DISTRICT DISASTER MANAGEMENT PLAN
2024-2025

VELLORE DISTRICT

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DISTRICT DISASTER MANAGEMENT AUTHORITY,
VELLORE DISTRICT.

Vellore District
Disaster Management Plan 2024-2025
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About Vellore District

Vellore had the previlege of being the seat of the Pallava, Chola, Nayak, Maratha, Arcot Nawabs and Bijapur Sultan Kingdoms. It was described as the best and strongest fortress in the Carnatic War in the 17th Century. It was witnessed the massacre of European soldier during the mutiny of 1806. Vellore district lies between 12° 15' to 13° 15' North latitudes and 78° 20' to 79° 50' East longitudes in Tamilnadu State. The geographical area of this district is 5920.18 sq. k.m. The total population as per 2011 Census is 39,36,331.Vellore is the Head-Quarters of Vellore District which is well connected by Rail and bus routes to major towns of the neighbouring states like Andhra Pradesh, Karnataka and Kerala. The history of the District assumes a great significance and relevance, as we unfold the glorious past. The Monuments found in the district give a vivid picture of the town through the ages. In the 18th Century Vellore District was the scene of some of the decisive battles fought in Ambur 1749 A.D., Arcot 1751 A.D. and Vandavasi 1768 A.D. as a result of the long – drawn struggle between the English and the French for Supremacy.

One of the monuments of Vellore is the Fort. A very close examination of the stone inscriptions suggests that the Fort in all probability might have been built during the rule of Chinna Bommi Nayak (1526 to 1595 A.D.). The Fort is one of the most perfect speciments of Military architecture in South India. The Jalakandeswarar Temple inside the Fort is a very fine example of Vijayanagar architecture. The Kalyanamantap on the left of the entrance, with intricate carvings and delicacy of execution bears testimony to the engineering marvel and advanced state of sculpture of the times. Another landmark that has put Vellore on the Centre stage of Medical world is the Christian Medical College & Hospital.

The outstanding performance of this district in contributing to the Military service is commendable, as more and more men have enlisted themselves to the Military service, to serve the national indomitable spirit and courage. The clock tower in the long bazaar, Vellore was built in 1928 A.D.. A stone inscription in the building reads "VELLORE – FROM THIS VILLAGE 277 MEN WENT TO THE GREAT WAR 1914-18, OF THEM 14 GAVE UP THEIR LIVES" . This is a recorded testimony to the Vellore and Military prowess of men of this area.

District At a Glance

General:

District: Vellore

HeadQuarters: Vellore

State: TamilNadu

Area:

Total: 6062.35 Sq.Kms

Rural: 5920.18 Sq.Kms

Urban: 142.17 Sq.Kms

Population:

Total: 3936331

Male: 1961688

Female: 1974643

1.0 Context Analysis

1.1 Profile of Vellore District

General Information

Vellore District which formed part of the Thondaimandalam in days of yore is associated with many thrilling events in the history of South India. It contains many Historical places like Vellore were scene of many a war-far. The history of the District assumes a great significance and relevance, as we unfold the glorious past. The Monuments found in the district give a vivid picture of the town through the ages.

1.2 Political/Administrative

The District comprises of 2 Revenue Divisions, 6 Taluks, 20 Firkas and 317 Revenue Villages as its administrative Units. Vellore and Gudiyatham are the two Revenue Divisions comprising Vellore,Anaicut, Katpadi, K.V.Kuppam, Gudiyattam, and Pernambut Taluks. Further there are 7 Panchayat Unions, and 4 Town Panchayats, 248 village Panchayats, 2 Municipalities and one Corporation in Vellore District.

1.3 Economic

The district has many rivers, with an average annual rain fall of 925.5 mm and there are about 519 major irrigation and 571 minor irrigation tanks. With these irrigation sources the district has 43,333 Ha of total cultivated area. Paddy, Groundnut, Sugarcane, coconut, banana, Pulses and Millets are the major crops cultivated in the District. Paddy covers an area of 9,758 ha and the production is 31,965 tonnes. More over the district has 3,61,425 livestock and a poultry population of 1,94,941. The district also has a potential of 500 tonnes of inland fisheries. The composite of district has 1030 working factories (registered) and few important industries are leather and leather products, engineering industries, match industries, beedi industries, power loom industries and chemical industries. The SIDCO, Katpadi, is the major industrial parks in the district.

