazard and assign a value to each characteristic. Use the following values:

- Catastrophic
- Critical
- Limited
- Negligible

- The rating for each of the following hazard data:
 - Magnitude
 - Frequency
 - Speed of onset
 - Community Impact

One needs to average the value of all factors to determine the overall risk. The result of this process will be a list of hazards that pose the greatest threat to the district.

Table 26 Hazard Analysis

Sr. No.	Hazard	Check if Community is prone to the hazard	Historical Data			
			Years of Occurrence	Frequency / Return Period	Category / Intensity	Duration
1.	Earthquake	YES	1967	Register in magnitude	2 to 3 times	5 to 10 seconds
2.	Tsunami	NA				
3.	Flood	YES	2005, 2007, 2008, 2010, 2013, 2016, 2019, 2021	During monsoon season heavy rain	3 to 5times	More than 18 hours
4.	Storm /Cyclone	YES	2009, 2020, 2021	11 Nov 2009, 03 Jun 2020, 16 May 2020	1	More than 72hrs
5.	Landslide	YES	2005, 2009, 2010, 2015	-	-	-
6.	Drought	-	-	-	-	-
7.	Accident (s)	YES	Every year	-	Limited	-
8.	Fire	YES	Every year	After monsoon	Continuous	4 months
9.	Others/ lightening	YES	Every year	Before Monsoon	Continuous	4 months

Table 27 Hazard Analysis - Historical Data

Disaster Type	Year						
	2017	2018	2019	2020	2021	2022	2023
Flood	6	4	31 (21 Tiware Dam Brust)	0	21	1	0
Landslide	0	0	0	0	21	0	0
Lightening	0	1	0	2	1	0	0
Cyclone	0	0	0	0	2	0	0
Earthquake	0	0	0	0	0	0	0
Cloudburst	0	0	0	0	0	0	0
Hailstorm	0	0	0	0	0	0	0
Other	4	0	1	3	0	0	1
Total	10	5	32	5	45	1	2

Table 28 Vulnerability Analysis

Sr.No.	Vulnerability Analysis	Answers
1	Result of hazard Analysis	
	What single or multiple hazards is the community faced with? Which are most significant? Referring to occurrence, frequency/return period, intensity and duration as well as exposure of affected families, how do these hazards compare?	Flood, Landslide, Cyclone
	Is there evidence of changing trends in the hazards, or new hazards emerging?	Unseasonal raining hail storm
2	Results of Vulnerability Analysis	
	What are the top five vulnerability of the community?	(1) Traditional conspires (2) Unawareness (3) Farmers
	Explain the vulnerability in relation to the identified hazards affecting the community, and how these make the community susceptible to those hazards.	Precanstoney measles & non structural mitigate
3	Results of Capacity Analysis	
	What are the top five capacities available in the community?	(1) Various resources (2) Experience (3) Trained manpower
	Resources ownership and how they increase the resilience of the community	It can be use only when the resources used right time
	Top five weakness and discuss them as part of another paragraph under vulnerabilities.	(1) Illiteracy (2) Risk taking psychology (3) weak constancy
4	To Mitigate, Prepare for and Respond to Disaster Impacts	1) Follow building codes 2) Take all precautions 3) Follow instruction of warning
	Given the Hazard Vulnerability Capacity Assessments identify the pressing assistance needed to reduce the vulnerabilities and increase the capacities of the community	(1) Training & capacity building is must (2) Community participation in disaster risk reduction (3) Avoid reparation of mistakes (4) Learn Full Experience

2.6.1 Major disaster episodes in the district

2.6.1.1 Case Study Cyclone

Particulars	Description
Type of Episode	FAYAN Cyclone
Location	Guhagar, Dapoli, Ratngiri
Date	11/11/2009
Reasons assigned for the events	-
Warning system used.	Wireless, Phone call message
Community response to warning system.	Good
Administrative response to warning system.	Good
Assessment of Administrative preparedness.	Good
Area affected (number of villages)	1100
Extent of damage	15.99 lakhs for the properties and Koyana Dam.
Number of lives lost	27 persons
Crop damage	-
Damage to houses	67houses
Loss of Cattle	
Damage to infrastructure (specify infrastructure)	15.99 Lakhs
Procedures followed for assessing of various types of damages the compensation norms used.	For assessing damages the officers in the rank of Tahsildars were appointed for For assessing damages in each revenue circles. Special post of Hon. Collector was created to look after the rehabilitation work in the district.
Organizational structure evolved to manage the emergency	Govt Agencies
Organizational Structure evolved to manage the emergency specify the key departments involved	Revenue and Agricultural machinery was pressed into service for drawing panchnamas of damage on various counts. The police, the Homeguards, PWD etc were Summoned to remove the debris & rescue those who were buried and injured. The health Dept. & various Social organisations volunteered to take care of those injured & needed medical help.
Nature of support from the State and Central authorities	From State Government: the state government has provided all technical, financial personnel support for temporarily settling the people immediately after the cyclone at safer place
Methods used for mobilizing resources, NGO/Community Response	During the relief and rescue operations various social organisations, provide help in term of personnel foodgrains, vehicles, daily belongings, money material for temporary settlements etc.

CHAPTER 3

INSTITUTIONAL ARRANGEMENTS FOR DISASTER MANAGEMENT

The disaster management will be more effective and sustainable if it is institutionalized. For this purpose Government of India has already passed The Disaster Management Act, 2005 Act No. 53 of 2005, on 23rd December, 2005, which has already been adopted by Government of Maharashtra in 2006.

The Government of Maharashtra, in exercise of powers conferred by the Act, has established the Maharashtra State Disaster Management Authority. The District Collector is overall in charge for the entire disaster management activities in the District.

As per Section 28 of the Disaster Management Act 2005, District Authority may constitute one or more Advisory Committee & District Disaster Management Committee for better implementation of disaster management activities in district.

3.1 District Disaster Management Authority (DDMA)

As per Disaster Management Act, 2005 the District Disaster Management authority consisting Chairperson and six members having Head Quarter at District level has been established. It acts as the district planning; coordinating and implementing body for disaster management and takes all measures for the purpose of Disaster Management in accordance with the guidelines laid down by the National Authority and the State Authority.

Table 29 District Disaster Management Authority (DDMA)

Sr.No.	Members	Designation
1	District Collector	Chairperson
2	President, Zilla Parishad	Co-chairpersons
3.	Additional District Magistrate	Member secretary
4	Chief Executive Officer, ZP	Member
5.	Superintendent of Police	Member
6.	District Civil Surgeon	Member
7.	Executive Engineer PWD	Member
8.	Executive Engineer Irrigation	Member
9.	Samadeshak, Home guard	Member

3.2. District Disaster Management Committee (DDMC)

Disaster is caused by various types of calamities and each calamity creates its own problems. To handle and solve all such problems, a well knit organization and trained man- power is required and team of high level officials required for managing the disaster. To minimize the effects of disaster, proper planning and coordination at the level of the Chairperson of the District Disaster Management Authority is must. Therefore, District Disaster Management Committee (DDMC) under the chairmanship of District Collector should be formed.

The Committee should meets once in a year under the chairmanship of the District Collector to review the overall mitigation and preparedness activities in respect of Disaster management in the district. Besides this, the Disaster Risk Management Programme also traced much to form Committees at the three levels with plans and task forces. A Disaster Management Committee exists to assist the Collector following aspects:

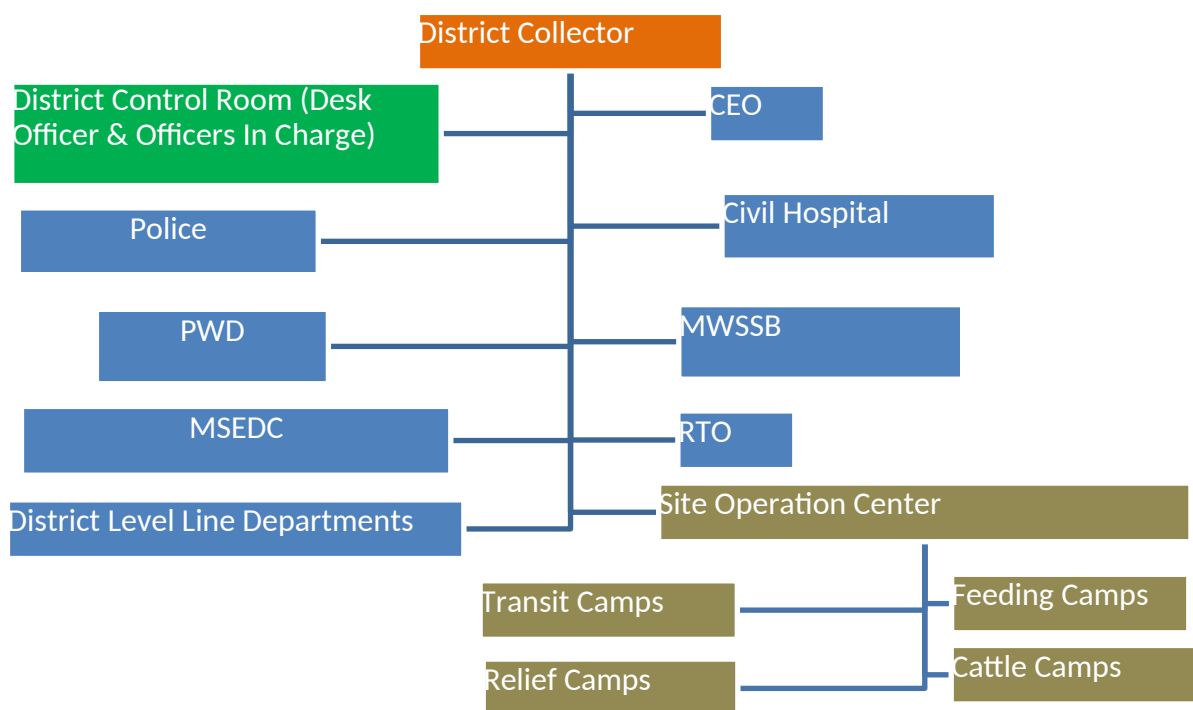
- Reviewing the threat of disasters
- Vulnerability of the district to such disasters
- Evaluating the preparedness
- Considering the suggestions for improvement of the response document DDMP

The Committee meets once a year under the chairmanship of the Collector and consists of the following functionaries

The District Collector	Chairman
The District Superintendent of Police	Member
The Chief Executive Officer, Zilla Parishad	Member
The Additional Collector	Member
The Resident District Collector	Member-Secretary
The Chief Fire Officer	Member
The District Health Officer	Member
The District Agriculture Officer	Member
The District Animal Husbandry Officer	Member
The Civil Surgeon	Member
The Executive Engineer, P.W.D.	Member
The Executive Engineer, Irrigation Department	Member
The Executive Engineer, Minor Irrigation Division	Member
The Executive Engineer, M.S.E.D.C.	Member

The Executive Engineer, MWSSB	Member
The District Education Officer	Member
The Divisional Manager, Railways	Member
The Regional Transport Officer	Member
The Regional Manager, M.S.R.T.C.	Member
The District Publicity Officer	Member
The District Supply Officer	Member
The Local Station Director, A.I.R.	Member
The Local Station Director, Doordarshan	Member
District Port Officer	Member
Ass.Commissioner, Fisheries	Member

3.3. Coordination Structure at Ratnagiri level



3.4. Agencies competent for issuing warning or alert

Disaster	Agencies
Earthquakes	IMD, MERI
Floods	Meteorology Department, Irrigation Department
Cyclones	IMD, Fisheries, Port
Epidemics	Public Health Department
Road accidents	Police
Industrial and Chemical Accidents	Industry, Police
Fires	Fire Brigade, Police

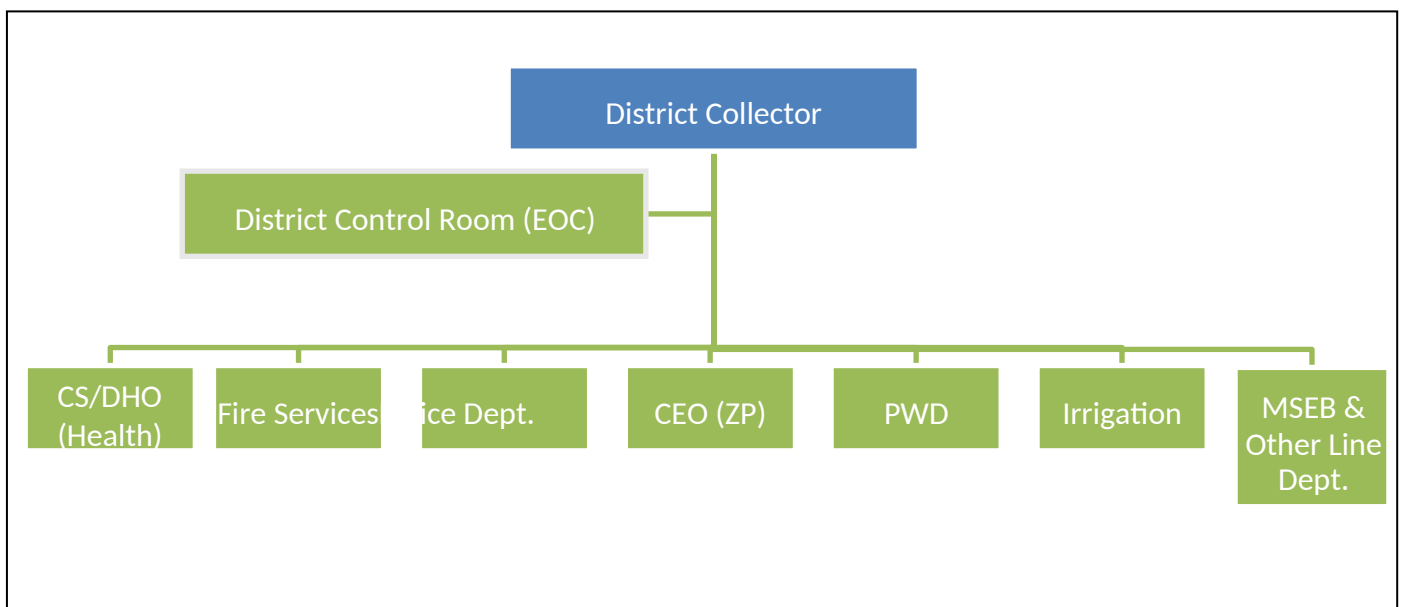
The warning or occurrence of disaster will be communicated to

- Chief Secretary, Relief Commissioner, Emergency Operation Center
- Office of Divisional Commissioner
- All district level officials, Municipal Councils
- The Officials of central government located within district
- Non-officials viz; Guardian Minister of district, Mayor, ZP Presidents, MPs, Local Defense Services.

3.5. Emergency Operation Centre

District Ratnagiri shall have Emergency Operation Centre (EOC) at District Head Quarter old building 1st floor. This Centre shall function round the clock and set up with sufficient manpower and with modern equipments. Considering the unique responsibility of the district Emergency Operation Centre, the equipments provided to it shall not be taken to any other purpose other than disaster management. This centre is intended to coordinate all disaster related activities in the district starting from preparedness to response and recovery.

There shall be permanent sitting place for each Emergency Support Functions (ESFs) in the EOC and they shall be provided with sufficient telephone and internet connections. Only the District Disaster Management Officer and his subordinates are to sit in the EOC and coordinate the disaster management activities in the district with their supporting agencies. There shall be dedicated telephone lines and other communication facilities in the Centre.



3.6. **Role of Emergency Operation Centre in Normal Time**

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

1. Ensure that all equipments in the EOC are in working condition
2. Collection of data on vulnerability of the various blocks and villages on routine basis from line departments for disaster management
3. Develop status reports of preparedness and mitigation activities in the district taken by relevant district level department and forward it to Government of Maharashtra and Divisional Commissioner office
4. Ensure appropriate implementation of District Disaster Management Plan
5. Update Inventory of Resources and data bank.
6. Update the District Disaster management Plan according to the Changing Scenario
7. Activate the trigger mechanism on receipt of disaster warning/occurrence of disaster in the District.

3.7. **Role of Emergency Operation Centre during Disaster**

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

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

- i. Chief Secretary, Revenue, GOM
- ii. All Emergency Support Functions
- iii. Members of DDMC
- iv. Hospitals particularly in the disaster area and other Hospitals of the District
- v. Office of Divisional Commissioner
- vi. Municipal Corporation Ratnagiri, local unit of the Defence Services
- vii. Emergency Operation Centre in the neighboring districts
- viii. National/State Emergency Operation Centre
- ix. People's representatives from the district

Apart from this the Emergency Operation Centre must arrange desks for the Emergency Support Function in its complex for better coordination and help. In the absence of Collector, Additional district Magistrate & Resident Deputy Collector will officiate and exercise all the powers and responsibilities as a responsible Office. On the receipt of warning all community preparedness measures and counter disaster measures would come into operation.

Further, the occurrence of the disaster would essentially bring into force the following:

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

1. Industrial Safety & Health
2. Health Department
3. Red Cross Society
4. Food & Supply
5. Police
6. Zilla Parishad
7. Municipal Authorities
8. Public Health
9. PWD
10. Transport Department
11. Irrigation
12. Fire brigade Department
13. Telecommunication

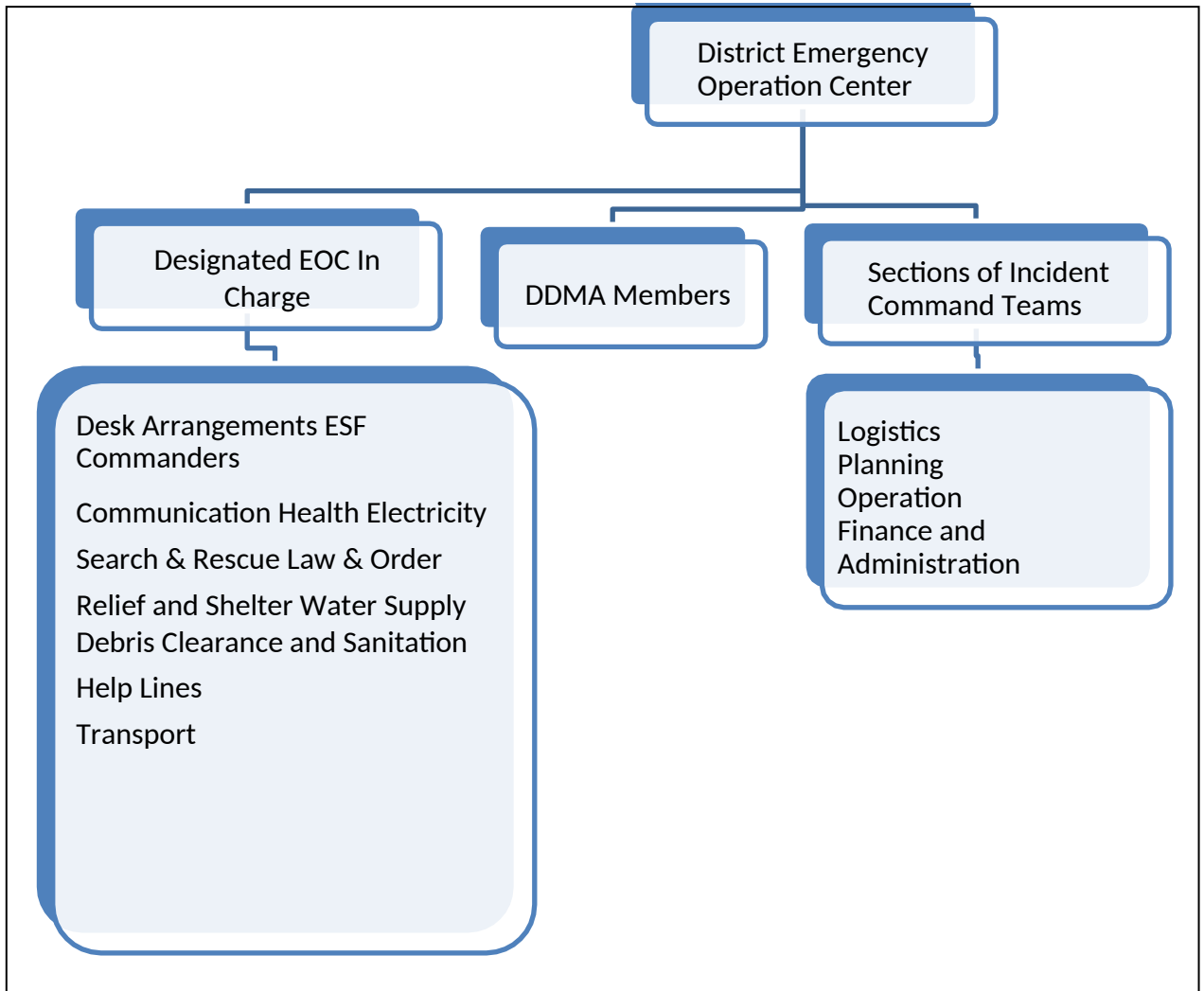
- Leave of all officer and staff working with the above organizations, as requisitioned by the Responsible Officer, would automatically stand cancelled and the organisation would direct their staff to report on duty immediately.
- The Responsible Officer may in case of large-scale disasters get in touch with the local Army/Navy/NDRF Batalion No. 5 Talegaon, Dabhade, Pune units for incidence response like rescue, evacuation and emergency relief measure.
- The Responsible Officer will have the authority to requisition resources, materials and equipments from private sector.

- The Responsible Officer will have power to direct the industry to activate their onsite plan and seek assistance, if required.
- The Responsible Officer will activate Response Plan with Operation Logistic and Planning Section desk arrangements.
- The Responsible Officer will authorize establishment of transit and/or relief camps, feeding centers and cattle camps through Operation and Logistic Section.
- An on-going wireless, communication and contact from the EOC, to the Operation Section Chief, Site Operations Bases, Transit Camps, Feeding Centre, Relief Camps and Cattle Camps will be activated.
- The Responsible Officer will send the Preliminary Information Report and Action Taken Report, as per the available information, to the Chief Secretary/ Director, DMU/ Principal Secretary, R & R and the Divisional Commissioner, Kokan Division.
- The Responsible Officer and his/her behalf will authorize immediate evacuation whenever necessary. In the event of possibilities of disaster in adjoining districts, including those beyond the state borders, the Responsible Officer will issue the alert warning to the concerned district authorities

3.8. Trigger Mechanism

As soon as Emergency Operation centre would get the information about any emergency, the staff on duty in EOC will pass the information the DC/RDC and seek for his instruction for further actions. If the information pertains to the occurrence of a disaster in any part of the district, the staff on duty will also try to inform DDMA members, Emergency Support Functionaries-team leaders, major Hospitals and State Disaster Management Authority etc. The staff on duty will also be responsible to reclaim information related to type, magnitude and location of the disaster and also inform it to responsible authorities. The EOC in-charge will also inform all the details to Divisional Commissioner and State EOC. All the desk officers/team leaders and Incident Command Team members will also be informed to immediately report at District EOC. Incident Command team and Desk officials would respond as per their standard operating procedures and directions of Incident Commander (IC).

Triggr Mechanism for Ratnagiri District:



CHAPTER 4

PREVENTION AND MITIGATION MEASURES

In disaster management cycle, preparedness and mitigation are the two important stages before the occurrence of disaster. It has a great importance in reduction of loss of life and property if proper preparedness and mitigation strategies are followed.

4.1. Preparedness

- This protective process embraces measures which enable governments, communities and individuals to respond rapidly to disaster situations to cope with them effectively.
- Preparedness includes the formulation of viable emergency plans, the development of warning systems, the maintenance of inventories and the training of personnel.
- It may also embrace search and rescue measures as well as evacuation plans for areas that may be at risk from a recurring disaster.
- Preparedness therefore encompasses those measures taken before a disaster event which are aimed at minimizing the loss of life, disruption of critical services, and damage when the disaster occurs. All preparedness planning needs to be supported by appropriate legislation with clear allocation of responsibilities and budgetary provisions.

4.2. Mitigation

Mitigation embraces all measures taken to reduce both the effect of the hazard itself and the vulnerable conditions to it in order to reduce the scale of a future disaster. Therefore mitigation activities can be focused on the hazard itself or the elements exposed to the threat. Examples of mitigation measures which are hazard specific include modifying the occurrence of the hazard, e.g. water management in drought prone areas, avoiding the hazard by siting people away from the hazard and by strengthening structures to reduce damage when a hazard occurs. In addition to these physical measures, mitigation aims at reducing the physical, economic and social vulnerability to threats and the underlying causes for this vulnerability. Proper preparedness and mitigation measures instantly helps to respond a disaster in time. So disaster wise preparedness and mitigation is highly required. These are normal time activities. A prepared community is the best community to minimize the loss and

damage caused by the disasters. Mitigation focuses on various ways and means of reducing the impacts of disasters on the communities through damage prevention. It is hazard specific including both structural and non-structural issues. It is also very strategic rather than the description of various methods of resistant construction technologies.

4.3. Preparedness and Mitigation Measures

Preparedness and mitigation measures towards various disasters certainly helps to reduce the risk as well as loss and damage of the life and properties caused by different disasters.

4.4 Mitigation Strategy

4.5 Preparedness Methodology

- Instead of waiting for a disaster to occur and then to manage it, this concept envisages to make people part of the management process.
- The plan contains a series of measures for preparedness in schools, colleges, hospitals, markets, malls, cinemas and all other vital institutions and ultimately the community itself.
- In a disaster management cycle, preparedness shall be the first step.
- People of a given area have to be guided to prepare their own coping mechanism.
- For this the district shall plan various activities and reach out to the local level.
- The DDMA/ESFs shall suggest apt and proper methodology for preparedness on regular basis.
- Modification in zoning for Irrigation & buildings codes
Promotion of Earthquake proof houses

4.6. Disaster Specific Mitigation Measures suggested

4.6.1 Earthquake

- Around one lakh old houses need to be retrofitted or reconstructed as per Zone IV norms.
- The Municipal Councils and Village Panchayats have to be suitably empowered to enforce Zone IV regulations for all new constructions at the time of granting permission.
- Gram Panchayats must be given adequate training in this respect.

- Control rooms should be available at Patan and Karad Talukas. These control rooms should be linked with existing Seismic Observatory at Satara and Koynanagar and equipped with communication facilities and required inventory for immediate response.

4.6.2 Floods

- Flooding frequency being relatively less, there isn't the need for relocation of the villages in downstream of Dhom, Koyna, Urmodi, Tarli, and Kanher Dam.
- Temporary shifting on onset of warning is the only necessary step required for which the safe sites have been identified.
- The names of the villages and the safe sites on village map have been included in the Action Plan prepared by the Irrigation Department

4.6.3 Fires

- Fire tenders with hydraulic system to reach up to seven floors should be provided to each Municipal Council at Ratnagiri district
- All fire tenders should be equipped with wireless sets.
- The bye-laws with respect to fire safety for all installation/constructions must be framed by the Municipal Councils and enforced.
- Adequate trained personnel for tackling fires must be available with the Municipal Councils.
- The procedural delay for moving outside municipal limits must be removed. The coordination authority for this can be respective nagarpalika's fire officer or chief officers.
- Community education programmes for fire safety should be carried out regularly.

4.6.4 Road Accidents

- There should be adequate sign-boards, speed-breakers and guard-stones on the accident prone spots.
- Traffic Aids post should be set up Kashedi – Lote – Chiplun – Hatkhamba – Khare Patan on NH-66, and Amba Ghat on NH-166, and Kumbhali Ghat – (Guhagar Chiplun Highway)
- The Civil Hospital must be upgraded to include a well-equipped trauma care centre.
- Ambulances must be provided to Police Control Room
- The heavy vehicle which wants to enter in city, it should be passed through by pass.
- Most of the tar roads in Ratnagiri district (approximately 300 kilometres) need resurfacing.

4.6.5. Epidemics

- Water quality monitoring should be strictly enforced in all Gram-Panchayats who are in charge of the water supply schemes.

- Bleaching powder should be adequately available with all Gram Panchayats.
- Filtration plants are essential in many rural water supply schemes.
- The source must be protected from contamination.
- Improper lying of bores must be rectified so as to stop the direct supply of raw water.
- The rural hospitals should be upgraded to include blood bank and surgical facilities

4.7. Mitigation Plan proposed by Ratnagiri district

- Ratnagiri district has proposed following projects under Mitigation.

Sr. No.	Details of Proposal	Year of Proposal	Amount (Rs.)
1	NCRMP Construction of Multipurpose Cyclone Shelters in 2 blocks (3 locations)	2015-16	9 Crore
2	NCRMP- II (Saline Embankment Dam, Lightening Arrestor System, Early Warning System, Under Ground Electricity Cabeling, Cyclone Shelter)	2020-21	912.96 Crore
3	NCRMP- II (Establishment of Control Room, Lightening Arrestor System, Under ground Electricity Cabeling, Training)	2021-22	783.92 Crore
4	Mitigation Proposal (Availability of Search and Rescue Items for department level, Installation of Wireless System for Revenue, Installation of Early Warning System in Vashishthi River, Implement "My School My Safety" in 3115 Schools)	2021-22	2.92 Crore
5	Mitigation Proposal 1. Saline Embankment Harbor - 25, Kharland - 08 2. Shelter Homes - 21 3. Under Ground Cabling	2023-24	703.57 Crore
6	Mitigation Proposal - Additional Proposal Saline Embankment - 40	2023-24	132.05 Crore

CHAPTER 5

DISASTER PREPAREDNESS PLAN

5.1 Preparedness

Preparedness measures towards various disasters certainly help to reduce the risk as well as loss and damage of the life and properties caused by different disasters. Preparedness, mitigation, response and recovery are four important phase of disaster management cycle. Preparedness serves as a temporal connector between the pre-impact and post-impact phases of a disaster event.

The district Plan for preparedness attempts to protect the lives and properties of the people of Ratnagiri from potentially devastating hazards by the implementation of an effective long term safety Policy. The initiatives under this plan lay down certain objectives and suggest definitive strategies leading to the achievement of goals in a set time frame. The ultimate goal for preparedness with respect to various hazards is to have prepared communities in a way that when the hazards strike, there is little or no loss of life; least number of injuries and the losses to property and infrastructure are not critical.

The strategies for hazard loss reduction aim at reducing losses in the event of a future occurrence of a hazard. Preparedness is typically understood as consisting of measures that enable different units of analysis—individuals, households, organizations, communities, and societies—to respond effectively and recover more quickly when disasters strike.

Preparedness efforts also aim at ensuring that the resources necessary for responding effectively in the event of a disaster are in place, and that those faced with having to respond know how to use those resources. In view of hazard analysis of the district it identified that Ratnagiri is traditionally a commercial and medium industrial centre. High ways and the railway line running parallel the way. Any major earthquake or fire/chemical explosion can affect district very badly.

Although various steps have been taken by the Ratnagiri administration but still a high degree of awareness and training is required to lay down an organization system within communities.

5.2 Components of District preparedness plan

As it is observed by the previous chapters that Ratnagiri is prone to various hazards and need to develop a preparedness plan for the community and administration itself.

There are three component of this plan.

These are:

- a) Components of Community Preparedness Plan
- b) Components of Administrative Preparedness
- c) Preparedness through Disaster Risk Management Programme

a) Components of Community Preparedness Plan

- i. **Physical Safety:** i.e. how safe community members are in view of the physical danger from these hazards? The parameters essentially try to measure how effective structural mitigation measures are e.g. resistance of building structures for earthquakes, availability of safe shelters and its capacity etc.
- ii. **Hazard awareness** i.e. awareness level about hazards which have a reasonably higher probability of occurrence
- iii. **Organization preparedness** i.e. how far the community is organized to face a disaster i.e. existence of committee at community level, task forces, volunteers of civil defence and other local volunteers , trained disaster management teams and Community disaster management plan etc.
- iv. **Infrastructure and services** which tries to measure current state of these services and how well restoring critical services as and when disruptions occur
- v. **Recovery ability** i.e. ability of the community members to recover from the impact of the hazard
- vi. **Physical environment** i.e. state of environment to face hazards e.g. Condition of subsurface aquifers and vegetation etc.
- vii. **Social capital** i.e. degree to which social networking and cooperation exists among community members.
- viii. **Psychological preparedness** i.e. how safe and prepared do community members feel in view of these hazards
- ix. **Cultural capital** i.e. cultural richness such as existence, recognition and use of traditional mechanism to cope with such disasters
- x. **Household preparedness** i.e. preparedness at a house hold members

b) Components of Administrative Preparedness

Administrative preparedness is also an important component which helps in reducing

relief and response time in a disaster situation.

Preparedness plan is based on below-given components.

1. Operation readiness of facilities, equipments and stores in advance
2. Maintaining response inventory of equipments and materials required for response
3. Assignment of responsibilities to agencies and organizations
4. Management training of crisis group members, desk officers and officers of respective departments likely to be assigned management duties
5. Specialized trainings of district disaster committee members, officials, community organizations through seminars and workshop
6. Training of taskforces
7. Raising community awareness
8. Improving response mechanism through conducting practice drills, etc.
9. Annual updating of District disaster management plan.

c) Preparedness through Disaster Risk Management Programme

For community preparedness point of view Disaster Risk reduction Programme of GOI-UNDP has been implemented in Ratnagiri district since June 2005. By positive results of these trial basis programme Government of Maharashtra has started a Maharashtra Disaster Risk Management Programme (MDRMP) from 2010. Under this programme various activities had been taken to prepare the community such as, Preparation of disaster Management plans, Standard operating procedures, Capacity building and training programs, mock drills of different disaster, awareness generation activities.

A specialized and trained officer appoints namely Shri. Ajay Suryavanshi designated as District Disaster Management Officer to run this programme in the whole District.

Commonly District Disaster Management Officer is known as DDMO.

5.3. Reliable Communication Systems

- Ratnagiri as fast growing district has well-established communication system but yet disasters like earthquakes has witnessed partial or total collapse of general communication system which delays flow of information from the disaster site consequently resulting delays in relief operations.
- Therefore, establishment of reliable communication also plays a very crucial role.
- Till now, Police Communication System has been found most suitable to rely upon.
- The plan also seeks for installation of satellite phones in the EOC for strengthened

communication system in all 35 district offices and state headquarters office.

5.4. Capability Analysis

5.4.1. Inventory and Evaluation of Resources

Inventory and evaluation of resources is necessary for assessing the capacity of the district to respond effectively to different types of disasters, and more specifically to the disasters that the district is specifically vulnerable to. During disaster, both governmental and non-governmental (including) private resources are planned to be mobilized. The list of resources available with the government and other agencies is given below. These will be updated from time to time.

5.4.2. Communication and Media

For monitoring, predicting and warning systems for specific disasters, the following departments and the technology is available.

Disaster	Monitoring stations	Monitoring Instruments	Warning Systems and Technology	Departmental Agency
Earthquake	Observatory at Satara and Koynanagar Tal. Patan	Seismic	Through Police, Wireless and Phones	Dist Controller
Floods	Irrigation dept.	Water Level	Phone, Wireless	Irrigation
Cyclones	Fisheries, PORT	Wind Speed	Phone, Wireless, Radio	PORT
Epidemics	PHC & Civil Hospitals	Health Laboratories	Phones, Wireless	Civil Surgeon/ DHO
Industrial Chemical Accidents	Industrial Safety and Health	Fire Brigade	Phone, Wireless	DISH
Fires	Municipal Corporation	Fire Brigade	Phone, Wireless	Municipal Council (all 9 in district)
Road accidents	Police Stations	Check Post	Phone, Wireless	Police

5.4.3. Mass Media

The Presence Media through different platforms are listed below :

Number of local newspapers	17
Number of radio stations	01
Number of TV transmission centres	--
Number of cable Operators	10

5.5. Administrative Preparedness

5.5.1. Control Room at the district

- There is a 24 x 7 Operational Control Room established at Collectorate with Wireless System connected to all Tahsil Headquarters.
- Also 24 x 7 Operational Police control room connected with District Control Room.

5.5.2. Community Education and Preparedness Programmes

- More than 20 local NGO working in Ratnagiri district.
- Majority NGO works in Capacity development at Community level for disaster preparedness and recovery measures during disasters.
- There good coordination between district administration and NGOs during disaster for response management in terms of Search and Rescue Operation, Shelter Management, Providing essential items to communities in affected area etc.

5.5.3. Measures taken for promotion of life/crop/property insurance

- Measures have been taken in earthquake areas for promotion of insurance for life, crop and property.

5.5.4. Preparedness Measures undertaken by Departments

In addition to the administrative preparedness measures, the district control room will receive reports on preparedness from the relevant district level departments and other departments, as per the details given below.

This will enable the District Collector to analyse the capabilities and preparedness measures of various departments and report on the same to the Emergency Operations Centre, Relief Commissioner and Divisional Commissioner.

5.5.4.1. Preparedness Checklist for Police

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

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

Reported by:

Designation:

Signature:

Date :

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

Reported by:

Designation:

Signature:

Date:

5.5.4.3. Preparedness Checklist for MSEB

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

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

Reported by:

Designation:

Signature:

Date:

5.5.4.4. Preparedness Checklist for Maharashtra Jeevan Pradhikaran (MJP)

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

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

Reported by:

Designation:

Signature:

Date:

5.5.4.5. Preparedness Checklist for Irrigation Department

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

Preparedness measures taken	Details /Remarks
The department is familiar with disaster response plan and disaster response procedures are clearly defined	
<ul style="list-style-type: none">• Orientation and training for disaster response plan and procedures undertaken• Special skills required during emergency operations imparted to the officials and the staff	
Reviewed and updated <ul style="list-style-type: none">• Precautionary measures and procedures• Theprecautions to be taken to protect equipment• The post-disaster procedures to be followed	
Flood monitoring mechanisms can be activated in all flood prone areas from first of June.	
All staff are well aware of precautions to be taken to protect their lives and personal property.	
Each technical assistant has instructions and knows operating procedures for disaster conditions.	
<ul style="list-style-type: none">• Method of monitoring and impounding the levels in the tanks evolved.• 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	
A officer has been designated as Nodal Officer for Disaster Management	
Sources of materials required for response operations have been identified	

Reported by:

Designation:

Signature:

Date :

5.5.4.6. Preparedness Checklist for Telecommunications

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

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

Reported by:

Designation:

Signature:

Date:

5.5.4.7. Preparedness Checklist for PWD

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

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

Reported by:

Designation:

Signature:

Date:

5.5.4.8. Preparedness Checklist for Agriculture Department

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

Preparedness Measures taken	Details/remarks
The department is familiar with disaster response plan and disaster procedures are clearly defined	
<ul style="list-style-type: none">• Orientation and training for disaster response plan and procedures undertaken• Special skills required during emergency operations imparted to the officials and the staff.	
Reviewed and updated <ul style="list-style-type: none">• Precautionary measures and procedures• The precautions to be taken to protect equipment• The post-disaster procedures to be followed	
Information provided to all concerned about the disasters, likely damages to crops and plantation and information about ways to protect the same.	
The NGOs and other relief organisations are informed about the resources of the department.	
A Officer has been designated as Nodal Officer for Disaster Management	
Sources of materials required for response operations have been identified	

Reported by:

Designation:

Signature:

Date:

5.5.4.9. Preparedness Checklist for Animal Husbandry Department

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

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

Reported by:

Designation:

Signature:

Date:

5.5. Public and Private Resources Inventory

Resources inventory consisting of manpower, transport, infrastructure and equipments for both private and public institutions including NGOs indicates the response capacity of the district. These have been given in the following tables.