1.4 Geographical Placement

Vellore district lies between 12°37''46"N to 13°10'27"N North latitudes and 78°34'50"E to 79°21'1.636"E East longitudes in Tamil Nadu State. It is bounded on north by Chittoor District of Andhra Pradesh, on the South by Thiruvannamalai District and on the west by Tirupattur District, and on the East by Ranipet District. The geographical

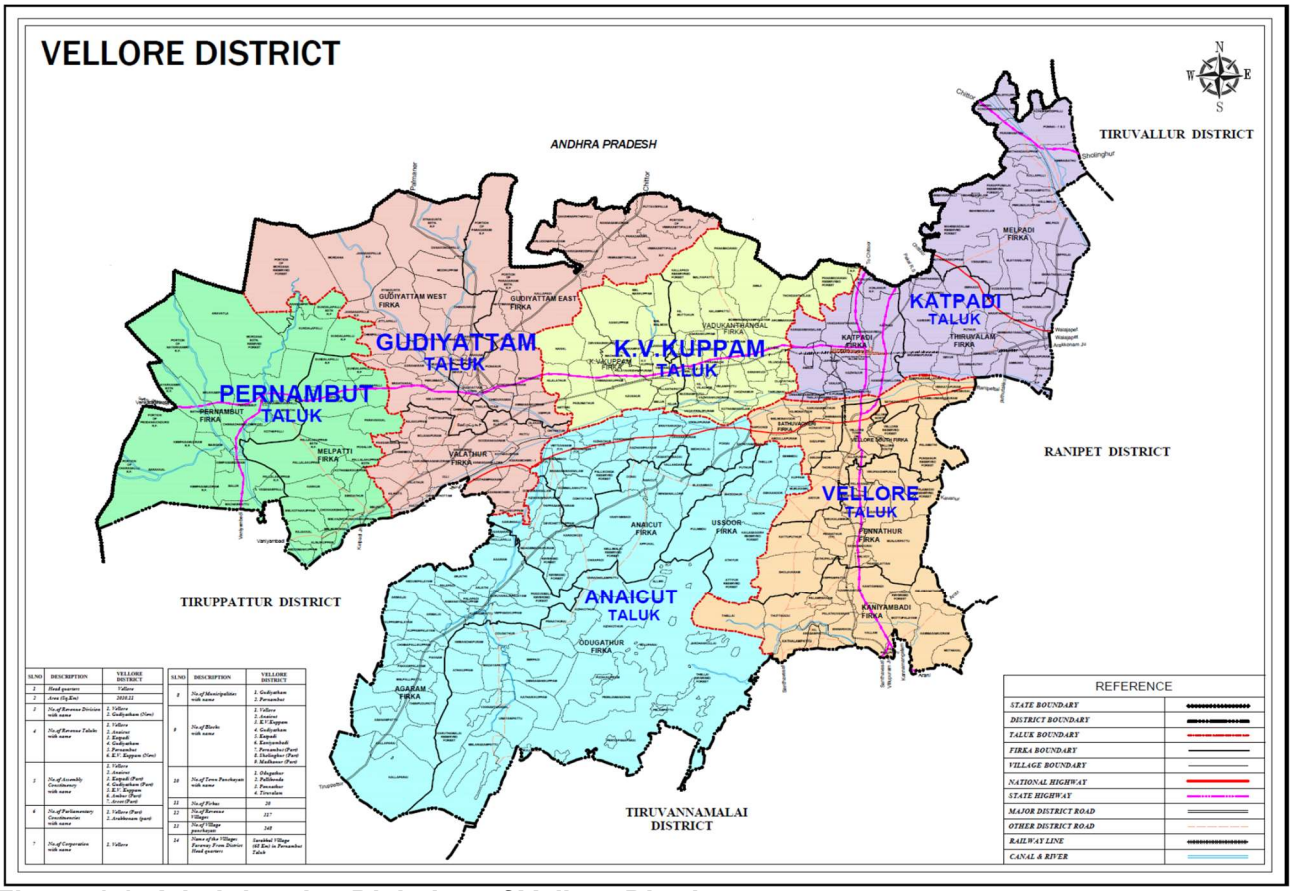


Figure 1.1. Administative Divitsion of Vellore District

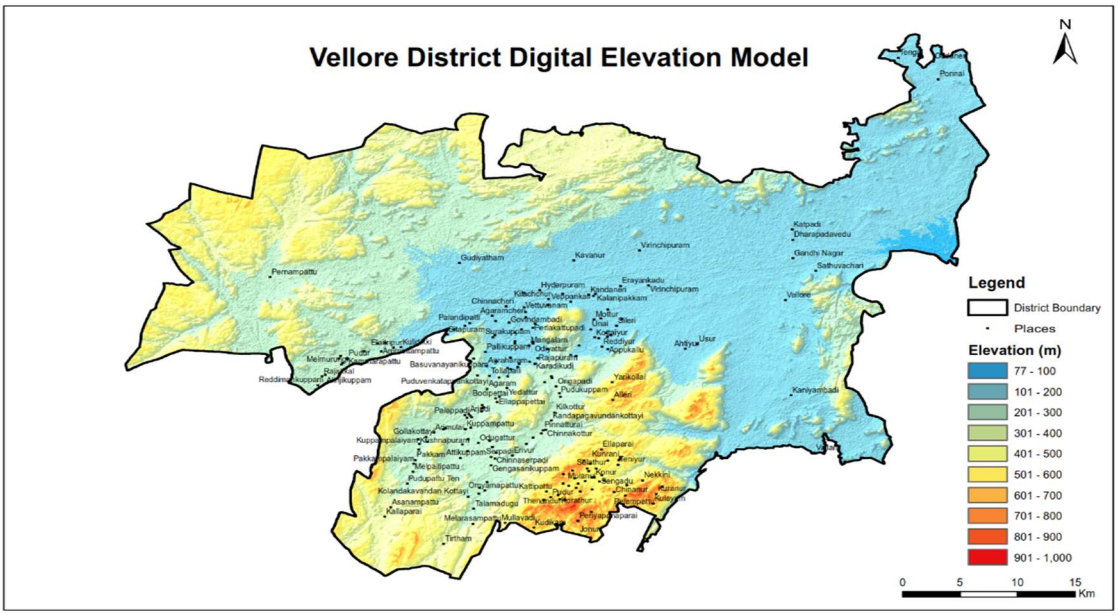


Figure 1.2. Elevation map of Vellore District

area of this district is 2030.11 sq. k.m. Vellore is the Head-Quarters of Vellore District is well connected by Rail and bus routes to major towns of the neighbouring states like Andhra Pradesh and Karnataka. Physiographically the North western parts of the district are endowed with hilly terrain and the eastern side of the district is mostly covered by rocky plains. The district has a population of 16,14,242 as per 2011 census.

1.5 Rivers

The major rivers of the district are the Palar and Ponnai. In a year, these rivers will almost be dry and sandy. Palar river physically splits the District into 2 halves, flows from Andhra Pradesh and enters the district at Gudiyatham Taluk and passes through Anaicut, Vellore and Katpadi Taluks. Palar River had experienced flood at a frequency of once in 5 to 7 years and last floods reported on October – 2021 to March - 2023. The Ponnai River which flows from Andhra Pradesh enters Vellore District at Katpadi Taluk and merged with Palar river at Walajah Taluk. Besides, Malattar, Koudinya nadi, Goddar, Agaram aaru, and Naganadi also flows through the district.

1.6 Forest

The area under forest in the district is 90,100 hectares. Prominent forest area of the district are in the Taluks of Vellore, Gudiyatham, Pernambut and Anaicut Taluks.

1.7 Climate and Rainfall

Generally the temperature and rainfall in the district are moderate. The district records a maximum temperature of 43.7 ^{0}C and minimium of 16.6 ^{0}C. On the other hand Vellore, Anaicut and Gudiyatham Taluks, which are surrounded by hills, are subjected to extreme climate conditions either being very hot during summer or very cold during the winter season. The district receives rainfall during the south west and north east monsoon period and the average annual rainfall of the district is 939.3 mm.

1.7 Railway Connectivity

The rail network of Vellore district falls under Chennai division of Southern Railway. Vellore railway station has direct rail links to Vijayawada Junction, Bhubaneswar, Nagpur, Bangalore, Bhopal,Mumbai, Mangalore, Tiruchchirapalli, Bilaspur, Patna, Ernakulum, Trivandrum, Kanyakumari, Kanpur, Gaya, Jammu, Gwalior, Chennai, Howrah, New Delhi, Coimbatore, Guwahati,Thiruvananthapuram, Kozhikode, Jaipur and other major cities. The total track length is of 165 Km (Broad gauge).

1.8 Education and Skill Development

Education and skill development is highly developed in the district which is also reflected in the high literacy rates of 72%. Vellore Institute of Technology (VIT) is well renowned and attracts talents from pan India. The district also has notable industry related research institutes like Sugarcane research institute – Melalathur, Agricultural Research station – Virinjipuram.

Table 1.1 Number of Institutes in Vellore District

Institutes	Numbers
Government Colleges for General education	5
Aided Colleges for general education	3
Self-Financing Colleges for general education	4
Colleges for professional education	16
Primary & secondary schools	1003
High Schools	137
Higher Secondary Schools	138

1.9 Landuse Classification

Table 1.2 Landuse Classification of Vellore District

S. No.	Land classification	Hectare	%
1	Forests	331	0.15
2	Uncultivable Waste	10189.5	4.56
3	Non Agri Uses	25453.41	11.40
4	Cultivable Waste Land	1313.485	0.59
5	Permanent Pastures and Grazing lands	644.255	0.29
6	Trees and Groves not included in the cultivable area	667.535	0.30
7	Current fallows	31430.47	14.08
8	Other fallows	13470.82	6.03
9	Net cultivated Area	50141.85	22.46
	Total Geographical Area	**223264.7**	**100.00**