Keeping the specific vulnerability of the district to earthquakes and floods the information has been analysed.

5.6.1. Infrastructure available

Considering the public and private resources, the capability of the district and the resource availability is summarised below.

5.6.2. Technology Support

- Video Conference link with Mantralaya via MSWAN/NIC available
- Police wireless communication accessible
- Telephones available in all Taluka headquarters

Table 30 Specialised Equipment available at district level

Specilized Equipment	Numbers	Department/organisation
Earth-moving equipment		Mechanical sub – division
Drilling rigs		Mech.Sub. Divi & G.S.D.A.
Mobile Cranes		Mech. Sub.Divi. & G.S.D.A
Mobile X-ray units		
Mobile Trauma Care Centres		
No. of Water tankers		Irrigation, Mech. Sub. Div PWD
No.of wireless sets	02352-222222	Police , Irrigation
No of Mobile Wireless sets	02352-222222	Irrigation, Rev.

CHAPTER 6

CAPACITY BUILDING AND TRAINING MEASURE

6.1 Training and Capacity Building

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

District Ratnagiri shall identify sensitization as one of the best tools to create awareness programme and preparation of Community Based Disaster Management planning. In this respect the DC NE shall organize a series of programmes for the community people, Resident Welfare Organizations and NGOs. There are organizations like Home Guards, NCC, NSS etc, which have hundreds of volunteers from each nook and corners of the district. The district must train their volunteers and the wardens of these bodies in the district, thus people from various corners will be trained and sensitized in disaster management and this can make a magnifying result.

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

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

CHAPTER 7

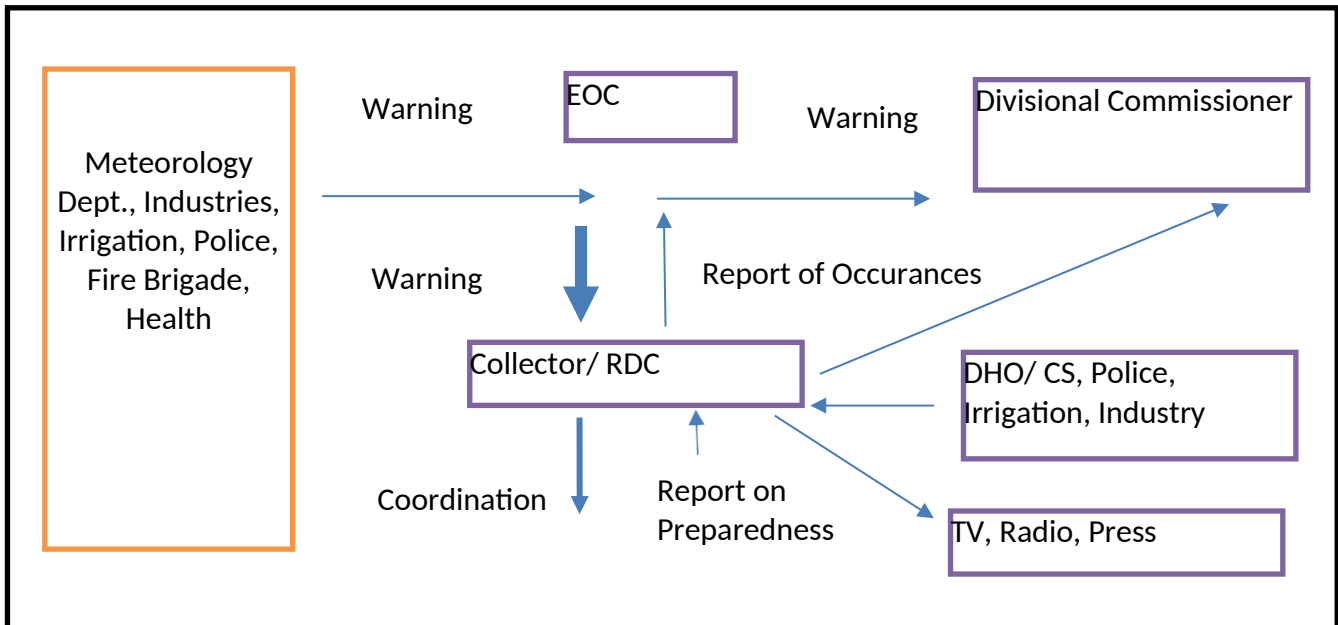
RESPONSE AND RELIEF MEASURES

The onset of an emergency creates the need for time sensitive actions to save life and property, reduce hardships and suffering, and restore essential life support and community systems, to mitigate further damage or loss and provide the foundation for subsequent recovery. Effective response planning requires realistic identification of likely response functions, assignment of specific tasks to individual response agencies, identification of equipment, supplies and personnel required by the response agencies for performing the assigned tasks. A response plan essentially outlines the strategy and resources needed for search and rescue, evacuation, etc.

Considering all this points, this response plan has been developed. For the first time IncidentCommand System (ICS) has also been introduced in response plan along with the resourceinventory that is directly linked to the website. In fact, during disaster the ICS managementtool will be more effective to handle the situation in proper way within limited time.

7.1. Response Structure during Warning Stage

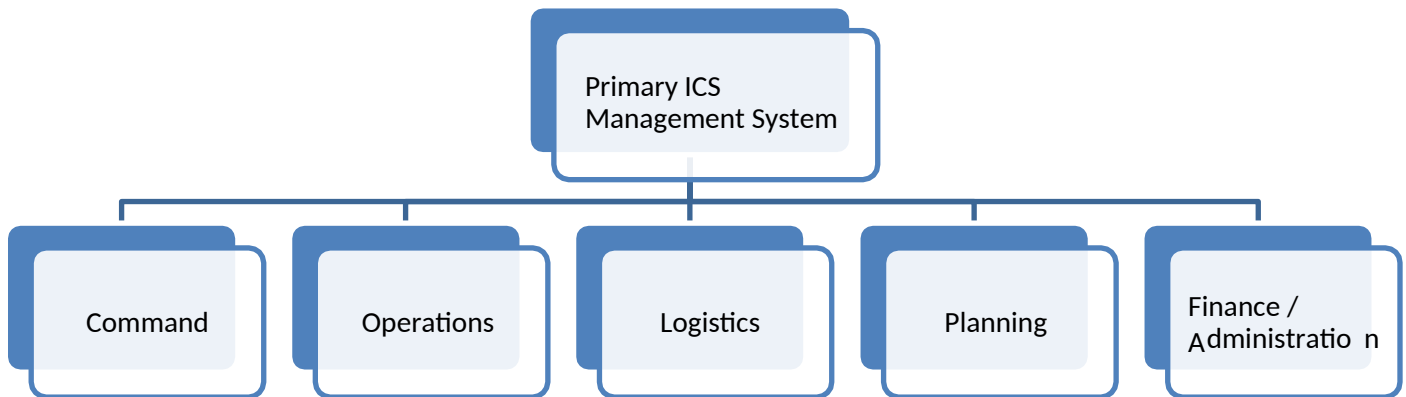
At district level, before the occurrence of disaster and immediately after the disaster, the district administration will activate the district control room so that proper information will be provided to the concerned authorities.



7.2. Incident Command System (ICS)

The Incident Command System (ICS) is a management system and an on-scene, all-risk, flexible modular system adaptable for natural as well as man-made disasters. The ICS has a number of attributes or system features. Because of these features, ICS has the flexibility and adaptability to be applied to a wide variety of incidents and events both large and small. The primary ICS management functions include:

- Command
- Operations
- Logistics
- Planning
- Finance / Administration



The ICS seeks to strengthen the existing disaster response management system by ensuring that the designated controlling/responsible authorities at different levels are backed by trained Incident Command Teams (ICTs) whose members have been trained in the different facets of disaster response management.

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

1. Incident Commander

The Incident Commander is responsible for all incident activity. Although other functions may be left unfilled, there will always be an Incident Commander.

2. Operations Section

Develops tactical organization and directs all the resources to carry out the Incident

Action Plan.

3. Planning Section

It is responsible for the collection, evaluation, and display of incident information, maintaining status of resources, and preparing the Incident Action Plan and incident related documentation.

4. Logistics Section

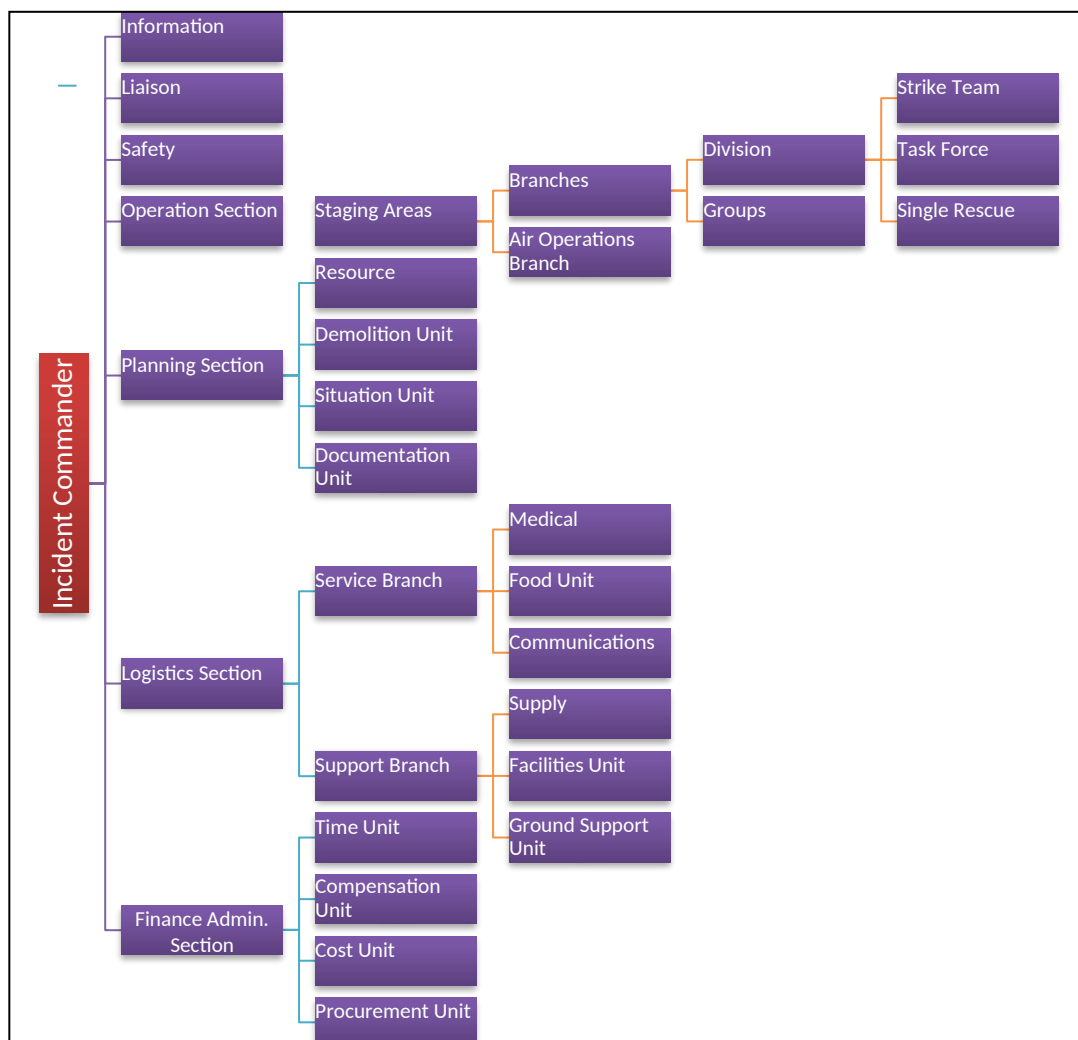
Provides resources and all other services needed to support the organization.

5. Finance / Administration Section

Monitors costs related to the incident, provides accounting, procurement, time recording, cost analysis and overall fiscal guidance.

7.3. Incident Command Organisation Chart

Chart 7 Incident Command Organisation Chart



7.4 Response Structure

Planning Assumptions

- The multi-disaster response plan takes a generic approach to disaster situations to identify information requirements along with communication, coordination, monitoring and institutional arrangements
- The overall response structure remains constant irrespective of the type of disaster
- The flow chart indicates the chain of command that should be set in motion in order to manage the disaster.

D.S.P. Ratnagiri and Supporting NGOS	Fire brigade, Civil Defense, Home guards and Supporting	Ex. Engg., PWD, Ex. Engg. MI and Supporting NGOS	SDO/ Tahsildars and Supporting NGOS	DHO/Civil Surgeon and Supporting NGOS	Ex. Engg MSEB and Supporting NGOS
Standby	Standby	Stand by & Alert	Standby	Stand by	Standby & Alert
Cordoning of area	Evacuation		Law and Order		
Evacuation			Local Warning area		
Traffic Mgmt.					

7.5. Involvement of Defence and Paramilitary Forces

At district level whatever help would be required during disaster that will be immediately informed to the various departments by the district collector and possible support of NGOs and other line agencies in the district would be tapped up. If the District Collector thinks that it cannot cope with the disaster then he can ask help from the defence and paramilitary force.

7.6. Important Contact Numbers

Name of Department	Reporting Office	Contact No.	
Navy	Maritime Operation Center, Mumbai	022- 2275192022751486	
	INS Shivaji (Lonavala)	02114 – 284304 /284862 Commodore-Harish Batra Mobile No. 7350018001	02114-284701
Air Force	Air Force Station Cotton Green	022 –23714982 / 4902 / 4947 Group Captain	-
Army	2 nd Maratha life Infentary, Pune	Captain Pawan Singh- 08283864213	-
Civil Defence & Home Guard	Civil Defence Head Office, Mumbai	022 – 2284 3667 /4171	-
	Civil Defence, Pune	020 – 26360041/26361072 /26360067	-
	Civil Defence, Nashik	0253 – 2573149	-
	Civil Defence, Kalyan	0251 –2313494 / 2317578	-
	Civil Defence, Thane	022 –25342288	-
	Civil Defence, Uran	022 –27222343 / 27221355	-
	Civil Defence, Tarapur	02525 –264677 / 78	-
	Home Guard Head Office, Mumbai	022 – 2284 2423 / 6941	-
Police	D.G.P. Control	022 –2202 6636 /2282 2631	-
Geological Survey Of India	Director, GSI, Pune	020 –26696489	020 – 26696489
NDRF	National Disaster Response Force	02114 – 247000	02114 – 281241
Coast Guard	Coast Guard , Ratnagiri	02352-224555	
Weather Forecasting Centre	Pune Forecasting Centre	020 – 25535211	
	Regional Meteorological Dept., Colaba	022 – 22150431	
Mantralaya Control Room	Mumbai	022 – 222027990 Mob - 9321587143	
Divisional Commissioner Office Control Room	CBD Belapur	022 - 27571516	

7.7. NDRF in Disaster Management

- Ministry of Home Affairs, Government of India National Disaster Response Force, has raised the National Disaster Response Force (NDRF).
- The two broad mandate of NDRF is to undertake search and rescue operations during disaster and conduct training and capacity building programme during peace time.
- One of the battalions of NDRF is stationed at Talegaon, Pune and Maharashtra is one of its operation areas.
- During disaster, the NDRF may be called for search and rescue operation while services of NDRF can also be utilized for conducting capacity building and training programmes for different response groups.

The contact details are:

**Office of the Commandant
5th Battalion NDRF,
Sadumbare, Pune (MH) MO – 79423506765
C/Room-02114-247000
FAX-02114-247008**

7.8. Temporary Shelter Management

In many emergencies, local authorities would set up public shelters in schools, municipal buildings and places of worship. While they often provide water, food, medicine and basic sanitary facilities.

In Ratnagiri district during emergency, for shifting of people in temporary shelter such as Zilla Parishad Primary Schools and Private School, Community Hall in respective taluka level which are in safe area and other necessary arrangements provided through district administration.

Living In Designated Emergency Shelters

Stay in shelter until local authorities say it's safe to leave
Restrict smoking & ensure smoking materials are disposed off safely
Cooperate with local authorities & others staying in shelter
Listen to radio broadcasts
Watch out for fires
Assist local authorities & volunteers in management of water, cooked food and other relief supplies including medical care, if required.
Make arrangement for pets and cattle before going to a public shelter
Organize recreation for children.
Assist local authorities with the assistance of community members to maintain law and order.
Immunize the population against epidemics.

7.9. Rapid Damage Assessment and Reporting

- Rapid Damage Assessment Team should be set up immediately after the disaster.
- It should include Z.P. members, agricultural officer to assess the crop damage, executive engineer of PWD to assess the damaged houses, S.P to maintain the law and order situation, NGOs and volunteer organizations, Tahsildar, etc.
- This team may immediately assess the damage undergone due to disaster and report it to the concerned department to get the immediate relief material from the government and also the foreign aid.
- Damage assessment procedures are required to avoid litigations and delays in gratuitous relief and compensation, including insurance.

7.10. Communication

- Sending all Out-Messages on behalf of Camp Officer of the Relief Camp. Data collection, record keeping, assistance in locating missing persons, information center, organization of information for Site Operations Center and on specific demands, maintaining In-Message and Out-Message register.
- In addition, the following facilities are available in the communication room:
 - a. Telephones
 - b. Fax
 - c. Intercom units
 - d. VSAT connection
 - e. PC with modem and printer
 - f. Mobiles
 - g. Photocopying machine
 - h. Wireless
- The media should handle such sensitive situation carefully as it may affect the victims mentally.
- It should issue the truest information as far as possible. Rumours should not be spread.
- The correct numerical data should be published so that the public is not misguided.

7.11. Law and Order

The Police Department shifts the people to the safer places. It helps to Revenue Department to carry out relief work without any hindrance during disaster period and safeguard the properties of the victim. It will arrange law and order against theft in the

disaster-affected area and co-ordinate with the search and rescue operation through NCC/VTF/NGO. It will also arrange for security at the relief camps/relief material storages. It is also responsible to maintain law and order at the time of distribution of relief material. It assists the authorities for evacuation of people to the safe places. It makes due arrangements for post mortem of dead persons, and legal procedure for speedy disposal. It specially protects the children and the women at the shelter places.

7.12. Public Grievances /Missing Persons Search

A committee at the district level has to be constituted under the chairmanship of the District Collector to address the grievances of the public regarding missing persons. The search and rescue team should search for the missing persons living or dead.

7.13. Animal Care

The animal husbandry departments with necessary equipments in case of cattle death are there in the affected areas for the disposal of carcass with a view to restoration of public life and result oriented work. Make arrangements to treat the injured cattle. To vaccinate the animals against various diseases. Arrangement for pets and cattle should be made separately.

7.14. Management of Deceased

The Carcasses Disposal team is responsible for the clearing of carcasses after the disaster. The team should put in all efforts to check spread of diseases by disposing off the carcasses at the earliest and in the right manner. The health department will immediately start the procedure for post mortem of the dead persons as per the rules. Disposal of dead bodies is to be carried to prevent the outbreak of epidemics. Arrangement should be made to issue death certificates of the deceased to the relatives.

7.15. NGOs & Voluntary Organizations

NGOs and voluntary organizations are the first to respond before any outside assistance can reach the disaster site. In certain disaster prone areas a group of young volunteers are being formed and trained to undertake essential tasks which would

reduce loss of life and property. NGOs and Voluntary organizations would contribute in the following areas:

- Ensuring communication links both within the community and with the administration.
- Controlling rumors and panic behavior and undertaking confidence building activities.
- Organizing local work teams for immediate rescue, and relief e.g. cooked food, first aid, and assistance in law and order.
- Assisting the handicapped that need special help.
- Guarding major installations and evacuated properties still the administration takes over.

Table 31 List of NGO's Ratnagiri District

Sr. No.	Name & Address	Contact person/s	Mobile
1	Reliance Foundation, Ratnagiri	Rajesh Kamble	9096539179
2	Raju Kakade Help Academy, Devrukh	Ganesh Jangam Yuyutsu Arte	9404851165 9422351926
3	Bhakar, Rtnagiri	Devendra Patil	7507795321
4	Parivartn, Chiplun	Ashok Kadam	9422430662
5	Dishantar, Chiplun	Seema Yadav	9850562818
6	Jiddi Mountainers, Ratnagiri	Dhirj Patkar	8390764464
7	Ratnadurg Mountiners, Ratngiri	Virendra Vanaju	9960977333
8	Bhandari Yuva Pratishtan, Ratnagiri	Amit Nagvekar	8668382437
9	Aniruddha Babu Academy, Ratnagiri	Prakash Surve	9421143774
10	Redcross, Ratnagiri	Shridhr Samant	02352 - 222362

7.16. PLAN ACTIVATION

The disaster response structure will be activated, on the receipt of disaster warning or on the occurrence of the disaster, with approval from the competent authority. The occurrence of disaster may be reported by the concerned monitoring authority to the Commissioner of Relief / SDMA by the fastest means. The Commissioner of Relief (CoR) will activate all departments for emergency response including the State EOC, District EOC and ERCs. Also, they will issue instructions to include the following details: Exact quantum of resources (in terms of manpower, equipment and essential items from key departments/stakeholders) that is required.

- The type of assistance to be provided
- The time limit within which assistance is needed
- Details of other Task/Response Forces through which coordination should take place

The State EOC and other control rooms at the State level as well as district control rooms should be activated with full strength.

The State Government may publish a notification in the official gazette declaring such areas to be disaster-affected area under applicable Act/ Rule etc.

Once the situation is totally controlled and normalcy is restored, the Commissioner of Relief declares end of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties.

Sr. No.	Emergency Management Function / Tasks	Function / Task Lead	Support function officer / agencies
1	Direction Control, Coordination	DM	DDO, SP, Resident Dy. Collector and Tahsildar
2	Information Collection, Analysis and Damage survey	DM	DDO, SP, Resident Dy. Collector (RDC), Tahsildar, DIC, Dy. DDO, Ex. Engr, R&B, DAO
3	Communication	RDC	Dy. Tahsildar, Mobile Operators, TV, Radio, Police, Forests, Fire
4	Alert and Warning	RDC / SP	EOC / Disaster Tahsildar, District Information Officer (DIO)
5	Transport (ESF, Evacuation, Relief Supply)	RTO / DTO	RDC, DDO, DSO, SP, DMHO
6	SAR (Search and Rescue)	SP / Civil defense/SDRF / NDRF	Fire, civil defense, Home Guards & SDRF (when magnitude of any disaster would be beyond coping capabilities of these response agencies: NDRF may be requisitioned for search & rescue operations.)
7	Emergency Public Information	DIO	EOC / Police/ Transport/ Forest
8	Law and order /Public Protection	SP	Dy. SP, Home Guards Commandant, NGOs, Para-military and Armed Forces
9	Public Works	Ex. Eng.	Irrigation, Ex. Engr., Panchayat, NGOs, Water Supply Board, Municipalities, Home Guards, Police
10	Mass Care / Emergency Assistance /Shelters	Dist. Primary Education Officer	School Principal, Teachers, Health,PHC, State Transport, Water Supply, RTO, Tahsildar, TDO
11	Health and Medical Services, Psycho social	District Health Officer (DHO)	Supt. Govt. Hospital, Municipality, PHCs, CHCS, Red Cross, Fire Brigade, Civil

	care		Defense, R&B, NGOs, Doctors, TDO, Tahsildar
12	Animal Health& Welfare	Dy. Director Animal Husbandry	Veterinary Inspector, NGOs
13	Water Supplyand Sanitation	Ex. Eng. WaterWorks	Dy. Ex. Engr., Talati, Tahsildar,TDO, Health, Dy. Engineer
14	Power	Supt. Engr. Electricity board	Ex. Engr., Dy. Engr. Technical EB, Transport
15	Resource Management (Including food and relief supplies and other) Logistic support	DDO	RTO, DSO, Private & Public Sector, Municipal Water Supply Board, Tahsildar, N.T. Supply

CHAPTER 8

RECONSTRUCTION, REHABILITATION AND RECOVERY MEASURES

Rehabilitation and reconstruction comes under recovery phase immediately after relief and rescue operation of the disaster. This post disaster phase continues until the life of the affected people comes to normal. This phase mainly covers 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, awareness and capacity building, housing insurance, grievance redressal and social rehabilitation etc.

8.1 Post Disaster Reconstruction and Rehabilitation

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

- 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

8.2. Administrative Relief

The district is the primary level with requisite resources to respond to any natural calamity, through the issue of essential commodities, group assistance to the affected people, damage assessment and administrating appropriate rehabilitation and restoration measures. The district level relief committee consisting of official and non-official members including the local legislators and the members of parliament review the relief measures.

Ratngiri district is sub-divided into 5 sub-division. The head of a subdivision is called the Sub-Division Officer (SDO) while the head of a Tehsil is known as a Tehsildar. When a disaster is apprehended, the entire machinery of the district, including the officers of technical and other departments, swings into action and maintains almost continuous contact with each village in the disaster threatened area.

8.3. Reconstruction of Houses Damaged / Destroyed

Houses should be reconstructed in the disaster hit areas according to the following Instructions:

- Public Private Partnership Program (PPPP)
- Under the PPPP the houses are reconstructed by the NGOs for the beneficiaries to be registered in the joint names of the husband and wife.
- All the houses should be insured.
- Owner Driven Reconstruction
- Financial, technical and material assistance provided by the government.
- The designs for seismic reconstruction of houses provided by the government.
- The material assistance provided through material banks at subsidized rates.
- Design of 20 model houses provided to the public to choose from with an option to have one's own design.

8.4. Military Assistance

If the district administration feels that the situation is beyond its control then immediate military assistance could be sought for carrying out the relief operations.

8.5. Medical Care

Specialized Medical Care may be required to help the affected population. Preventive medicine may have to be taken to prevent outbreak of diseases.

8.6. Epidemics

In the relief camps set up for the affected population, there is a likelihood of epidemics from a number of sources. The strategy should be to subdue such sources and immunize the population against them. The public health centers, health departments can practice vaccination drives, public awareness to drink boiled water, use chlorine tablets to purify the water sources.

8.7. Corpse Disposal

Disposal of dead bodies is to be carried out as a part of the operation to prevent outbreak of epidemics. Minimum official requirements should be maintained as it is a very sensitive issue.

The following points may be considered by the concerned authorities at the time of corpse disposal:-

1. Mass photographs of corpses
2. Consent of the relatives or hand over to them
3. Make a panchnama of concerned localities

8.8. Salvage

A major effort is needed to salvage destroyed structure and property.

Essential services like communications, roads, bridges, electricity would have to be repaired and restored for normalization of activities.

8.9. Outside Assistance

During disaster situations, considerable relief flows in from outside, thus there is an immediate need to co-ordinate the relief flows so that the maximum coverage is achieved and there is no duplication of work in the same area.

8.10. Special Relief

Along with compensation packages, essential items may have to be distributed to the affected population to provide for temporary sustenance.

8.11. Information

Information flow and review is essential part of the relief exercises. Constant monitoring is required to assess the extent of damage, which forms the basis of further relief to the affected areas.

8.12. Children

- Orphaned children are fostered.
- Day centers set up
- Orphanages established.
- Child help lines established.

8.13. Paraplegics

- Pension scheme introduced for paraplegics.
- Physiotherapy under continuous supervision of doctors.

8.14. Old Persons

- Aged persons given pensions.
- Old Age Homes established.

8.15. Women

- Pension sanctioned.

CHAPTER 9
BUDGET AND FINANCIAL/ ARRANGEMENTS RESOURCES
FOR IMPLEMENTATION OF DDMP

Disaster management in the present form is a new subject both to the government as well as the general public. The already existing calamity relief fund in the Central and State level as well as the other allocations are nominal to cater the need of increasing devastations. In the case of the Ratnagiri, even calamity relief fund is not available.

Fortunately, the concept is developing such a way that the Planning Commission has conceptually agreed to have an exclusive mechanism to fund and to monitor the financial arrangements of disaster management.

9.1. Recommendation by 13th Finance Commission

The 13th Finance Commission (2011-2014) has responded very positively to the long pending request for greater allocation of fund for disaster management. The finance commissioner suggested various recommendations to solve the issue in state and district level.

Every state has a State Calamity Relief Fund (CRF) for immediate action after math of a disaster. There is police modernization fund, which is utilized mostly to modernize the police department to fight against disaster. An alternative mechanism is to be constituted in all the districts of Ratnagiri to tackle the disasters. As the 13th Finance Commission recommends it, State of Maharashtra shall Rupees Five crore has been given to state.

9.2. District Calamity Relief Fund (DCRF)

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

9.3. State Allocations

Section 46 to section 49 of Disaster Management Act, 2005 seeks to provide for the constitution of the following funds:

- Section 46 - Constitution of National Disaster Response Fund
- Section 47 - Constitution of National Disaster Mitigation Fund
- Section 48 - Seeks to provide for the establishment of State & District Disaster Response Fund and Disaster Mitigation Funds.
- Section 49 - Seeks to enjoin upon every ministry or department of Government of India to make provision of funds in its annual budget for the purposes of carrying out the activities or programmes set out in its Disaster Management Plan.

9.4. District Allocations

The district authority gets 100% financial assistance from Govt. of Maharashtra for carrying out various activities such as sensitization programmes, trainings, street plays, mock drills etc.

9.5. District Disaster Mitigation Fund (DDMF)

The district authority have District Disaster Mitigation fund. It shall be provided by the government of maharashtra for structural mitigation through pilot projects and for non structural mitigation such as sensitization programmes, trainings, awareness programs do's and don't, preparation of taluka, village and District level Disaster management plans mock drills etc. DDMA Ratnagiri have a separate bank account for this fund and it has operated by District collector and Account Officer.

CHAPTER 10
PROCEDURE AND METHODOLOGY FOR MONITORING EVALUATION, UPDATION
MAINTENANCE AND DISSEMINATION OF DDMP

In order for the DDMP to be effective it would be disseminated at two levels

- To the district authorities, government departments, NGOs and other agencies and institutions within the district and
- To general public awareness

Effective dissemination of plan requires a well designed and focused training and awareness programmes. The responsibility for dissemination of the plan is vested with the District Disaster Manager, at the Collectorate, and training activities will be carried out under the guidance and direction of YASHADA, as well as through awareness programmes organised by each of the agencies participating in disaster management such as Irrigation Department organizing warning and evacuation exercises or Fire Brigade demonstrating rescue operations. The District Disaster Manager would also involve NGOs in preparing suitable public awareness material to be distributed to the public. The specific NGOs to be involved in the exercises are given below.

The training programmes will be organised for different levels of functionaries. The district level officials and identified NGOs, Private Sector organisations will receive the training at YASHADA under their Training of Trainers (TOT) programme in order to equip them to extend training facilities to functionaries at taluka and village level as well as organise simulation exercises within the community. Some of the select government training institutions at the district level will participate in such TOTs and undertake training programmes for government functionaries. Efforts will be therefore directed to decentralize training activity to the extent possible so as to enable YASHADA to serve as resource centre and provide training expertise to various groups.

The materials for awareness programmes at community level would be prepared in the local language to ensure widespread dissemination. Media would be extensively used for public awareness programmes. These will include

- Newspapers Including Local Ones
- TV
- Local Cable Networks
- Radio
- Folk Media
- Publicity Material etc.

Schools, colleges and other public institutions would be specifically targeted. In addition to dissemination of literature related to the DDMP, disaster response drills should be conducted on a regular basis especially in the disaster prone areas to maintain the readiness of communities and departments as regards operational procedures, personnel and equipment and orderly response.

Local agencies with such as fire, police and ambulance staff would be familiar with the disasters possible in an area. Mutual aid organizations and public emergency response organisation would be included in these drills.

The objectives of full scale drill include evaluation of the following:

- Practicality of the plan (structure and organization)
- Adequacy of communications and interactions among agencies and the public
- Emergency equipment effectiveness
- Adequacy of first aid and rescue procedures
- Adequacy of emergency personnel response and training
- Public relations skills
- Evacuation and count procedures

10.1. Plan Evaluation

The purpose of evaluation of DDMP is to determine

- The adequacy of resources
- Coordination between various agencies
- Community participation
- Partnership with NGOS

The ease of understanding and using the plan will also be important considerations.

The plan will be updated when shortcomings are observed in

- Organizational structures
- Technological changes render information obsolete;
- Response mechanism following reports on drills or exercises;
- Assignments of state agencies

Adaptation, improvisation and optimization are corner stones of any planning pertaining to disasters. It must be emphasized that the Documents or Manuals as disaster

management plan have a limited purpose. These can at best serve as reminder of tasks and activities.

Individuals and agencies assigned specific responsibilities within this plan will prepare appropriate supporting plans and related standard operating procedures, periodically review and update alerting procedures and resource listings, and maintain an acceptable level of preparedness.

The DDMP would be evaluated by both the district and the state.

10.2. Post-Disaster Evaluation

A post –incident evaluation would be done after the withdrawal of relief and rehabilitation activities in order to asses.

- The nature of state intervention and support,
- Suitability of the organization structure,
- Institutional arrangements,
- Adequacy of operating procedures,
- Monitoring mechanisms,
- Information tools,
- Equipment,
- Communication system, etc.

The impact studies on the above operations for long-term preventive and mitigation efforts are also be undertaken.

At the community level, evaluation exercises may be undertaken to assess the reactions of the community members at various stages in the disaster management cycle to understand their perceptions about disaster response in terms of

- Adequacy of training,
- Alert and warning systems,
- Control room functions,
- Communication plans
- Security,
- Containment,
- Recovery procedures,
- Monitoring

10.3. Plan Update

The DDMP is a “living document” and the DDMO will update it every year under the guidance of Collector along with YASHADA the resource requirements, taking into consideration.

- Updates on human resources
- Technology to be used
- Coordination issues

As annual conference for DDMAP update will be organized by the Collector. All concerned departments and agencies would participate and give recommendations on specific issue.

The following guidelines would be adhered to while updating the DDMAP:

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

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

CHAPTER 11

COORDINATION MECHANISM FOR IMPLEMENTATION OF DDMP

11.1 Preparation and Updation of DDMP

District Disaster Management Plan for the Ratnagiri is a public document. It is neither a confidential document nor restricted to any particular section or department of administration. The underlying principle of disaster management is that it has to be part of all departments and none can fold fingers against it. The District Disaster Management Plan is the sum and substance of the *Horizontal and the Vertical* disaster management plans in the district. Horizontal plans included plans prepared by line departments such as Police, Fire Service, MCD, Irrigation and Flood Control, Civil Defence, Department of Food and Civil Supplies, Public Works Departments etc where as the Vertical plan includes Sub Divisional Plans, Community Plans, School/Hospital plans and all other logical units' plan at the lower level and State disaster management plans and National disaster management plans at the higher level.

- Preparation of plan is the ultimate responsibility of the District Disaster Management Committee (DDMA or the person / sub committee appointed by the DDMA in the district. The first draft plan is to be discussed in the DDMA and later the Chairman of the DDMA shall ratify it.
- The same procedure is to be followed in updating of the plan document. The District plan is to be updated biannually by the District Disaster Management Committee or the sub committee appointed by the DDMA. In order to update the document, all Vertical and Horizontal plans shall be collected and incorporated to the District Plan.
- After each biannual updation of the DDMP, version number shall be given serially. A copy of the updated document shall be circulated to each stakeholder of disaster management in district.

11.2. Regular Updation of DDMP

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

data to an online system or shall be documented properly.

11.3. Post Disaster Evaluation Mechanism

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

11.4. MEDIA MANAGEMENT

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

1. Along with information dissemination to the vertical and horizontal agencies, press people also shall be called and given preliminary data based on assessment. This shall reduce the guesswork of the media people.
2. Only the state owned electronic, print media should be taken to the site. More people mean more confusion and hazard in disaster management.
3. In every one hour or so the Incident commander shall give press release in order to control false information to the outside world.
4. No media shall be allowed to air or print pictures of dead bodies with worst condition.

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

CHAPTER 12

STANDARD OPERATING PROCEDURES (SOPs) AND CHECKLISTS

12.1 SOP for Revenue Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Revenue Department	<ol style="list-style-type: none"> 1. A map of disaster prone areas in the district, history of district, geographical conditions occupational details, settlements, rain, irrigation and industries etc. 2. Safe alternative routes to utilize during disaster in the disaster prone areas. 3. Key officers of all the departments, staff, vehicles and buildings. 4. Details of control room arrangement. 5. Details of geographical groups & assignment of Zonal Officer. 6. Details of food grain storage places in the district and the Fair Price Shops. 7. Details of vehicles, boats and equipments available in the district for rescue operation. 8. Setting up of communication to communicate the messages from village to village. 9. Details of operating systems for District Disaster Management Committee. 10. List of NGOs and self help groups, their addresses & phone numbers in district as per prescribed annexure 11. Orientation Training to various district level officers & departments for effective functioning of control room, coordinations & operations. 12. Details of salt pan workers and 	<ol style="list-style-type: none"> 1. Review the alarming situation in the meeting of DDMC. 2. Assigning the work as to what to be done by which officer in case the disaster hits. 3. Review and have co-ordination task 4. Alert and activate the functionaries' related to early warning and communication looking to the possibilities of disaster and will see that the messages are intimated to the members. 5. Distribution of work for operation of round the clock control room. 6. Arrange the vehicles with mikes and sound system for the areas of top priorities. 7. Instruct all the staff to remain present at their respective places. 8. Shifting the people living in low lying areas, seashores, and economically weaker people socially and economically backward families and houseless families to safeplaces. 9. Workout the arrangements for search and rescue operation, shifting of people and utilization of human resources as per necessity with the help of DMTs and local community through zonal officers. 	<ol style="list-style-type: none"> 1. Segregate villagers and areas victimized by the disaster and activate the DMTs 2. Start relief activities including emergency relief distribution and work out the strategy of damage assessment and provide the formats for the same and explain to all the staff members. 3. Guide team members about payments of relief accident to damage as per the rules and policies of government before the start of duty. 4. Make arrangements for the transportation and distribution of Govt. relief amount and materials. 5. Make due arrangements to see that there should be no haphazard distribution of relief material so that needy people are not deprived of it. 6. Arrange for drinking water and essential things at community kitchen / relief camps as per the necessity. 7. Work out the primary estimates of the damage. 8. Undertake the rescue operations to save the trapped

	<p>fisherman who can become the victims of Disasters & sufficient arrangement to contact the owners of saltpan.</p> <ol style="list-style-type: none"> 13. Special appointments of persons in charge of control room. 14. Hazard analysis, seasons, possibilities of disasters and review of disaster history. 15. Review of disaster prone areas, risks, response plan, resource & utility of resources and equipments. 16. Strategy for disaster management 17. To update the DDMP. 18. To check the condition of safe shelter during his visits in the district places and if necessary gets it repaired by co-ordinating with the local authorities, available financial resources and voluntary organizations. 19. Repairing of roads and ways leading to safe shelters by co-ordinating with various development plans/schemes. 20. Evacuation plan as a part of DDMP. 21. To undertake development projects like rural housing, scarcity of relief works, disposal of rain water and water conservation and water harvesting. 22. To co-ordinate scheme for poverty eradication, self-employment and the schemes of other departments. 	<ol style="list-style-type: none"> 10. Arrange for temporary shelter for the people evacuated by giving the warning in advance. 11. Provide the vehicles to shift the people to the safer place when necessary. 12. Undertake the operation of forceful evacuation of people if they are not ready to leave even after warning. 13. Arrange for food, drinking water, medicines at temporary shelters and relief camps with the help of local NGOs, doctors, industrial houses, etc. 14. Make in advance preparations for relief activities through local NGOs, industrial houses, and donors over and above normal norms of the relief. 15. Work out the financial estimates for search and rescue and immediate relief. 	<p>people through DMT strained police personnel and swimmers on need base.</p> <ol style="list-style-type: none"> 9. Requisite more vehicles for rescue work, shifting the people to temporary/ permanent dispensary for treatment through DMTs, NCC, Home Guards, Local Police, and Para Military Forces etc. 10. Arrange for identification of people, who died, maintain the dead bodies till legal procedure is over.
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12.2 SOP for Police Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Police Department	<p>The Superintendent of Police will co-ordinate the work of disaster management as nodal officer. He will prepare a separate and comprehensive plan of district regarding the department of police and also prepare details of resources as a part of DDMP. He will consider the following in it.</p> <ol style="list-style-type: none"> 1. Details of contacts of all the staff members under the district. 2. Maps & statistical data of district areas. 3. Resources and human resources useful at the time of disaster. 4. Details of police staff and retired officers/staff of the police & control room. 5. Details of functions of staff of district control room. 6. Appointment of the nodal officer in control room. 7. Traffic arrangements towards disaster affected areas. 8. Details of anti social elements. 9. Security arrangements at relief camps & food storages. 10. Security for the transportation of relief material. 11. Immediate police procedures for human death. 12. To assist the authorities for evacuation of people from disaster affected areas. 13. Adequate equipments for communication. 14. List of swimmers. 15. Wireless stations in district & communication network. 16. To update related details of Disaster Management Plan. 	<ol style="list-style-type: none"> 1. Contact the district collector. 2. Make advance preparation to implement the action plan for search and rescue. 3. Prepare a plan for police personnel for search and rescue. 4. Arrange to communicate messages through all equipments of communication and vehicles as per the necessity. 5. Requisite vehicles after obtaining orders for the same from district authorities. 	<ol style="list-style-type: none"> 1. Arrange law and order against theft in the disaster affected area. 2. Coordinate the search and rescue operation through NCC/VTF/NGO. 3. Arrange for security at the relief camps/relief materials storages. 4. Monitor law and order is maintained at the time of distribution of relief material. 5. Assist the authorities for evacuation of people to the safer places. 6. Make due arrangements for post mortem of dead persons, legal procedure for speedy disposal.