1.10 Agricultural Crops

Table 1.3 Agriculture Crops- Area Coverage 2021-22 & 2022-23

Sl.No	Crop	Normal Area	Area Coverage (in Ha)		
			2021-22	2022-23	% increase
1	Paddy	7041	9676	9758	139
	Millets				
2	Cholam	2669	2425	2653	99
3	Cumbu	413	335	245	59
4	Ragi	1798	1043	1131	63
5	Maize	1037	388	449	43

6	Samai	651	888	1091	168
	Total Millets	**6568**	**5079**	**5569**	**85**
	Pulses				
8	Redgram	4813	4113	3554	74
9	Blackgram	1011	1642	2406	238
10	Greengram	531	680	695	131
11	Horsegram	2171	1950	2545	117
12	Cowpea	675	1004	1004	149
13	Other Pulses	540	998	954	177
	Total Pulses	**9741**	**10387**	**11158**	**115**
	Oilseeds				
14	Groundnut	14552	14587	15462	106
15	Gingelly	43	14	18	42
16	Castor	45	14	24	53
	Total Oilseeds	**14640**	**14615**	**15504**	**106**
17	Sugarcane	2061	1097	1294	63
18	Cotton	45	27	50	111
	Grand Total	**40096**	**40881**	**43333**	**108**

1.10 Overview Of Mining Activities in Vellore District

Vellore District in Tamil Nadu accounts for country's resources of vermiculite and River Sand with minor occurrence of other minerals such as Fireclay, Graphite, Limestone, Quartz/Silica sand, Apatite, Barytes, Molybdenum, etc., excluding Atomic and Rare Earth Minerals.

Table 1.4 Overview of Mining Activities in Composite Vellore District (2020-21 to 2022-2023)

S.No	Name of the Mineral	Production in tonnes
Minor Mineral		
1.	**Black Granite**	**1892.928 Cbm**
2.	**Color Granite**	**--**
3.	**Rough stone**	**541458 Cbm**
4.	**Earth & Brick Earth**	**316970 cbm**
5.	**Gravel**	**43630 Cbm**

1.11 Process of Deposition of Sediments in Rivers of the District (Composite Vellore District)

Palar River is the major river draining the district and major part of the district falls in the Palar River Basin. Palar River flows towards east for a distance of about 295 km. It runs parallel to the hill ranges of the Eastern Ghats for a major part of its course and has a vast flood plain in the lower reaches, but is dry for major part of the year and it is ephemeral in nature. Palar River originates in Nandhi Durg, Kolar district in eastern part of Karnataka State at an elevation of 800m above MSL, which passes through the hilly terrain of south western part of Andhra Pradesh and enter into Tamil Nadu on the west of Vaniyambadi town and flows through Vellore, Thiruvannamalai and Kancheepuram Districts and finally enter into Bay of Bengal near Sadarangapattinam . Other major tributaries of Palar River in Vellore District is Ponnaiyar, Cheyyar, Pambar and Malattar and almost all the streams are ephemeral in nature and are mostly structurally controlled. The Palar River Basin

having an annual potential of 1758 MCM and average annual flow into the sea to be 12.5 TMC (Source: IAMWARM). Until a century ago it was a perennial river, but now the water flow is confined to the monsoon months, which has attracted the sand miners.

The climatic regime of Vellore and northern Tamil Nadu is mostly of dry semiarid in nature , added with very poor rainfall except for some monsoonal rains leading to less or poor inflow in the Palar and other tributaries. Hence, the depositional process is restricted to the seasonal rains when there is a flood due to excess rains in the upper riparian areas. As the River flows in the district is episodic, the process of deposition is restricted only during floods, that too active for only few days.