12.3 SOP for Health Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Health Department	<p>While preparing the DDMP/ updating the same, health department shall take care to include following particulars</p> <ol style="list-style-type: none"> 1. A separate plan for disaster management regarding health 2. Arrangements for Information in control room. 3. Appointment of nodal officer 4. Advance arrangements for life saving medicines, insecticides & vaccines. 5. Maintenance of vehicles such as ambulance, jeep & other equipments eg. Generators etc. 6. Distribution of work by forming groups of staff during emergency. 7. List of private practicing doctors/medical facilities. 8. Arrangement for survey of disaster. 9. Mobile dispensary units. 10. Information regarding proper places for on spot medical services in various village during disaster. 11. Dissemination of information among people regarding death, injury. 12. Primary information of disaster related relief activities to all staff members. 13. Training to PHC/Community Health Centre staff to prevent spreading of diseases among people, animals & advance planning for the same. 14. Blood group wise list of blood donors with contact telephone numbers and addresses. 15. Training of DMTs regarding first aid. 16. To prepare an action plan for availability of equipments to be useful at time the of disaster management for medical treatment. 17. Co-ordination with various government agencies - schemes to meet necessity of equipment in emergency. 18. To see that all vehicles like ambulance, jeep & equipments like generators & equipment essential for health care are in working condition. 	<ol style="list-style-type: none"> 1. Ensure availability of important medicines, life saving medicines, insecticides and if necessary contact for additional supply. 2. 24 x 7 Operational control room at district level. 3. Send health staff for duty in their areas as per the plan of disaster management. 4. Activate mobile health units for post disaster situation. 5. Organize in advance to mobilize local doctors and local voluntary agency foremergency work. 6. Contact blood donors for blood donation, on the basis of lists prepared. 	<ol style="list-style-type: none"> 1. Provide first aid to the injured & shifting of seriously injured people to the nearby hospital 2. Send sufficient stock of medicines to the affected areas immediately. 3. Make arrangements for available additional health staff in affected areas deputed by the state authority. 4. Organize insecticides to prevent spreading of diseases. 5. Ensure purity of drinking water by testing the sources of water. 6. Depute mobile units for first aid. 7. Distribution of chlorine tablets and other necessary medicines from house to house. 8. Immediately start the procedure for post mortem of the dead persons as per rules.

12.4 SOP for Water Supply Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Water Supply Department	<p>The water supply dept. shall ensure the following to be included in the DDMP</p> <ol style="list-style-type: none"> 1. Setting up of 24 x 7 control room & arrangements for control room operator. 2. Assign responsibility as nodal officer to Executive Engineer or any other officer 3. Prepare an alternative contingency plan to provide drinking water in case of failure of regular water distribution system during disaster. 4. Detailed information of available water resources throughout district. 5. Arrangement of Govt. or private tankers to provide water temporary and immediately. 6. Preventive measures for water borne diseases and chlorination of water. 7. Availability of safe drinking water in the affected areas. 8. Inform the staff about the disaster. 	<ol style="list-style-type: none"> 1. Organize teams to check sources of water / drinking water. 2. Standby arrangements of tankers for drinking water through tankers or any other available source. 3. Will make available chlorine tablets in sufficient quantity and arrange to distribute through DMTs 	<ol style="list-style-type: none"> 1. Implement alternative contingency plan to provide drinking water in case of failure of regular water distribution systems during disaster. 2. Start work for immediate repairing of water pipes in case of damage. 3. Arrange to check the water tanks, overhead tanks, and pumps, reservoirs and other water resources. 4. Contact electricity authorities to re-establish electric supply in case of failures. 5. Provide chlorinated water either by activating group water supply schemes individual schemes or through tankers 6. Provide drinking water to relief camps / relief kitchens, shelters etc. through available resources.

12.5 SOP for Irrigation Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Irrigation Department	<p>The irrigation department shall carefully include the following particulars while preparing /updating the DDMP</p> <ol style="list-style-type: none"> 1. Contact address and phone numbers of all the staff / officers, vehicles and swimmers of the District. 2. Details of irrigation related factors in the district such as rivers, pools canals, large and medium dams, etc. 3. Control room arrangements and appointment of Nodal Officer. 4. Details of damage prone areas. 5. Location of water level gauge station for flood situation. 6. To disseminate information /warning to the damage prone areas in case of floodsituation. 7. Details of immediate action to be taken in case of leakage in large water storagereservoirs. 8. Supervision over major storage / reservoirs. 9. Very clear explanation of disaster and priorities during disasters to all the staff. 10. Effective working of control room at every major dam. 11. Enough and ultra modern equipments for communication. 12. Periodical checking of Dam /Waste veer, canal –tunnel, roads leading to Dams etc. for maintenance during normal time. 	<ol style="list-style-type: none"> 1. Ensure all communication equipments like telephone, mobile phone, wireless set& siren etc. are in working conditions. 2. Keep technical & non-technical staff under control, ready and alert. 3. Get status report of ponds, dam, canal and small dams through technical persons. 4. Take decision to release water in consultation with competent authority and immediately warn people living in low lying areas in case of increasing flow of water or overflow. 5. Keep alternative arrangements ready in case of damage to structure of dam/ checkdam to leakage or overflow in the reservoirs. 6. Make due arrangements to disseminate information about increasing & decreasing water level whatever it may be to community, media etc. 7. A senior office will remain and work accordingly at large storage reservoirs. 8. Arrange to provide dewatering pumps, generators, trucks and bulldozers, excavator, boats for search & rescue operations wherever required. 	<ol style="list-style-type: none"> 1. Obtain status of condition of all the reservoirs through teams of technical officers. 2. Ensure about no overflow or no leakage. 3. If overflow or leakage is found, start immediate action to avoid adverse effect to the reservoir as per the action plan. 4. If there is no possibility and risk, keep the people and media informed about “everything is safe”. 5. If overflow or any leakage is found, he will immediately warn the people living inthe low lying areas. 6. Take due care for the transportation of drinking water if drinking water is provided through irrigation scheme. 7. Assist the local administration to use boats, dewatering pumps, etc. search and rescue operations.

12.6 SOP for Agriculture Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Agriculture Department	<ol style="list-style-type: none"> 1. All the details of his subordinate staff with addresses and phone numbers & resources of irrigation for agriculture in all the villages. 2. Details of buildings, vehicles & equipments under his control & list of contractors with vehicles & equipments used by them. 3. Maps showing details of agricultural resource laboratory, seed center, agriculture training school with statistical data. 4. Details regarding agricultural production, extension, seed growth centers, agriculture university campus, training centers etc; 5. Action plan regarding the repair/alternative arrangement in case of agricultural production related facilities are disrupted. 6. Prepare the action plans to avail the technical, semi technical and administrative employees along with vehicles from near by district and taluka offices. 7. Inspect the sub-ordinate offices, other centers and sub-centers under his control, which are damage prone. 8. Prepare a sub-plan for timely and speedy availability of machines and equipments to restoration of the economic activities in case of loss of properties as well as crops. 9. Maintain the departmental equipments such as diesel generators, dumpers, generator, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, 	<ol style="list-style-type: none"> 1. Immediately contact District control room and will assist in the work assigned to him as a part of his duty 2. Ensure that the staff under this control is on duty at headquarters. 3. Assign the work to his subordinate officers and staff the work to be done regarding agriculture under DDMP and will send them to their sites. 4. Receive instruction from the district liaison officer and will take necessary action. 5. Ensure the availability of resources included in the DDMP and will make due arrangement to get those during emergency. 6. Make groups having vehicles for emergency work and will assign the areas to them. 7. Set up a temporary Control Room for the dissemination of information for emergency work and will appoint a nodal officer. 	<ol style="list-style-type: none"> 1. Follow the instruction of the District Liaison Officer. 2. Carry out the duty assigned to him for search & rescue work. 3. Deploy resources and manpower available to manage the disaster. 4. Review the matters regarding discontinuation of movement for safety measures and will see that it is restarted very soon. 5. Send DMTs with necessary equipments in case the crop is washed away, and if there is water logging in a very large amount. 6. Act in such a way that the human life is restored again speedily and timely in the priority areas. 7. Contact the circle office or central control room if machines equipments, vehicles, man power, technical personnel are required to restore the agricultural activities. 8. Make arrangement to avail the external helps to manage to disaster. 9. Collect the details of loss of crops to send it to the district administration. 10. Should have the details of village wise various crops in the district. 11. Prepare a primary survey report of crop damage in the area and will send the same to district control room and also to the administrative head

	<p>de-dusting equipments etc; which can be used during emergency and ensure every 3 months those are in working condition.</p> <p>10. Prepare a list of public properties related to agriculture in the damage prone areas and will in advance make arrangements to lessen the damage.</p> <p>11. Take due care to see that the emergency services at hospital, shelters, with special reference to agriculture are not disrupted.</p>		<p>12. Immediately put the action plan in real action during the emergency.</p>
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12.7 SOP for MSEB Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
MSEB Department	<p>While preparing a separate plan regarding M.S.E.D.C /Energy Department will prepare the list of available resource as a part of DDMP.</p> <ol style="list-style-type: none"> 1. Details of the staff members with their contact addresses & telephone numbers. 2. Maps showing the power stations, sub-stations, Diversification of Power units (DPs), transformers & major electric lines with detail information. 3. Other important details like water supply scheme depending on electricity, drainage systems, railway stations, bus-depots, ports, strategically important places, army, air force, navy camps, light houses, major hospitals check and ensure of electric supply during emergency. 4. Prepare action plan for repairs/ alternative arrangement in case of electricity disruption as part of DDMP. 5. Inspect at every 3 months power stations. Sub-stations etc; whiche damage prone. 6. The plan should include for timely supply of electric poles, D.Ps, transformers etc; at the time of line disruption. 7. To prepare an action plan for immediate procurement of required tools & equipments for restoration of electric supply on temporary bases. 8. To prepare a list of public properties related to M.S.E.D.C, which are in damage prone areas and will make advance arrangements to minimize damage. 	<ol style="list-style-type: none"> 1. To contact District Control Room and assist in their work. 2. To ensure that all the employees remain present on duty at the taluka head quarter. 3. To assign work to all officers/ employees related to M.S.E.D.C. 4. Ensure to make available the resources available and will establish contacts for the same to deploy those at the time of emergency, which are included in the DDMP. 5. To consult the District Liaison Officer to discontinue the supply in case of damage in the line or for the safety of the people and property. 6. To make groups having vehicles for the emergency work and will assign the areas. 7. To immediately set up a temporary control room in the office for dissemination of information during the disaster and will appoint a nodal officer from MSEDCE for this work. 	<ol style="list-style-type: none"> 1. To follow the instructions of district liaison officer. 2. To perform the duties assigned for the search and rescue work. 3. To deploy the resources and manpower required for the disaster management. 4. To dispatch the task forces with necessary equipments to the place where the electric supply is disrupted and ensures that the same is restarted at the earliest. 5. Contact the circle office or the Central Control Room of MSEDCE to procure the machines and equipments, vehicles, manpower, technical {personnel for restoration of the electric supply. 6. To utilize the external resources and manpower allotted to him in a planed manner for disaster management. 7. To immediately undertake the emergency repairing work as mentioned in the action plan. 8. To prepare a primary survey report regarding damage in the area and send the same to the district control room and to the own administrative head immediately. 9. To make temporary arrangement for electric supply to the places like hospitals, shelter, jail, police stations,



bus depots etc; with D.G. sets in.

12.8 SOP for Public Work Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Public Work Department	Details of the staff members with their contact addresses and telephone numbers.		
	<ol style="list-style-type: none"> 1. Details of buildings, vehicles and equipment as well as the names of contractors and the vehicles & equipment used by them. 2. Maps of the areas in the district with statistical data related to available resources. 3. The position of approach roads and other road of all the villages including bridges, railway crossing etc. 4. To strictly observe the rules during the constructions regarding earthquake and cyclone proof materials. 5. The PWD will inspect periodically the buildings, residences, high rise buildings under their control. 6. Damage prone road bridges and arrangement for their inspections 7. Action plan for emergency repairs. 8. Will appoint an officer of the rank of Assistant Engineer to coordinate during emergency at the District Control Room. 9. Will maintain the departmental equipments such as bulldozers, tractors, water tankers, dumpers, earthmovers excavator, de-watering pumps, generators, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters etc; which can be used during emergency and will quarterly check up these to ensure in working condition. 	<ol style="list-style-type: none"> 1. Immediately contact the District Control Room for assistance. 2. Ensure that all the staff members remain on duty at the headquarters. 3. Send the officers and the staff assigning them specific duties for the DDMP 4. Undertake all the action for the disaster management required to be done by the PWD after receiving instructions from district liaison officer. 	<ol style="list-style-type: none"> 1. Follow the instructions of the District Liaison Officer 2. Remain active for search and rescue activities 3. Provide all the available resources and manpower for disaster management. 4. Mobilize the service of technical personnel for the damage survey work to help the district administration 5. Prepare a primary report of damage in the affected area within 12 hrs /24 hrs looking to the emerging situation 6. Make arrangements for electricity, water, and latrines in the temporary shelters. 7. Inspect the approach roads leading to the temporary shelter and repair the same if so required.

12.9 SOP for Telephone Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Telephone Department	<ol style="list-style-type: none"> 1. Details of the staff members with their contact addresses and telephone numbers. 2. Details of buildings, vehicles and equipments including the contractors and the vehicles and equipments used by them. 3. Maps showing the details of telephone exchanges, D.Ps, important telephone lines, hot lines, telex lines, microwave towers with statistical data. 4. Details of telephone numbers of water supplies, Control Room, hospitals, drainage system, railway stations, bus depots, strategically important places, ports, Army, Air force, Navy camps, Jail, Police Station and other sensitive places, light houses, major industrial units, and other communication channels which can be used during emergency. 5. Action plan for repairs/alternative arrangement in case of disruption of telephone line and microwave towers. 6. Inspect the telephone exchanges/sub-exchanges in the damage prone area at every 3 months. 7. To appoint an officer not below the rank of telephone inspector to co-ordinate the district control 	<ol style="list-style-type: none"> 1. To contact the District Control Room and assist in the work. 2. To ensure that the staff are on duty at the headquarters. 3. To assign work to the subordinate officers as per the DDMP and send them to the sites. 4. To receive the instructions from the District Liaison Officer and to do the needful. 5. To ensure availability of resources included in the DDMP and establish contacts for the same during emergency. 6. To setup a temporary control room for the exchange of information for emergency work and will appoint a nodal officer. 	<ol style="list-style-type: none"> 1. To follow the instructions of District Liaison Officer. 2. To perform the duties assigned for search and rescue work. 3. To deploy the resources and manpower available to manage the disaster. 4. To review the situation regarding disconnected telephone lines due to safety measures and reestablish the communication network as soon as possible. 5. To send the Disaster Management Teams with the necessary equipments for restoration of the telephone lines speedily where the lines are disrupted and to such places, which are strategically important. 6. To make arrangements to obtain external help to manage the disaster. 7. To prepare a primary survey report of damage and to send the same to the District Control Room and also to the administrative head within 6 hours. 8. To arrange for temporary hotline services or temporary telephone connections at the District Control Room, hospitals, shelters, ports, jails, police station, bus depots, etc. 9. To immediately undertake the emergency repairing work. 10. To make an action plan to avail

	<p>room during emergency.</p> <p>8. To maintain the equipments such as diesel generators, dumpers, generator, cutters, tree cutters, ladder & ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, etc; which can be used during emergency and ensure every month that these are in working condition.</p> <p>9. To ensure that the telephone lines at the shelters, emergency hospitals, police stations, control room and other places of emergency services, which can be used during disaster, are not disrupted.</p> <p>10. To prepare a list of public properties related to telephone department which are in damage prone areas and will make arrangements to lessen damage.</p>		<p>immediately and timely, telephone poles, D.Ps, transformer to the established the communication system.</p> <p>11. To prepare an action plan to avail temporarily, technical personnel from the near by district, staff and vehicles from the district office which are not affected in consultation with the district authority.</p>
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12.10 SOP for Animal Husbandry Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Animal Husbandry Department	<ol style="list-style-type: none"> 1. Addresses of members with telephone numbers. 2. Details of veterinary centers, artificial insemination centers, veterinary dispensary, veterinary colleges's buildings, vehicles, mobile dispensaries and equipments and details of vehicles and equipments used often by out source. 3. Maps showing the details of animal breeding laboratories, animal vaccination centers, animal husbandry training school with statistical data. 4. Details of essential facilities to be provided at sensitive place such as important animal husbandry centers, veterinary college campus, training center etc; 5. Arrangement of repairs/alternative arrangements in case facilities related to animal husbandry and veterinary services are disrupted. 6. To make arrangements to necessary medicines, vaccines and other material, for treatment of animals. 7. To collect the details of cattle in each village of the taluka, details of safe places for the treatment of animal, milk dairies, other private veterinary doctors and facilities related to it. 8. To appoint an employee not below the rank of livestock inspector to coordinate the District Control Room during emergency. 	<ol style="list-style-type: none"> 1. To immediately contact the District Control Room and will assist in work. 2. To ensure that the staff is on duty at the headquarters 3. To assign the work to be done to the subordinate officers and staff & send them to their sites. 4. To receive instructions from the district liaison officer and do the needful. 5. To ensure the availability of resources included in the DDMP and will make necessary arrangements to obtain those during emergency. 6. To consult the Liaison Officer to prevent the probable epidemic among the cattle and also for the safety measures. 7. To make groups having vehicles for emergency work and will assign the areas to them. 8. To set up a temporary control room for the exchange of information for emergency work and will appoint a nodal officer. 	<ol style="list-style-type: none"> 1. To follow the instruction of District Liaison Officer. 2. To carry out duty assigned to him for search and rescue work. 3. To deploy available resources and manpower to manage disaster. 4. To review the matters to restart the milk collection activity where it has been closed for security measures. 5. To send DMTs with necessary equipments in case of cattle death are there in the affected areas for the disposal of carcass with a view to restoration of public life and result oriented work. To arrange to treat the injured cattle. 6. To contact the State Director of A.H. if additional equipments vehicles, manpower, technical personnel etc; are required for restoration of the cattle related activities.

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| | <ol style="list-style-type: none">9. To maintain the equipments available such as stands to keep animals, sharp instruments, insecticides, diesel generators, dumpers, generator, cutters, tree cutters,ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, de- dusting equipments etc; which can be used during emergency and will also ensure that they are in working condition.10. To see that essential services related to animal husbandry & Veterinary services are not disrupted at the time of emergencies.11. To prepare a list of public properties related to animal husbandry, which are damageprone areas and will make advance planning to lessen the damage. | | |
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12.10 SOP for State Transport Department

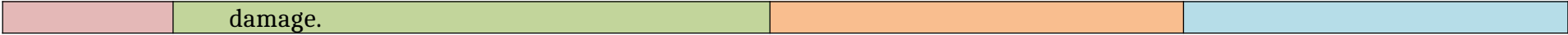
Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
State Transport Department	<ol style="list-style-type: none"> 1. Details of the staff with contact numbers, details of bus drivers, conductors, mechanical and supervisory staff. 2. Details of location of buses in all the areas of the district available round the clock. 3. Details of fuel arrangements for buses for emergency work. 4. Do's and Don'ts to be observed strictly during emergencies and details of priorities should be given to the staff. 5. Arrangement for additional buses for evacuation of people from the affected areas. 6. Details of buildings, vehicles and equipments under his control and list of contractors with vehicles and equipments used by them. 7. Map showing S.T. depots, pick up stand, control point, S.T. garages and important routes with equipments of communication, telephone line, telex lines, megaphone, and amplifier with statistical data. 8. Details of important telephone numbers of water supply schemes, control room hospitals, drainage system, railway stations, bus depots, strategically important places, ports, Army Air force Navy camps and other sensitive places, light houses, major industrial units, and other communication channels which can be used during emergency/calamity. 	<ol style="list-style-type: none"> 1. To set up a temporary special control room and information center at the main busstation. 2. To immediately contact the district control room and will assist in the work. 3. To ensure that the staff at headquarter is on duty. 4. To assign the work to be done by the subordinate officers and staff regarding transportation under DDMP and to send them to their sites. 5. To receive instructions from the district liaison officer and will do the needful. To ensure for not allowing passenger buses to move out of the S.T. Depots during final warnings of cyclone, flood etc; to take safety measures for passengers who cannot return back to their home. 6. To ensure the availability of resources included in the DDMP and will make due arrangements to get those during emergency. 7. To consult the Liaison Officer to close the transportation in the damage prone areas for the safety of the people and the property. 8. To make groups having 	<ol style="list-style-type: none"> 1. To follow the instructions of District Liaison Officer. 2. To carry out the duty assigned for search and rescue work 3. To engage the resources and manpower available to manage disaster. 4. To review the matter regarding closing of movement of buses for safety reason and see that those are restarted very soon. 5. To send DMTs with necessary equipments if transportation is disrupted. 6. To contact District Control Room if additional equipments, vehicles, manpower, technical personnel, which are required to restore the transportation related activities. 7. To prepare a primary survey report on damage in the area and will send it to the district control room and also to the administrative head within 6 hours. 8. To make temporary arrangement of transportation for control rooms, hospitals,

	9. Action plan regarding repairs/alternative arrangement in case	vehicles for emergency work	
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	<p>of disruption of transport services.</p> <ol style="list-style-type: none"> 10. Alternative routes for the transportation and road network. 11. To inspect the damage prone S. T. Depots, pick up stand, control points, garages etc; at the frequency of every three months. 12. To plan out for restoration of goods transportation in case of damages observed, to the buses & parcel van. 13. To prepare an action plan to procure temporary buses, the technical personnel from the near by district which are not affected. 14. To maintain the equipments available such as cranes, diesel generator, earth over machines, de-dusting pumps, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, etc. which can be used during emergency and will ensure that those are in the working conditions. 15. To take due care to see that the transportation at shelters and emergency hospital is not disrupted during calamities. 16. To prepare a list of public properties related to transport department, which are in the damage prone area and will arrange in advance to minimize the damage. 	<p>and will assign the areas to them.</p> <ol style="list-style-type: none"> 9. To set up a temporary control room for the dissemination of information for emergency work and will appoint a nodal officer. 10. To make available the sufficient number of S.T. buses to the state administration for the evacuation of the people to safe places from the disaster prone areas. 11. To assist the administration to send the messages of warning to the remote areas through the drivers/conductors on transport routes. 	<p>shelters, bus depots etc.</p> <ol style="list-style-type: none"> 9. To immediately undertake repairs needed at the bus stations. 10. To collect the details of roads, damaged and will get them repaired in co-ordination with competent authority and will restore the bus services.
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12.11 SOP for Forest Department

Department	Normal Time Activities	On Receiving Warnings	Post Disaster Activities
Forest Department	<ol style="list-style-type: none"> 1. Addresses of members with telephone numbers. 2. Details of veterinary centers, artificial insemination centers, veterinary dispensary, veterinary colleges' buildings, vehicles, mobile dispensaries and equipments under his control and also the details of vehicles and equipments used often by out source. 3. Maps showing the details of area with statistical data. 4. Approach roads under forest department and their condition including bridges, causeways, railway crossing etc. 5. Inspection of damage prone roads, bridges, check dams, causeways, under forest department 6. To inspect periodically the buildings, residencies, high causeways under forest department 7. To maintain the equipments available such as sharp instruments, insecticides, diesel generators, dumpers, generator, cutters, tree cutters, ladders, ropes, flood lights, shovels, axes, hammers, RCC cutters, cable wires, fire equipments, de-dusting equipments etc; which can be used during emergency and will also ensure that they are in working condition. 8. To take care of public shelters, other places to be used for evacuation with primary facilities like water 9. To prepare a list of public properties in the damage prone forest areas and will make advance arrangements to lessen the 	<ol style="list-style-type: none"> 1. To immediately contact the district control room and will assist in the work. 2. To ensure that the staff at headquarter is on duty. 3. To assign the work to be done by the subordinate officers and staff regarding transportation under DDMP & to send them to their sites. 4. To arrange for wireless, telephones, manpower, forest guard in advance to disseminate information of the disaster in the damage prone areas and will play a keyrole with the district administration to warn the public. 5. To make in advance arrangement for fuel wood and bamboos for priority areas. 	<ol style="list-style-type: none"> 1. To follow the instructions of District Liaison Officer 2. To carry out the duty assigned for search and rescue work. 3. To engage the resources and manpower available to manage the disaster. 4. To prepare a primary report of damage for the affected areas. 5. To take actions to provide electricity, water and latrine to the temporary shelters in the forest areas. 6. To send task forces with vehicles, tree cutters, ropes, flood light, generator in case of closure of roads due to felling of trees.



damage.

12.13. SOP for Earthquake (without warning situation)

Earthquakes can neither be predicted nor prevented. When an earthquake strikes, the district team must be ready to respond. To survive, the administration and neighbourhood community members should be prepared with survival plans'. Preparing for an earthquake takes time and effort.

The basic approach should be:

- (a) Avoid injury to self and help others;
- (b) Minimize damage to CIKR installations and property;
- (c) Be prepared to survive and function for at least 72 hours after an earthquake without help from external aid.

Special Hazards / Precautions:

- Earthquake impact can cause damage to critical infrastructures including telecom, power transmission, water supply, gas or oil pipelines resulting in pipe rupture or blast from ignition of accumulated associated well gas and vaporization of crude oil pool.
- Each agency must immediately shut down all operations and supply in pipeline/ transmission lines as per their on-site emergency response plan.
- Depending upon the intensity, <6 Magnitude evacuation may be required for both within the facility as well as for neighbouring community to assemble in designated open ground/ muster point.
- Fire fighting, search and rescue teams to be kept in standby for any emergency rescue operations.
- Emergency coordination team to monitor the situation.
- Only after proper safety inspection, critical infrastructure facilities may be asked to resume their operation.

Table 32 Emergency Response Resource Requirement

Sr. No.	Key Points	Description
1.	Emergency Communication	i. Sat phones for wide area communication ii. Wireless for local area communication
2.	Fire management services	Mobile fire protection system
3.	Specialised resources (Pre-contracted under MoU)	SAR Specialised equipment's for SAR
4.	Manpower	Additional fire fighters/support personnel
5.	Medical	i. Ambulances ii. Doctors iii. Nurses iv. Stretchers v. Pharmacy supply / First aid kits
6.	Law and Order	Police

INCIDENT ACTION PLAN (IAP)

It is important that activities indicated in the IAP are connected with the functional responsibility matrix given under the plan activation section in basic plan.

Sr. No.	Task / Function / Activity	Department / Officer Responsible	Time
1	Raise alarm	Local Authority	Immediate after impact
2	The staff to follow 'drop-cover-hold' procedures and assemble at pre- designated safe muster points	SDM, Tahsildar, police	When warning issued
3	Emergency Alarm/ Nonfiction/ Notify Authorities & external agencies (Refer Emergency Contact in Annexure 4)	District Administration	Well before impact
4	Issue instructions to shut down all operations immediately on CIKR	District Administration	During emergency suitable
5	Assess situation, make evacuation plan and Evacuation	SDM, Tahsildar, Police	Before impact
6	Activate special resources of SAR including JCBs, Earth- movers, Steel cutters	Collector, RDC, all time Department	During impact
7	Establish Unified Command (for liaison with responding agencies)	SDM Tahsildar	During disaster
8	Coordinate & mobilize specialized medical teams with mobile operation theatres	CS, DHO, DDH, EMS	Immediate after impact
9	Coordinate and mobilize transport and Logistics	RTO, police	
10	Assess Hazards – potential for leakage and consequent explosion	SAR teams, fire brigade police	
11	Cordon off the area – Establish –hazard zone and secure area from unauthorized entry.	Police, homeguards	
	Community Evacuation Plan		
12	Trigger alarm/early warning siren & evacuate community to pre- designated open ground	Tahsildar, local Authority	
13	Ensure speedy coordination for evacuation	SDM, Tahsildar	
14	Attend the injured with first aid & transport them to hospital	CS,DHO,DDH,EMS	
15	Assure people by sharing real impact of incident & seek their cooperation	SDM, Tahsildar	
16	Provide temporary shelter with water, food and sanitation facilities	District Administration along with all line dept.	
	Conduct damage assessment		
17	Only after thorough check-up & formal clearance, community can be permitted to return to their habitation	SDM, Tahsildar, Police, Agriculture Fire brigade, NDRF etc.	

12.14. SOP for Flood & Flash Flood (with warning situation) Preparing for Flood

Describe vulnerability of your district to flood / flash flood in couple of lines with impact assumptions.

Precautions:

1. Flooding can disrupt continuity of Governance and the life of the community
2. Flooding can lead to disruption in electrical supply and communication and cause damage to roads, bridges and other infrastructure.
3. Depending upon the level and quantum of water inundation evacuation required for community to move to safe zones.
4. Search and rescue teams to be kept in standby for any emergency rescue operations
5. Emergency coordination team to monitor the situation
6. Ensure that drainage channels / *-nalla"s* are de-silted and bunds are periodically maintained.

Table 33 Emergency Response Resources

Sr. No.	Key Points	Description
1.	Specialist Resources	a) Search and rescue teams (Divers/ Swimmers, Emergency Medicals) b) Specialised equipment – like boat, life jackets (helicopters) etc.
2.	Manpower	Support Personnel
3.	Medical Support	a) Ambulances (Complete with emergency medication) b) Doctors c) Nurses d) Stretcher Bearer e) Oral Rehydration Satchets (ORS)
4.	Law & Order Agencies	Police
5.	Other Essentials	a) Water Storage Tanks b) Chlorine tablets c) Temporary Shelters with Sanitation facilities d) Temporary common kitchen or food pockets

Incident Action Plan (IAP)

It is important that activities indicated in the IAP are connected with the functional responsibility matrix given under the plan activation section in basic plan

Task / Function / Activity	Department / Officer Responsible	Time
Raise alarm / Mass messaging / Community siren System	Taluka Administration, Local Authority	Before impact
Look out for regular updates from Indian Meteorological Department (IMD) and Central Water Commission (CWC) for forecast and follow up action.	RDC, DDMO	Continuous is follow up
Alert all ESF to start working on their role	RDC, SP, DDMO	Before impact
Raise alarm if water level is reaching critical level Of jeopardizing safety of infrastructure	Irrigation	Quickly
Assess situation, make evacuation plan and move Community to safer zones	Police, local authority, Tahsildar BDO	Before disaster impact
Activate special resources a) Search and rescue (divers/swimmers, boats, life jackets, searchlights, nylon ropes) b) Specialized equipment (helicopters, sandbags, crowbars, spades, portable motor pumps)	CFO, police ,DDMO Collector RDC, SP	Immediate After disaster impact
Establish Unified Command (for liaison with responding agencies)	SDM, Tahsildar	During disaster
Close / cordon flooded roads and areas from entry	Police ,PWD	After month of disaster
Assess situation hour to hour in close contact with IMD/CWC and other agencies	RDC, DDMO	Hours to hours basis
Conduct damage assessment	SDM Tahsildar ,Agri.	Post disaster
Only after thorough check-up and formal clearance, community can be permitted to return to their habitation	Tahsildar, SDM, police	Post disaster

ANNEXURE 1 : ABBREVIATIONS

AC	Assembly Constituency
AIR	All India Radio
ACP	Assistant Commissioner of Police
ADM	Additional District Magistrate
BDO	Block Development Officer
BSNL	Bharat Sanchar Nigam Limited
CBDM	Community Based Disaster Management
CBO	Community Based Organizations
CBDP	Community Based Disaster Preparedness
CEO	Chief Executive Officer
CD & HG	Civil Defence and Home Guards
CMG	Crisis Management Group
CP	Commissioner of Police
CRPF	Central Reserve Police Force
DC	District Collector
DM	District Magistrate
DM	Disaster Management
DRM	Disaster Risk Management
DCP	Deputy Commissioner of Police
DCRF	District Calamity Relief Fund
DDMA	District Disaster Management Authority
DDMC	District Disaster Management Committee
DDMO	District Disaster Management officer
DHQ	District Head Quarter
DEOC	District Emergency Operation Center
DIO	District Information Officer
DISH	Director Industrila Safety and Health
DMC	Disaster Management Committee
DMT	Disaster Management Team
DPO	District Project Officer
MDRMP	Maharashtra Disaster Risk Management Programme
EOC	Emergency Operation Center
EQ	Earth Quake
ESF	Emergency Support Functions
F & CS	Food and Civil Supplies
FRT	Field Response Teams
GOI	Government of India
HARAC	Hazard Analysis Risk Assessment, Capacity
IAP	Immediate Action Plan
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IDRN	India Disaster Resource Network
IDRN	Information, Education and Communication
IMD	Indian Meteorological Department
IMT	Incident Management Teams

INGO	International Non- Governmental Organization
IRS	Incident Response System
MDP	Maharashtra Dissected Plateau
MHA	Ministry of Home Affairs
MH	Maharashtra
MIDC	Maharashtra Industrial Development Corporation
MLA	Member of Legislative Assembly
NCMC	National Crisis Management Committee
NDMA	National Disaster Management Authority
NEOC	National Emergency Operation Centre
NE	North East
NGO	Non Governmental Organizations
NIC	National Informatics Centre
NO	Nodal Officer
NRP	National Response Plan
NSS	National Service Scheme
NW	North West
NYK	Nehru Yuva Kendra
OEOC	Onsite Emergency Operation Center
PPPP	Public Private Partnership Program
PCR	Police Control Room
PLA	Participatory Learning Appraisal
PWD	Public Works Department
QRT	Quick Response Teams
RCC	Reinforced Concrete Cement
RDC	Resident Deputy Collctor
RDMC	Regional Disaster Management Centre
RESL	Resources Unit Leader
RTO	Regional Transport Officer
RWA	Residents Welfare Associations
SC	Schedule Caste
SDM	Sub Divisional Magistrate
SE	South East
SEOC	State Emergency Operation Center
SITL	Situation Unit Leader
SOP	Standard Operation Procedure
SP	Supritendent of Police
ST	State Transporte
SW	South West
TDMP	Taluka Disaster Management Plan
TQ	Taluka
TL	Team Leader
THQ	Taluka Head Quarter
UNDP	United Nations Development Programme
VDMP	Village Disaster Management Plan
YASHADA	Yashwantrao Chavan Academy of Development & Administration
ZP	Zilla parishad.

ANNEXURE 2 : List of Important Websites

Sr. No.	Particulars	Website Address
1.	India disaster Resource Network	www.idrn.gov.in
2.	Natural Disaster management India. Provides current news on Flood, Drought and Cyclones, Weather Links from NIC and weather conditions/ temperatures on Indian Ocean	www.ndmindia.nic
3.	The National Information Center of Earthquake Engineering	www.nicee.org
4.	Indian Meteorological Department	www.imd.ernet.in
5.	Amateur Seismic Centre	www.asc-india.org
6.	International Coordination group for the Tsunami Warning System in the Pacific (ICG/ITSU) Paris, France	http://ioc.unesco.org/itsu IOC/ UNESCO
7.	Pacific Tsunami Museum site.	http://www.tsunami.org
8.	Landslide Information System - Center of Studies in Resource Engineering, IIT, Mumbai	http://www.csre.ittb.ac.in/rn/resume/landslide/lsl.htm
9.	USGS National landslide Hazards Program	http://landslides.usgs.gov
10.	Central Water Commission of India	www.cwc.nic.in
11.	Ministry of Environment and Forests	http://www.envfor.nic.in
12.	Forest Information Service – a comprehensive Internet information bank on forest and related resources in India and around the world, prepared by Indian Institute of Forest Management, Bhopal.	http://www.iifm.org/databank/index.html
13.	Loss Prevention Association of India ltd. (LPA) is engaged in promoting safety and loss control through education, training and consultancy.	www.ipaindia.org
14.	Yashwantrao Chavan Academy of Development Administration	www.yashada.org
15.	Disaster Management Institute	www.dmibpl.org
16.	National Institute of Disaster Management	http://www.nidm.net
17.	Department of Science and Technology	http://dst.gov.in
18.	Indian Council for Agriculture and Research	http://www.icar.org.in/
19.	Indian Institute of Remote Sensing	http://www.iirs-nrsa.org/
20.	Bureau of Indian Standards	http://www.bis.org.in
21.	Geological Survey of India	http://www.gsi.gov.in
22.	Disaster Mitigation and Management Centre	http://gov.ua.nic.in/dmmc
23.	National Civil Defence College	http://ncdcnagpur.nic.in

ANNEXURE 3 : Ratnagiri District Important Phone Numbers

Sr.No	Designation	Office Phone number
1	Collector	02352-222301
2	Add.Collector	02352-222139
3	Resident Deputy Collector	02352-223573
4	Deputy District Election Officer	02352-222330
5	Deputy Collector General	02352-223602
6	District Supply Officer	02352-222412
7	S.L.A.O.K.R-2	02352-223606
8	ADSO	02352-222857
9	Tahsildar General	02352-222483
10	Tahsildar Revenue	02352-222422
11	DDMO	02352-226248
12	District Planning Officer	02352-222962
13	SDO Ratnagiri	02352-222422
14	SDO Chiplun	02355-252046
15	SDO Dapoli	02358-282031
16	SDO Khed	02356-264888
17	SDO Rajapur	02353-232519
18	Tahasildar Mandangad	02350-225236
19	Tahasildar Dapoli	02358-282036
20	Tahasildar Khed	02356-263031
21	Tahasildar Chiplun	02355-252044
22	Tahasildar guhagar	02359-240237
23	Tahasildar Sangmeshwar	02354-240024
24	Tahasildar Ratnagiri	02352-223127
25	Tahasildar Lanja	02351-230024
26	Tahasildar Rajapur	02353-222027
27	Superintendent of Police Ratnagiri	02352-225077
28	Add. Superintendent of Police	02352-222245
29	Deputy Superintendent of Police	02352-222485
30	Traffic Police	02352-270170
31	Police Control Room	02352-222222
32	Mandangad Police Station	02350-225233
33	Ratnagiri City Police Station	02352-222333
34	Ratnagiri Rural Police Station	02352-230133
35	Alore-Shirgav Police Station	02355-230033
36	Bankot Police Station	02350-220300
37	Chiplun Police Station	02355-252333
38	Dabhol Police Station	02358-248722
39	Dapoli Police Station	02358-282033