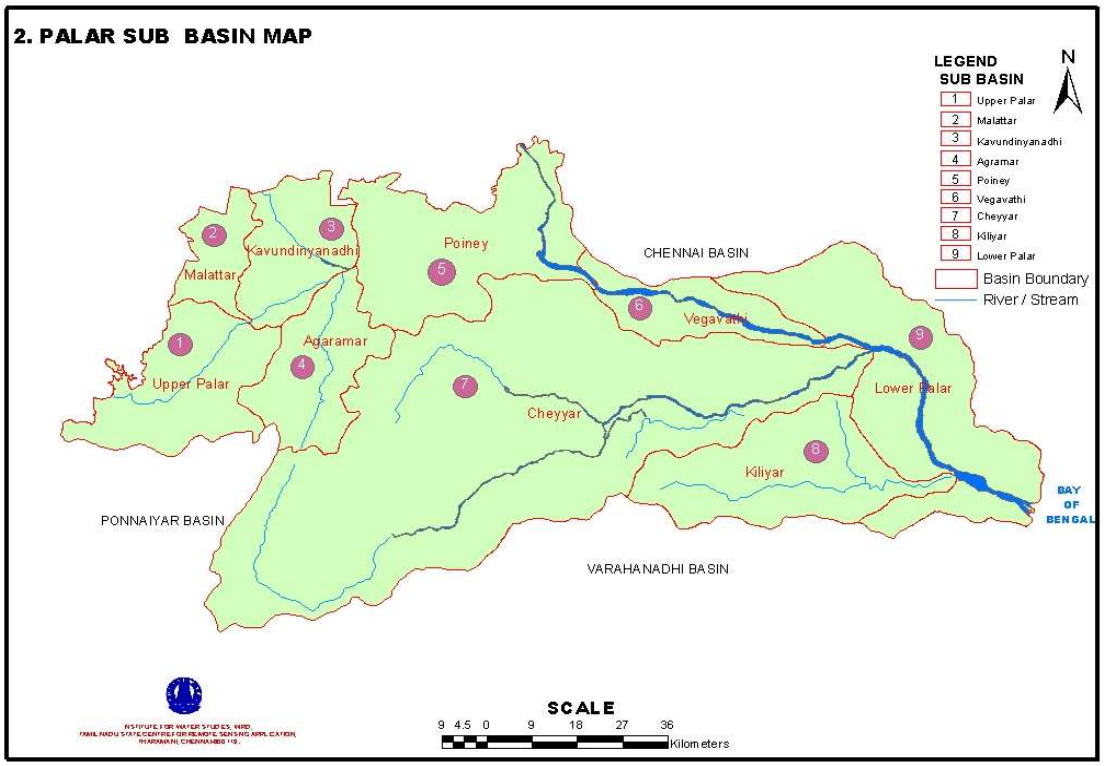


Figure 1.3 Map of Palar Basin along with 10 sub basins of Palar (Source: http://www.wrd.tn.gov.in/maps/Palar%20Basins.jpg)

2.0 Hazard, Vulnerability and Risk Assessment

Vellore Distrcit has an area of 2030 Sq.km with a total population of 16.1 Lakhs. The district is moderately prone to disasters. The following are the different type of disasters are indicated below

Water and Climate Related	Geological Related Disasters	Chemical and Industrial Related	Accident Related	Biological Related
Flood, Drought, Thunderstorm & Lightning, Heat Stroke, Cold wave	Earthquake, Landslide/Rock Fall	Industrial Fires and industrial pollution due to effulients	Road Accident, Urban and Village Fire Forest Fire	Epidemic, Pest Attack, Water Contamination and Cattle Epidemics Pandemic like COVID-19

Based on the Sendai Framework we have analysed the hazard, Vulnerability and identified pre disaster activities for mitigation and taken developmental/structural measures to reduce the severity of different disasters by 2019 – 2030.

2.1 Hazard Analysis

The coastal districts of Tamil Nadu are prone to multi hazards. Though the Vellore district is far from Coast and land locked, because of its climatic conditions Vellore district is prone to water and climate related disasters. Drought, Floods, Earthquake (Zone- III – Figure 2.1)), Fire Incidents, Heat Waves, Cold Waves and High Wind (Figure 2.2) have been recurrent phenomena. The details of list of hazards and hazardranking is given in Table 2.1 and the Hazard Seasonality Mapping is given in Table 2.2 .