40	Devrukh Police Station	02354-260033
41	Guhagar Police Station	02339-240233
42	Jaigad Police Station	02357-242233
43	Khed Police Station	02356-263333
44	Lanja Police Station	02352-230033
45	Nate Police Station	02353-225533
46	Purnagad Police Station	02352-237333
47	Rajapur Police Station	02353-222033
48	Sangameshwar Police Station	02352-272033
49	Savarde Police Station	02355-264033
50	SDPO Ratnagiri	02352-222987
51	SDPO Lanja	02351-231033
52	SDPO Chiplun	02355-252071
53	SDPO Khed	02356-273133
54	Chief Officer Ratnagiri	02352-222310
55	Chief Officer Chiplun	02355-261047
56	Chief Officer Rajapur	02353-222039
57	Chief Officer Khed	02356-263024
58	Chief Officer Dapoli	02358-282051
59	Chief Officer Lanja	02351-230129
60	Chief Officer Guhagar	02359-240256
61	Chief Officer Deorukh	02354-240146
62	Chief Officer Mandangad	02350-225610
63	Chief Executive officer Zp Ratnagiri	02352-222386
64	D.H.O.Zilla Parishad ratnagiri	02352-221403 /226713
65	BDO Mandangad	02350-225228
66	BDO Dapoli	02358-282028
67	BDO Khed	02356-263052
68	BDO Chiplun	02355-252028
69	BDO guhagar	02359-240225
70	BDO Deorukh	02354-240028
71	BDO Ratnagiri	02352-222447
72	BDO Lanja	02351-230017
73	BDO Rajapur	02353-222031
74	Executive Engineer Pwd (North Div.)	02352-223505
75	Executive Engineer National Highway	02352-222394
76	Executive Engineer Pwd Chiplun	02355-252806
77	Executive Engineer (South Div.)	02352-228404
78	Executive Engineer Zp Work (Rat.Div)	02352-222242
79	Executive Engineer Zp Work(Chip.Div)	02352-222368
80	Executive Engineer Water Supp.Zp Ratn.	02352-222226

81	Deputy Engineer Pwd Deorukh	02354-240110
82	Deputy Engineer Pwd Rajapur	02353-222067
83	Deputy Engineer Pwd Lanja	02351-230064
84	Deputy Engineer Pwd Chiplun	02355-225248
85	Deputy Engineer Pwd Dapoli	02358-282013
86	Deputy Engineer Pwd Khed	02356-263201
87	Deputy Engineer Pwd guhagar	02359-240264
88	Civil Hospital Ratnagiri	02352-222363
89	Rural Hospital Devrukh	02354-242040
90	Rural Hospital Lanja	02351-230101
91	Rural Hospital Mandangad	02350-225224
92	Sub District Government Hospital Chiplun	02355-252628
93	Sub District Government Hospital Khed	02356-263039
94	MSEB , Ratnagiri office.(24x7)	02352-222868
95	MSEB , Ratnagiri Chiplun	02355-252095
96	E E M.J.P	02352-222517
97	Divisional Forest Officer chiplun	02355-252804
98	RTO Ratnagiri	02352-229444
99	Superintendent of Excise Ratnagiri	02352-222403
100	District information office Ratnagiri	02352-222325
101	Superintendent of Agriculture Ratnagiri	02352-222491
102	General Manager,B.S.N.L Ratnagiri	02352-221444
103	MSRT Ratnagiri	02352-223510
104	Superintendent of Post Office Ratnagiri	02352-220055
105	Regional Office MIDC Ratnagiri	02352-228801
106	NIC Ratnagiri	02352-223757
107	Regional Office K.R.C.L Ratnagiri	02352-228943
108	Coast Guard office Ratnagiri	02352-220490 / 220351
109	Customs office Ratnagiri	02352-223248/222869
110	Maharashtra Maritime Board Ratnagiri	02352-222160/226413
111	Fisheries Ratnagiri District Office	02352-233726
112	Assi. Commissioner Of Labour office	02352-223109
113	Assi. Commissioner Of Food & Drug, Ratnagiri	02352-222456
114	District Sports Office Ratnagiri	02352-223036
115	Bank of India (Lead Bank) Ratnagiri	02352-222970
116	doordarshan Office Ratnagiri	02352-223016
117	Zilla Sainik Welfare office Ratnagiri	02352-222271
118	R C D S Officer ratnagiri	02352-220461
119	Office of charity commissioner ratnagiri	02352-223208
120	Animal Husbandry officer Zp Ratnagiri	02352-256107
121	District Dairy Development office	02352-228128
122	District Home Guard office ratnagiri	02352-222353
123	Joint Director, Industrial Safety & Health, Kolhapur	0231 - 2656922/2651698
124	Harbor engineer officer ratnagiri	02352-222430
125	Nehru yuva kendra Ratnagiri	9890747525

ANNEXURE 4 : Important Helpline

Sr.No.	Name of Department	Helpline
1	Navy – Comammandant	022 - 22751149
	INS Lonavala	02114- 284304/284735/284861
2	Air Force – Group Captain	022 - 26650481
3	Army – Cornal	022-22157257
4	Civil Defence and Home Guard	022 – 22022246/2820980
5	Coast Guard	022 – 24379478/24371932
6	Indian Metrologicl Dept, Mumbai	022 – 22151989 / 22153823
7	Konkan Railway Mumbai	022 – 27570415 / 27587308
8	NDMA , New Delhi	011 – 26701710 / 267017280
9	NIDM, New Delhi SAARC DM Cell	011- 23702445 011 - 23765233
10	NDRF 5 th Bn, Pune	02114 - 231245
11	CommissionerOffice, Konkan Bhavan, Navi Mumbai	022 - 27571516
12	District Control Room, Collectorate Ratnagiri	02352 – 226248 / 222233 Whatsap - 7057222233
13	Police Control Room, Ratnagiri	02352 – 222222 Whatsap - 8888905022

ANNEXURE 5 : List of Companies of Ratnagiri district

Sr. No.	Name of Factory & Address	Taluka	Finished Product
1	Central Dairy, Govt. Milk Scheme, Chiplun Gov	Chiplun	Dairy Products
2	Maharashtra Insecticides Ltd, F-4, MIDC Lote Parashuram	Khed	Chemical
3	AB Mauri India Pvt.Ltd, (Farmrely Burns Philp India Pvt.Ltd.) D-7/2 MIDC Lote Parshuram	Khed	Yeast
4	Aimco Pesticides.Ltd, B-1/1, MIDC Lote Parashuram	Khed	Chemical
5	Alpha Blue-Chem Pvt.Ltd, D- 12/7,MIDC Lote Parashuram	Khed	Chemical
6	Aroma Intermediates, D-14/8, MIDC Lote Parashuram	Khed	Tri-Chloro Acetate Dhyde
7	Asahi India Glass Limited, A/P.Waked	Lanja	Silica Sand Processing
8	Auchtel Products Limited, D-1, Mirjole MIDC Ratnagiri	Ratnagiri	Chemical
9	Godrej Agrovet Limited, (Goldmuhor Agrochem & Feeds Limited), E-24, MIDC Lote Parashuram	Khed	Chemical
10	Concept Plastics, Plot No.B-11, Gane khadpoli MIDC	Chiplun	Hardning of Semi Finished Files
11	Deepak Chemtex Pvt.Ltd., S.No.28/1,Village Adgul, Mouje Awashi	Khed	Dyes
12	Deepak Colour Chem, D-17,MIDC Lote Parashuram	Khed	Chemical
13	Deepak Novochem Technologies Limited, Plot No. D-27/3/1, MIDC Lote Parashuram	Khed	Tetra Methyl Bisphenol etc.
14	Deokar's Distillery, PN.D-1, Kherdi, MIDC	Chiplun	Distillery
15	Dongreen Resins & Chemicals P.Ltd., Plot No.B-23, MIDC Lote Parashuram	Khed	Resins & Chemicals
16	Dow Agrosiences India Pvt.Ltd.A-1, MIDC Lote Parashuram	Khed	Agro Chemicals
17	Dr.Khan Industrial Consultants Pvt.Ltd.,D-19, MIDC Lote Parashuram	Khed	Eithail Silicate etc..
18	Excel Industries Ltd, D-9, MIDC Lote Parashuram	Khed	Chemical
19	Filtra Catalyst & Chemicals Ltd. Lote Unit, Plot No.B-52/3, MIDC Lote Parashuram	Khed	3,5 Xylenol, Zink Oxide, Desulphursation Catalysts
20	Finolex Industries Ltd., Ranpar-Golap	Ratnagiri	PVC pipe
21	Ganesh Metal Works, D-19, Mirjole MIDC, Ratnagiri	Ratnagiri	Allumi. & Gun Metal Casting
22	Gharda Chemicals Ltd, D-1/2, F-1/1, B-1/7, MIDC Lote Parashuram	Khed	Chemical
23	Good Rasayan Limited.,B-96, MIDC Lote Parashuram	Khed	Chemical, Codex-D.S.
24	Hariprabha Chemicals Pvt.Ltd. Plot No.C-12/13, MIDC Lote Parashuram	Khed	Chemical Lead Octoate
25	Hindustan Unilever Limited,Plot No.B-7, MIDC Lote Parashuram	Khed	Soaps & Detergents
26	Indian Oxylate Ltd, B-2, MIDC Lote Parashuram	Khed	Oxalic acide
27	Kansai Nerolack Paints Ltd., Plot No.F-2, MIDC Lote Parashuram	Khed	Paints
28	Ken Chemicals Pvt.Ltd. Plot No.E- 27/2, MIDC Lote Parashuram	Khed	Potassium Permangnate
29	Konkan Synthetics & Chemicals P.Ltd., C-7, MIDC Lote Parashuram	Khed	Chemical
30	Thermolab Healthcare Pvt Ltd, (Korten Healthcare Pvt.Ltd.)Plot No.B-4,MIDC Lote Parashuram	Khed	Healthcare products
31	Krishna Antioxidents Pvt.Ltd., A-1, Gane khadpoli MIDC	Chiplun	TNPP Antioxodents & D-Paste
32	Maharashtra Esters & Ketones Pvt.Ltd, B-52/2,MIDC Lote Parashuram	Khed	Chemical
33	Mint Biofuel Ltd., Gat No.310/311, A/P. Pathardi	Chiplun	Bio Diesel Mfg.
34	Nandadeep Chemicals Pvt Ltd,Unit- III, (Mitra Auxillary Chemicals Pvt.Ltd.) , D-13/3, MIDC Lote parashuram	Khed	Boiling & Drying of DMA , HCL Chemicals
35	Varron Industries Ltd., B-33/1, Mirjole MIDC, Ratnagiri	Ratnagiri	Alluminium Ingots
36	Naik Sea Foods Limited. A/P. Karla	Ratnagiri	Marine Products Corrugated Boxes
37	Naik Sea Foods Pvt.Ltd, Peth Killa, Ratnagiri	Ratnagiri	Chemical
38	Niki Ceramics Industries, Ltd., PN.No.F-6, Awashi	Khed	Calcined Aluimina
39	Om Organic Chemicals, B-38, MIDC Lote Parashuram	Khed	Benzile Chloride & Aceytle Chloride
40	Pact Labs P.Ltd. B-27/28/29, MIDC Lote Parashuram	Khed	Intermediates & Fine Chemicals
41	Plastrulon Processors Ltd, C-26,27 Udyamnagar, Ratnagiri	Ratnagiri	Chemical
42	Prerana Ammonia & Chemicals Pvt. Ltd., E-23/2, MIDC Lote Parashuram	Khed	Ammonia

43	Prime Chemicals PN. A-2, Gane Khadpoli MIDC	Chiplun	Chemical
44	Coromandel Agrio Pvt Ltd, (Punjab Chemicals & Crop Protection Ltd.), Plot No.D-2, MIDC Lote Parashuram	Khed	Sulpher Dispersing Agent
45	Rallis India Ltd, D-26,MIDC Lote Parashuram	Khed	Chemical
46	Ratnagiri Chemicals Pvt.Ltd., C-39, MIDC Lote Parashuram	Khed	Liquid Anti Oxidents
47	Ratnagiri Zillha Macchimar Sah.Sangh Ltd, Peth Killa, Ratnagiri	Ratnagiri	Chemical
48	Rencal Chemicals (India) Ltd., B-16, MIDC Lote Parashuram	Khed	Chemicals
49	Riverside Industries Ltd., B-6, MIDC, Lote Parashuram	Khed	Chemical
50	S.I.Group India Ltd., Plot D-1/3, MIDC Lote Parashuram	Khed	Ele.Grade Wire Enamel Insulating Varnshes
51	Saf Yeast Company Pvt.Ltd., C-3, Gane khadpoli MIDC	Chiplun	Compressed Yeast, Dried Yeast
52	Sandvik Asia Limited, D-27/1,MIDC Lote Parashuram	Khed	Chemical
53	Scan Organics Ltd, B-57 MIDC Lote Parashuram	Khed	Chemical
54	Semret Spun Pipes Co.B-9/1, Mirjole MIDC Ratnagiri	Ratnagiri	R.C.C.Pipes
55	Shree Jayambe Mine Chem Pvt.Ltd. S.No.120/6B, Behind HLL, Lote Parashuram	Khed	Calcite, Dolomite China Clay
56	Shreyash Intermediates Ltd, D-22, MIDC Lote Parashuram	Khed	Intermediates
57	Shreyash Intermediates Ltd., (100% EOU) Plot No.D-21, MIDC Lote Parashuram	Khed	CPC Blue Crude
58	Shree Pushkar Chemicals & Fertilisers Ltd, (Shri Pushkar Petro Products Ltd.), B-102/103, Lote Parshuram MIDC	Khed	Chemical
59	Shriya Chemicals Pvt.Ltd, B-94, MIDC Lote Parashuram	Khed	Chemical
60	Sriab Chemicals Pvt.Ltd., E-6, Lote Parshuram MIDC	Khed	Mettafarmin Hydrochloride
61	Sulakhi Chemicals (Pvt)Ltd, C- 33,MIDC Lote Parashuram	Khed	Chemical
62	Supriya Life Science Limited, Plot No.A-5/2, Lote Parashuram	Khed	Chlorpheramine Meleate BP/USP/IP
63	Suraux Chemicals Pvt.Ltd,G-c17, Mirjole MIDC	Ratnagiri	Chemical
64	Swash Nonionics Pvt.Ltd., E-11, MIDC Lote Parashuram	Khed	Chemical
65	Swastik Industries, Kherdi F2/22 MIDC	Chiplun	Distillation process of Aromatic Chem
66	Ultratech Cement Limited, Unit Narmada Cement Ratnagiri Works, MIDC Ind.Est.Zadgaon Block, Ratnagiri	Ratnagiri	Cement
67	Urmi Chemicals, Plot No.B-18, MIDC Lote Parashuram	Khed	Itlylchloro Acetate
68	Usha Chemicals, W-10, MIDC Lote Parashuram	Khed	Acid Voilet 49,17, Acid Blue 15, 9
69	USV Pvt Limited, [USV Limited], B- 1/8, MIDC Lote Parashuram	Khed	Pharmaceuticals
70	Vinati Organics Limited, A-20, MIDC Lote Parashuram	Khed	Chemical
71	VVC Pharma & Speciality Chemicals Pvt.Ltd. F-6/2, MIDC Lote Parashuram	Khed	Pharmaceuticals
72	Bharat Organics, D-12/5, MIDC Lote Parashuram	Khed	Chemical Paint
73	Ganesh Chemicals, Plot No.B-80-81, MIDC Lote Parashuram	Khed	Distillation of Solvent Acetone Toulene Xylene
74	Garuda Chemicals, Plot No.B-46, MIDC Lote Parashuram	Khed	Sodium Butrete etc.
75	Harishree Aromatics & Chemicals Pvt.Ltd., B-22, MIDC Lote Parashuram	Khed	ISO Bromide, Hydro Bromic Acid
76	Laxmikeshav Adhesives P.Ltd. Plot No.D-12/11/2, Lote Parashuram MIDC	Khed	Acetate Emolium
77	Litmus Organics Pvt.Ltd. D-12/3, M.I.D.C.Lote Parashuram	Khed	Pharmaceuticals Intermediates Chemical
78	M.R.Pharma Pvt.Ltd., PN.B-19, MIDC Lote Parashuram	Khed	HEDP
79	Nandadeep Chemicals Pvt.Ltd. Plot No.B-43, MIDC Lote Parashuram	Khed	Tri acetin para Toluene
80	Nayan Metals Pvt.Ltd. D-6, MIDC Lote Parashuram	Khed	Lead Ingots
81	Parco Pharmaceuticals & Chemicals, B-67/2, MIDC Lote Parashuram	Khed	Para Amino Azo Benzeno
82	Rishi Chem, B-30, MIDC Lote Parashuram	Khed	Leather Auxillaries
83	Rupal Chemicals, D-13/7, MIDC Lote Parashuram	Khed	Fine Chemical & Intermediate
84	S.R. Chemicals, B-70/2, MIDC Lote Parashuram	Khed	Unsaturated Polyster Resin
85	S.R.Drugs Pvt.Ltd, B-2, & B-3, MIDC Lote Parashuram	Khed	Chemical
86	Sahastra Chemicals Pvt.Ltd., B-17, MIDC Lote Parashuram	Khed	Distillation of Dimethyl formaide