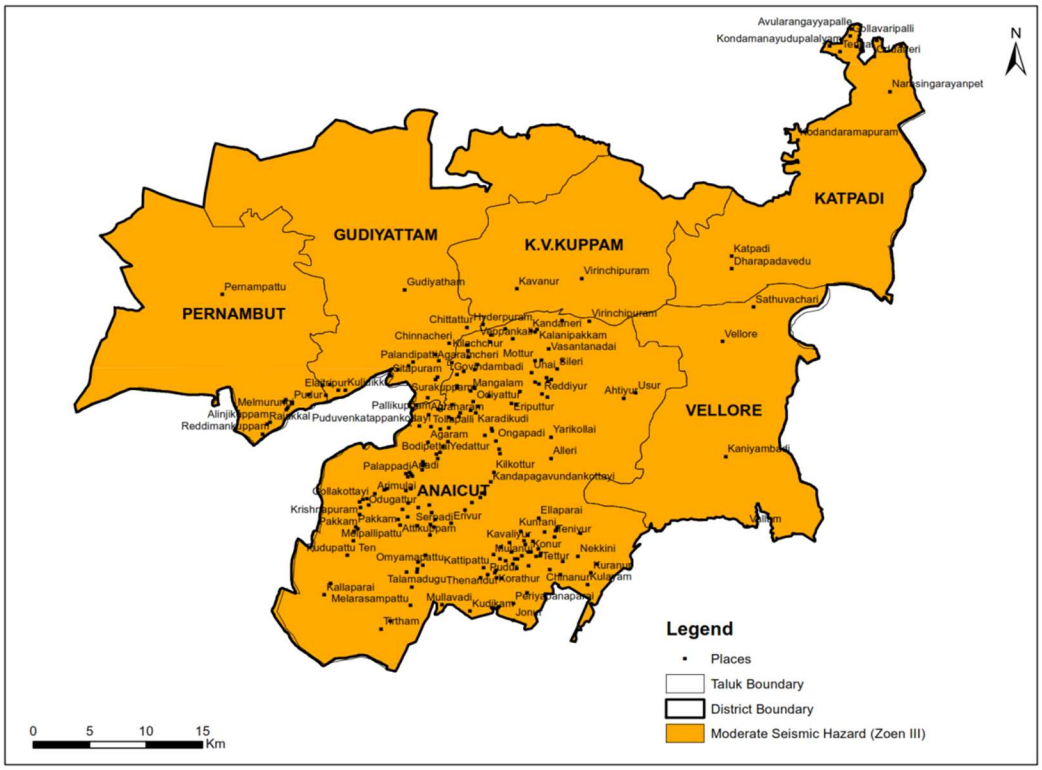


Figure 2.1 Earthquake Hazard Map of Vellore District

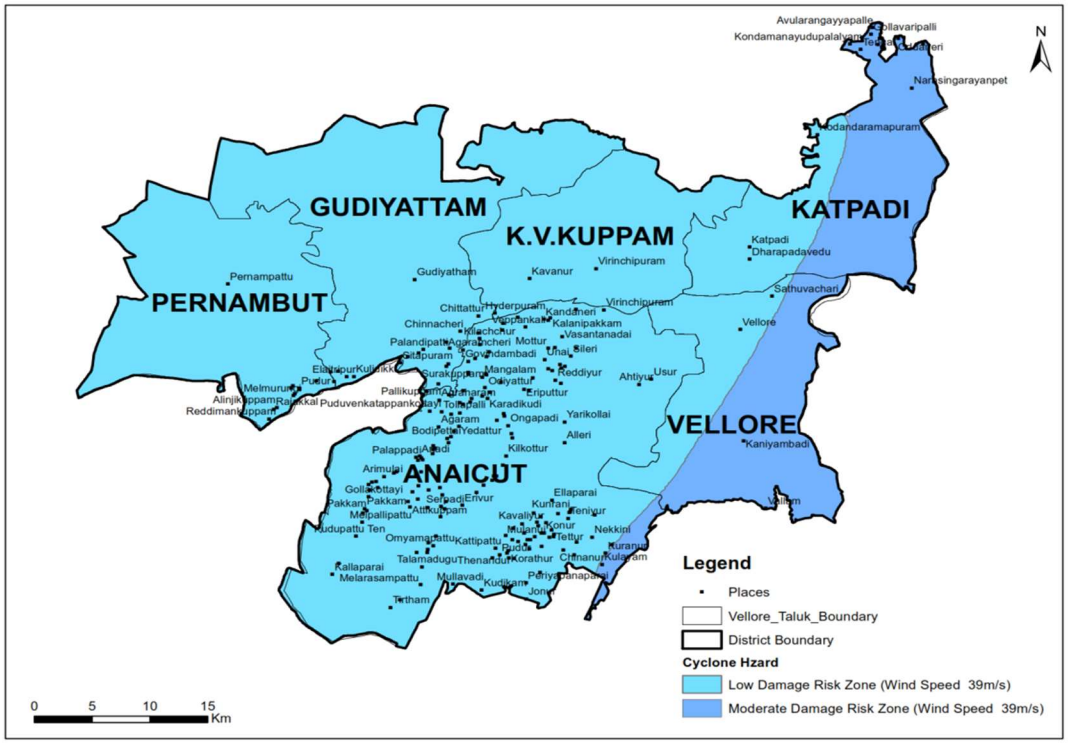


Figure 2.2 Cyclone Hazard Map of Vellore District

Table 2.1 Hazard/ RiskAssessment of Vellore District

Hazard	Characteristics	Who/What at risk	Probability of occurrence (Rating)	Vulnerability (Rating)	Ranking (probability x vulnerability)
Flood	• Palar River is the major river draining the district, flowing towards east for a distance of about 295 km. It has a vast flood plain in the lower reaches, but is dry for major part of the year. • The houses built in the villages next to the embankments are vulnerable to Floods	Agriculture crops, Transport, Houses, Constructions, Drinking Water, Cattle, Irrigation Equipment, Educational Institutes, Vulnerable Groups	Occasional (2)	Medium (2)	4
Drought	• Deficit in rainfall and depletion of ground water	Crops, Drinking Water, Livelihood Options	Frequently (3)	High (3)	9

Earthquake	• The Vellore district falls under Earthquake zone III. • The buildings and houses built in the district are not earthquake resilient therefore the damages will be moderate to high in case of an	Human Life, Cattle Life, Kutcha and Pacca Houses, Community infrastructue	Occasional (2)	High (3)	6
Fire	• Fire incidents are more frequent in the rural areas of District due to electrical short circuits and in rural areas, people use fire friendly resources like wood, cow-dung cakes, straws etc. and lack of fire preventive measures.	Human Life, Cattle Life, Houses and property	Frequently (3)	High (3)	9
Cyclone	• Part of Katpadi, Vellore and Anaicut Taluks are prone to Moderate Cyclonic and Wind Hazard	Human Life, Cattle life, Crops	Occasional (2)	Moderate (2)	4

CBRN	Though the occurrence of Chemical, Biological, Radiological and Nuclear disaster is very low in the district but the probability of damages is very high in case of such disasters as the district is highly populated.	Human Life, Cattle Life, Environment &Eco-System, Economy	Rare (1)	High (3)	3
Cold Wave/ Heat Wave/ Storm/ Hail Storm/ Lightning	•These are seasonal hazards largely affecting the poor. • The poor and marginal people are highly vulnerable to such seasonal hazards.	Human Life, Cattle life, Crops	Occasional (2)	Low (1)	2

Vulnerability Score Low : 1 Medium : 2 High : 3

Probability Score Rare : 1 Occasional : 2 Frequently : 3

Reference: DMA 2000 Hazard Mitigation Plan – Village of Briarcliff Manor, New York July 2007.

Table 2.2 Hazard Seasonality Mapping of the Vellore District

Sl. No.	Hazard	Probable Months											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Flood							√		√	√	√	√
2.	Earth quake	√	√	√	√	√	√	√	√	√	√	√	√
3.	Drought				√	√	√	√	√				
4.	Fire				√	√	√						
5.	Cyclone/Sto										√	√	√
6.	Cold wave	√											√
7.	Heat wave				√	√	√						
8.	Hail storm								√	√			

2.2 Vulnerability Analysis

The vulnerability of the district is defined as the extent to which the District faces damages in terms of Agriculture, Cattle and other economic activities apart from infrastructure and Human casualities. The district should develop the ability to anticipate, cope with, resist and capacity to recover from any probable disaster. The factors like limited livelihood opportunities, low per capita income, under developed infrastructure, unplanned development, rapid urbanization, prevalent social structures, demographic expansion and environmental degradation make Vellore District moderately vulnerable to multi disasters.

2.2.1 Economic Vulnerability:

The contribution of the Composite Vellore District in GDP of Tamil Nadu is significant and is one among the top 10 contributors to GDP of the State, it contributes USD 3.8 billion in GDP of Tamil Nadu. The district accounts for more than 37% of the country's leather export. In the past few years with around 3000 industrial units established with an investment of $ 51 Million. Some of the prominent MSME clusters are leather, textile and handloom & safety match industries. The district also has 12 large scale and 300 medium scale industries and majority of them are engaged in the leather production. The Composite Vellore District has a dominant presence in the Leather and leather-based industries. It accounts for more than 37% of the country's export leather and leather related products. Even though many large scale industries like, BHEL, EID Parry, Tirumalai Chemicals and Greaves, SAME-DEUTZ, TVS–Brakes India, Mitsubishi, Greaves Cotton , MRF, Kramski Stamping and Molding India Pvt Ltd., RSL Industries Ltd, Farida Shoes Ltd etc are functioning, there are 12,396 micro and small Enterprises functioning in the Composite Vellore District and majority of them are being engaged in leather processing are thrashed with the entire district of Vellore.

2.2.2 Social Vulnerability

The social structure of Vellore is divided on Caste, religion and ethniclines which makes the minorities and poor highly vulnerable. Asper 2011 census, totally about 23.7% of the people in the district is Scheduled Caste and Scheduled Tribes. Slum people and rural poor are mostly vulnerable.

Further, a large population is exposed to risk as the districtis highly populated urban areas. The district has recorded population density of 795 persons/Sq. km. As per the Cenus 2011 the compositeVellore district shares urban population 43.2% in the total population. The decadal population growth of the district during 2001-2011 is 13.2%. The literacy rate is High in term of total literacy of composite Vellore district is 79.17%. Totally 57.08 percent of the composite Vellore district is non workers and these groups are vulnerable because of their socio economic conditions. The vulnerable groups like children and women are at higher risk in the district as they are dependent on others. The composite Vellore district has recorded 3rd highest percentage of household industry workers to total workers of 8.1% among the composite Vellore districts and such house hold industries exposed to minor disasters.

2.2.3 Environmental Vulnerability

The environment, development and disasters are connected is rarely disputed, but the multi-dimensional role of environment has caused considerable confusion. While it is often recognized that ecosystems are affected by disasters, it is forgotten that protecting ecosystem can both save lives and protect livelihood, apart from minimizing the damages to natural resources and infrastructure.

Due to urbanization and limited livelihood opportunities in the rural areas, people are migrating to urban area and creating additional pressure on the limited resources.These altogether form the key reasons for exploitation of the available resources, deforestation, unplanned development and various other related after effects including environmental degradation & risk of increasing man-made &human-induced disasters likeaccidents ,industrial/chemical disasters etc.