87	Sai Chem Corporation, Plot No.D- 17/1, MIDC Lote Parashuram	Khed	Sodium Hypo Chloride
88	Shree Samarth Engineers, E-15, MIDC Lote Parashuram	Khed	Betyale Acitade
89	Shri Durga Chemicals Industries, B- 42, MIDC Lote Parashuram	Khed	Poly Vinyl Acetate
90	Shreekool Agrochem P.Ltd., B-49/51, Lote Parashurm MIDC	Khed	Sodium Nitrite
91	Shruti Chemicals, C-27, MIDC Lote Parashuram	Khed	Refined Naphthalene
92	Nandadeep Chemicals Pvt Ltd, unit- II,(Snehlata Chemicals Pvt.Ltd.) Plot No. B-44, MIDC Lote Parashuram	Khed	PTSA Solution
93	Sujan Chemcal Industries, Plot No.D- 14/1, Lote Parshuram MIDC	Khed	Acetic Acid Chlorination
94	Swastik Industries, A-5/1, MIDC Lote Parashuram	Khed	Textile Aluxalari
95	Vaibhav Chemicals, D-14/9, MIDC Lote Parashuram	Khed	Fine Chemicals, Textile Auxi. Drug
96	Yog Chem (P) Limited, E-20, MIDC Lote Parashuram	Khed	Pharmaceuticals Intermediates Chemical
97	Yojana Industries, D-14/4, MIDC Lote Parashuram	Khed	Raw Material for Insecticides
98	Yojana Intermediates Pvt.Ltd., D- 14/6, Lote Parashuram	Khed	Ethyl Benzene Anilene, Sulphuric Acid
99	Divya Organics Pvt.Ltd. B-89,MIDC Lote Parashuram	Khed	Simethicone, softners, Amino Oil, Acrylic polymer, waxes
100	Atharv Chemicals, D-12/9,MIDC Lote Parashuram	Khed	Silicon deformer & Acralic polymer
101	Varron Alluminium Pvt.Ltd., D-68, Mirjole MIDC, Ratnagiri	Ratnagiri	M.S. Forging & Machinery
102	Divine Chemicals Company, Plot No.C-28, 29, MIDC Lote Parashuram	Khed	Fact Liquor
103	Ganesh Organic Chemicals, Plot No.B-67/5, MIDC Lote Parashuram	Khed	Benzo Trichloride
104	Taaj Health Care Chemicals Pvt. Ltd., Plot No.B-14, MIDC Lote Parashuram	Khed	Dimethyle amine Hydrochloride & Indl. Solvents
105	Chromatic India Ltd, B-12/2, MIDC Lote Parashuram	Khed	Chemical
106	Shivalik International, B-54 & 55, MIDC, Lote Parashuram	Khed	CPC Green
107	Serene Industries Ltd., B-1/2, MIDC, Lote Parashuram	Khed	Dyes
108	Urdhwa Chemicals, Plot No.C-4, MIDC, Lote Parshuram	Khed	Dye Benzole
109	We One Adhesive Industries, Plot No.B-70/5 & B-70/6, MIDC, Lote Parashruam	Khed	Rubber Adhesive
110	LNG Terminal M/s. Ratnagiri Gas & Power Pvt. Ltd. A/P.Anjanwel	Guhagar	Gas
111	USV Ltd. Plot No.B-8/1, B-9, B-10,MIDC Lote Parashuram	Khed	Pharmaceuticals
112	Amit Petroleum Pvt.Limited, F-8, Lote Parashuram	Khed	Solvents
113	Gharda Chemicals Limited, Plot No.C-4/1, Kherdi MIDC	Chiplun	Pesticides & Insecticides Formulations
114	Dev Metal Refinery, B-35, MIDC Lote Parashuram	Khed	Lead Ingots from Scrap Battery
115	Shree Pushkar Chemicals & Fertilizers Ltd. Plot No.D-25, MIDC Lote Parashruam	Khed	Single Super Phosphate
116	Kolhapur Oxygen & Acetylene Pvt.Ltd., Plot No.C-221, Mirjole Block, Ratnagiri Adho.Vasahat	Ratnagiri	Industrial / Medical Oxygen & Nitrogen
117	Synthotex Chemicals Pvt.Ltd. D- 13/11, Lote Parashuram Ind.Estate	Khed	Chemical
118	Shri Madhav Chemie, D-14/12, MIDC, Lote Parashuram	Khed	Pure Grade Zinc Sulphate
119	Talisman Thermocare Powder Coatings, A-28, MIDC Gane Khadpoli	Chiplun	Thermo setting powder
120	Chemsai Organics Pvt. Ltd., E-07 MIDC Lote Parshuram,	Khed	Chemical
121	Omkar Speciality chemicals Ltd., B- 15-16 MIDC Lote Parshuram,	Khed	Chemical
122	Krishna Antioxident Pvt. Ltd., Unit 2 Plot No. B-23-24 MIDC Lote Parashuram	Khed	Chemical
123	Taloja Petrochemicals Pvt Ltd, Plot No. C-11, MIDC, Lote-parshuram.	Khed	Petroleum Products
124	Costal Organics Pvt Ltd, Plot No. W- 1(C) MIDC, Lote-parshuram, Tal. Khed, Dist. Ratnagiri	Khed	MEKP
125	Kesar Petroproducts Limited, Plot No.D7/1, MIDC, Lote-parshuram Industrial Area,	Khed	Ferros Sulphate

ANNEXURE 6 : List of Experts

SR.NO.	NAME	EXPERTISE	TEL.NO
1	Gharada Chemical. Lote, Khed	Chemical Experts	02356- 272252, 272254
2	Shri Marathe	Chemical Experts	9552652097
3	Dharmendr Tiwai	Chemical Experts	022-27222404
4	Viniti Organic, Lote, Khed	Chemical Experts	02356-273034/35
5	Finolex, Ratngiri	Chemical Experts	02352-226080/81
6	Jindal, Jaygad	Chemical Experts	02357-242501/02
7	ONGC, Goa Mr. Surve	Chemical Experts	9028451855
8	Dr. Pradip Ghisas	Chemical Experts	9920083300
9	MARK -Hemant Dange	Chemical Experts	8805075075
10	Mr. Mohite	Deputy Director Industrial Safety Kolhapur	0231-2656922/ 9767182959

ANNEXURE 7: LIST OF COMPANIES

Sr. No.	Name of Company	Contact
1	A. B. MAURI(INDIA) P.LTD, D-7/2A MIDC lote Parshuram Tal Khed 415722	222778/675, 272222
2	AIMCO PETICIDES LTD B-1/1 MIDC Parshuram Tal Khed 415722	272136/137
3	AKASAKA ELECTRONICS LTD G-1 Parshuram Tal Khed 415722	022-27612322/7373
4	AKSHAY CHEMICALS D-13/2 Parshuram Tal :-Khed 415722	272460
5	ALPHA BLUE CHEM PVT. LTD D 12/7Parshuram Tal :-Khed 415722	272780/9422424424
6	AROMA INTERMEDIATES D14/8 MIDC LOTE- PARSHURAM TAL KHED 415722	272807
7	ATHARV CHEMICAL D-12/9 MIDC Lote Parshuram Tal :-Khed 415722	8976533053/ 9822127633/ 9422431516
8	ATHAVALE INDUSTRIES C -18 MIDC Lote Parshuram Tal :-Khed 415722	272384
9	BAHAR AGROCHEM & FEEDS PVT. LTD E-24 MIDC Lote Parshuram Khed 415722	272714
10	BAHAR ORGANICS D-12/5MIDC Lote Parshuram Tal :-Khed 415722	272214
11	CHEMSAL ORGANICS PVT. LTD E-7 MIDC Lote Parshuram Tal :-Khed 415722	8950096135
12	CHROMATIC INDIA LTD. B-12/2 MIDC Lote Parshuram Tal :-Khed 415722	272127/240
13	DEEPK CHEMTEX LTD A-2 MIDC Lote Parshuram Tal :-Khed 415722	9860900425
14	DEEPK COLOUR CHEM LTD D-17/13 MIDC Lote Parshuram Tal :-Khed 415722	272380
15	DEEPK NOVOCHEM TECHNOLOGIES LTD D-27/3/1 MIDC Lote Parshuram Khed 415722	273093/ 272474
16	DIVYA ORGANICS PVT.LTD B-89 MIDC Lote Parshuram Tal :-Khed 415722	022-24466585
17	DONGREEN RESINS & CHEMICAL .PVT LTD B-23 MIDC Lote Parshuram Khed 415722	9867855054
18	DOW AGRO SCIENCES PVT. LTD A-1 MIDC Lote Parshuram Tal Khed 415722	272034-40/ 272047/46
19	DR.KHAN INDUSTRIAL CONSULTANTS PVT.LTD D-19 MIDC Lote Parshuram Khed 415722	272022
20	EXCEL INDUSTRIES LTD. D-9 MIDC Lote Parshuram Tal :-Khed 415722	272019/272062
21	FILTER CATAS &CHEMICALS LTD 52/3 MIDC Lote Parshuram Tal Khed 415722	272747
22	FORTUNE CHEMICAL INDUSTRIES C-19 MIDC Lote Parshuram Tal Khed 415722	273077/ 272096/ 272224
23	FOURINT CHEMICALS PVT LTD B-72 MIDC Lote Parshuram Tal :-Khed 415722	272869
24	GANESH CHEMICALS B-80/81 MIDC Lote Parshuram Tal :-Khed 415722	9422429932
25	GANESH FACTORY B-69-2 MIDC Lote Parshuram Tal :-Khed 415722	272225
26	GANESH ORGANIC CHEMICAL B-67/581MIDC Lote Parshuram Tal Khed 415722	9422376681
27	GARUDA CHEMICALS B-46 MIDC Lote Parshuram Tal :-Khed 415722	272157/ 272173
28	GARUDA CHEMICALS D-1/2 MIDC Lote Parshuram Tal :-Khed 415722	272254/52/53/ 272189
29	GARUDA CHEMICALS UNIT -2 F-1/1 MIDC Lote Parshuram Tal :-Khed 415722	272189
30	GOKHALE ENGINEERS B-69/52 MIDC Lote Parshuram Tal :-Khed 415722	272165
31	GOOD RASAYAN LTD B-96 MIDC Lote Parshuram Tal :-Khed 415722	272599
32	HINDUSTAN UNILEVER LTD B-7 MIDC Lote Parshuram Tal :-Khed 415722	272093/324
33	HARI PRABHA CHEMICALPVT.LTD C-12/13 MIDC Lote Parshuram Khed 415722	272659
34	HARISHREE AEROMATICS &CHEM PVT. LTD.	
35	INDIAN OXALATE LTD B-2 MIDC Lote Parshuram Tal :-Khed 415722	272115/272150/ 272031
36	INDUMATI CHEMICALS B-33 MIDC Lote Parshuram Tal :-Khed 415722	
37	KUSUMA PHARMA PVT LTD. D-11/2 MIDC Lote Parshuram Tal :-Khed 415722	9820285584
38	K2 P CHEMICAL D-17/10 MIDC Lote Parshuram Tal :-Khed 415722	022-26319608/ 40160488
39	KANSAI NEROLAC PAINTS LTD F-2&F-3 MIDC Lote Parshuram Tal Khed 415722	272413
40	KEN CHEMICALS PVT LTD E 27/23 MIDC Lote Parshuram Tal :-Khed 415722	273215/ 9422375914
41	KHARE CHEMICALS D-13/6 MIDC Lote Parshuram Tal :-Khed 415722	272300
42	KOKAN SYNTHETICS UNIT-1 C-7 MIDC Lote Parshuram Tal :-Khed 415722	272670

43	KOKAN SYNTHETICS UNIT-2 C-7 MIDC Lote Parshuram Tal :-Khed 415722	272751/ 9271174141
44	LAXMI KESHAV ADHESIVES D-12/11/2 MIDC Lote Parshuram Tal Khed 415722	9767348178/272784/ 9819613963
45	LITMUS ORGANICS LTD D-12/3 MIDC Lote Parshuram Tal :-Khed 415722	
46	M.R. PHARMA PVT. LTDB-19 MIDC Lote Parshuram Tal :-Khed 415722	022-23403527
47	PACT LABS PVT LTD B-28/29 MIDC Lote Parshuram Tal :-Khed 415722	
48	RAJ ICE FACTORY S-NO 65/4-2 MIDC Lote Parshuram Tal :-Khed 415722	273195/ 9422433826
49	MAGHA ENGINEERS B-75 MIDC Lote Parshuram Tal :-Khed 415722	272028
50	MAGHA RASAYAN PVT. LTD B-76 MIDC Lote Parshuram Tal :-Khed 415722	273028
51	MAHARASHTRA BIO-HYGENIE MANAGEMENT E-19 MIDC Lote Parshuram Tal Khed 415722	272676
52	MEDHA ENTERPRISES B-83 MIDC Lote Parshuram Tal :-Khed 415722	022-28929113
53	MICRO HERBAL TECH PVT.LTD C-2 MIDC Lote Parshuram Tal :-Khed 415722	9323431177
54	MITRA AUXILARY & CHEMICALS PVT LTD D-13/3 MIDC Lote Parshuram Tal Khed 415722	9223385851
55	NANDADEEP CHEMICALS PVT.LTD. B-43 MIDC Lote Parshuram Khed 415722	273119
56	NAYAN METALS PVT. LTD D-6 MIDC Lote Parshuram Tal :-Khed 415722	272570
57	NOVEL MOLECUUS PVT. LTD D- 46 MIDC Lote Parshuram Tal :-Khed 415722	272157
58	O.K.ICE FACTORY B-70/4 MIDC Lote Parshuram Tal :-Khed 415722	022-23403527
59	OM ORGANIC CHEMICALS B-38 MIDC Lote Parshuram Tal :-Khed 415722	273102
60	PADMA PLASTICS S-NO-65/4-2 MIDC Lote Parshuram Tal :-Khed 415722	272172
61	PALLAVI FRAGNANANICS B-13 MIDC Lote Parshuram Tal :-Khed 415722	02355-260655
62	PARCO PHARMA CEUTICALS &CHEMICALS B-67/2 MIDC Lote Parshuram Khed 415722	273127
63	PARSHURAM CHEMICAL INDUSTRES B-67/4 MIDC Lote Parshuram Khed 415722	273127
64	PENTOKEY CHEMICAL INDUSTRIES D-1/1 MIDC Lote Parshuram Tal Khed 415722	273078/272118/ 273079
65	POOJA INDUSTRIES	272747
66	PRERANA AMONIA & CHEMICAL PVT.LTD D-23/2 MIDC Lote Parshuram Tal Khed 415722	272928
67	PUNJAB CHEMICAL &CROP PROTECTION LTD D-2 MIDC Lote Parshuram Tal Khed 415722	272247
68	RALLIS INDIA LIMITED D-26 MIDC Lote Parshuram Tal :-Khed 415722	272617/618/2722619/ 272885
69	R.S.D. POLYMER PVT. LTD D-12/4 MIDC Lote Parshuram Tal :-Khed 415722	9322267123
70	RATNAGIRI CHEMICALS D-12/4 MIDC Lote Parshuram Tal :-Khed 415722	272117
71	RAVI INDUSTRIES A-6/1 MIDC Lote Parshuram Tal :-Khed 415722	272387/029
72	RECAL CHEMICAL B-16 MIDC Lote Parshuram Tal :-Khed 415722	272003/004/272393
73	RENUKA TYRES &TREADS B-71 MIDC Lote Parshuram Tal :-Khed 415722	272916
74	RISHE CHEM B-30 MIDC Lote Parshuram Tal :-Khed 415722	272493
75	RUBL ENTERPROSES C-26 MIDC Lote Parshuram Tal :-Khed 415722	9270813204
76	RUCHITA CHEMICALS C24/25 MIDC Lote Parshuram Tal :-Khed 415722	9224674597
77	RUPAL CHEMICALS D-13/7 MIDC Lote Parshuram Tal :-Khed 415722	272444
78	S.M.ADHESIVES B-82 MIDC Lote Parshuram Tal :-Khed 415722	9322237077
79	S.R. CHEMICALS B-70/2 MIDC Lote Parshuram Tal :-Khed 415722	8087377708/ 273090
80	S.R. DRUGS PVT.LTD B-3 MIDC Lote Parshuram Tal :-Khed 415722	272054/272031/ 272115
81	SAHASTRA CHEMICAL PVT.LTD B-37 MIDC Lote Parshuram Tal Khed 415722	273030
82	SAMARAT WASHERS & DRY CLEANERS B-37 MIDC Lote Parshuram Khed 415722	272945/ 9422344945
83	SHREE PUSHKAR PETRO CHEMICAL PVT.LTD.B-102/103 MIDC Lote Parshuram Khed 415722	2722718/ 2722625
84	SHREE SAMRATH ENGININEERS E-15MIDC Lote Parshuram Tal Khed 415722	272547
85	SHREYAS INTERMEDIATES LIMITED D -22 MIDC Lote Parshuram Tal Khed 415722	272471/ 272182
86	SHRI GANESH ICE FACTORY B-69/3 MIDC Lote Parshuram Tal Khed 415722	272225
87	SHRI MADHAV CHEMICALS C-14/12 MIDC Lote Parshuram Tal Khed 415722	272456

88	SHRIYA CHEMICAL PVT.LTD B-94 MIDC Lote Parshuram Tal Khed 415722	272094
89	SHRUTI ORGANICS (SHIVALEK INTERNATIONAL)D-13/7 MIDC Lote Parshuram Khed 415722	
90	SNEHALATA CHEMICALS PVT.LTD B-82 MIDC Lote Parshuram Khed 415722	273119
91	SHRI DURGA FINE CHEMICALS PVT. LTD.B-34 MIDC Lote Parshuram Khed 415722	272533
92	SOBAR CHEMICALS B-34 MIDC Lote Parshuram Tal :-Khed 415722	272174
93	SRIYAB CHEMICALS PVT. LTDE-6 MIDC Lote Parshuram Tal :-Khed 415722	272651/ 272751
94	SUPER PACKW-5 MIDC Lote Parshuram Tal :-Khed 415722	272063
95	SUPRIYA CHEMICALS A-5/2 MIDC Lote Parshuram Tal :-Khed 415722	272299
96	SUYOG NERIMITI	9422052134
97	SWAMI INDUSTRIES C-21 MIDC Lote Parshuram Tal :-Khed 415722	273232 / 272172
98	SWASH NONIONICS PVT.LTD E-11 MIDC Lote Parshuram Tal :-Khed 415722	272459
99	SWASTIK INDUSTRIES A-5/1 MIDC Lote Parshuram Tal :-Khed 415722	272299
100	SYNTHOEX PAP-6 MIDC Lote Parshuram Tal :-Khed 415722	272615
101	SERENE INDUSTRIES LIMITED B-1/2 MIDC Lote Parshuram Tal :-Khed 415722	9967483993
102	SANDVIK ASIA LTD D-27/1 MIDC Lote Parshuram Tal :-Khed 415722	272947/64
103	SYNTHOTEX CHEMICALS PVT.LTD D-13/11 MIDC Lote Parshuram Khed 415722	9820640955
104	SI GROUP INDIA LTD. D-1/3 MIDC Lote Parshuram Tal :-Khed 415722	272246
105	TAMHANKAR ENGINEERS PVT.LTD A-2/1 MIDC Lote Parshuram Khed 415722	272174
106	KORTEN HEALTHCARE PVT. LTD B-4 MIDC Lote Parshuram Tal :-Khed 415722	272294/272794
107	URDHWA CHEMICALS C-4 MIDC Lote Parshuram Tal :-Khed 415722	272130/105
108	USHA CHEMICALS W-10 MIDC Lote Parshuram Tal :-Khed 415722	272380/ 272917
109	USV B-1/8 MIDC Lote Parshuram Tal :-Khed 415722	272242/701
110	VAC METAL B-11 MIDC Lote Parshuram Tal :-Khed 415722	-
111	VINITI ORGANICS LTD C-14/12 MIDC Lote Parshuram Tal :-Khed 415722	273035/34
112	VANRATUND ICE B-59/1 MIDC Lote Parshuram Tal :-Khed 415722	9423391530
113	WC PHARMA & SPECIALITY CHEMICAL PVT. LTD F-6/2 MIDC Lote Parshuram Khed 415722	9987738808
114	WE ONE ADVENSIVE INDUSTRIES B-70/5 MIDC Lote Parshuram Khed 415722	9421153219/ 9821355224
115	YOJANA INDUSTRIES D-14/4 MIDC Lote Parshuram Tal :-Khed 415722	272992/892
116	YOJANA INTERMEDIATES PVT.LTD D-14/6 MIDC Lote Parshuram Khed 415722	272892
117	SAHAstra CHEMICALS PVT.LTD (AAJ-LIFE SCIENCE PVT.LTD)B-10 MIDC Lote Parshuram Tal :-Khed 415722	273030
118	SAHAstra CHEMICAL PVT.LTD (AAJ HEALTH CARE CHEMICA PVT LTD) B-14 MIDC UNIT-2 Lote Parshuram Tal :-Khed 4157224	273030
119	DEEPCHAND CHEMICAL PVT.LTD E-12/13 MIDC Lote Parshuram Khed 415722	272966/ 98219227574
120	OMKAR SPECIALITY CHEMICALS LTD D-27/5 MIDC Lote Parshuram Khed 415722	272244/ 8550994969
121	PARKRUTI CHLOROChem B-36 MIDC Lote Parshuram Tal :-Khed 415722	273102 / 9420050952