2.2.4 Technological Vulnerability

There is lack of proper and effective technology to forecast, monitor and disseminate early warning information regarding onset of any threatening event in the district. This increases the risk of people living in vulnerable areas. Besides, lack of appropriate technology and information also resists the capacity of the district to mitigate the risk.

2.2.5 Physical Vulnerability

Nowadays floodplain areas are reduced in size or no longer function as active floodplains, thereby impacting on the delivery of environmental services to local and regional communities and economies. The major problem in flood is that of inadequate surface drainage which causes inundation and water-logging over vast areas. This will create drainage congestion and water logging. The low lying areas, and the villages near the embankments are vulnerable to water logging problems as the soil in the district retains water for longer duration. The Vellore district is classified under Moderate Seismic Zone III (Expected Magnitude of 6.9) as per the Bureau of Indian Satndard (BIS). In such case the the old buildings and heritage structures will undergo damage during More than 6.0 Magnitude earthquakes depending upon the earthquake epicentral distance.

2.2.6 Vulnerability due to Climate

The poor, marginal and small farmers are vulnerable to seasonal hazards like heat waves, cold waves and seasonal flooding. The sudden onset of monsoon. Heavy rainfall not only damages the standing crops but also takes lives of the people and livestock. On the other hand, major parts of the district face drought due to decicient rain and unseasonal rains.

2.2.7 Structural Vulnerability

Due to rapid urbanization, the buildings, constructions, and other infrastructures have been developed rapidly without taking into consideration the disaster vulnerability of the district. Most of the constructions are not disaster resilient or earthquake safe which increases the vulnerability of the population to varioushazards

2.2.8 Non structural vulnerability

Vellore district is moderately vulnerable to multihazard sandfew of the disasters are annual such as flood/rain, fire, heatwaves etc. The community is aware of these recurrent disasters and has some understanding & experience towards these disasters. However, the community is unaware of the risks arising out of rapid urbanization, unplanned development, deforestation, environmental degradation and other such potential disasters. This unawareness and inexperience to these situations poses added vulnerability to the community.

2.3 Capacity Analysis

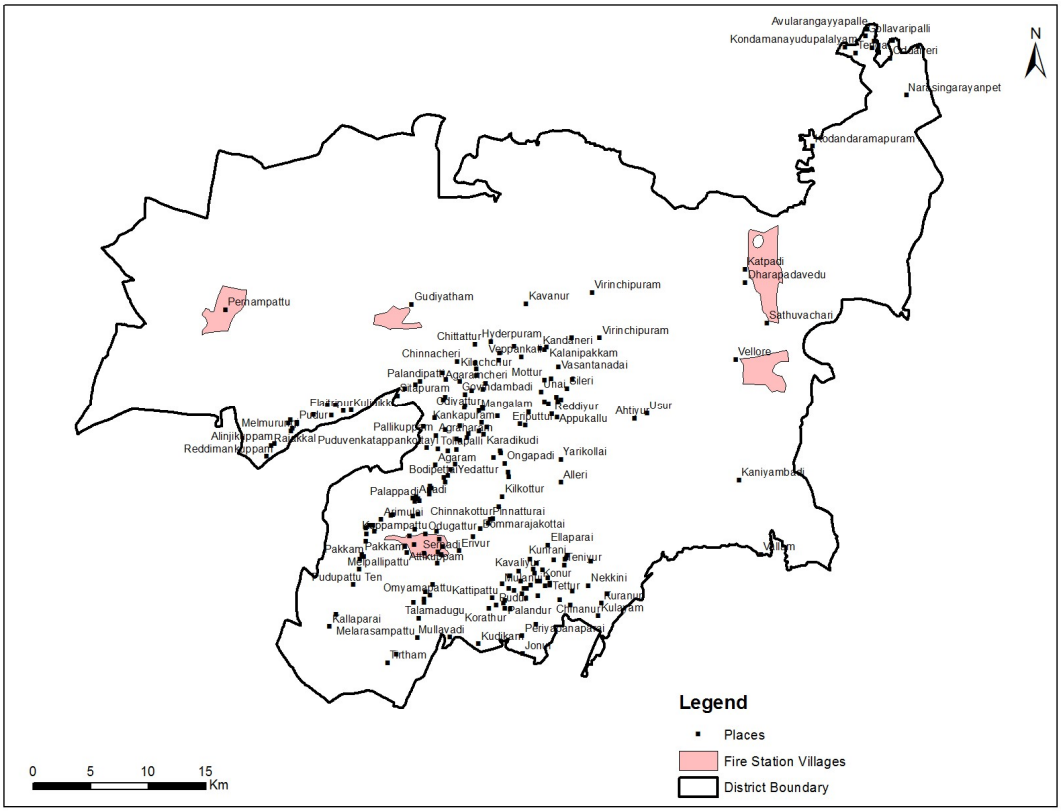
The district has got number of resources and capacities which are useful in emergency as well as normal situations. Below is a broadlisting of the key resources/capacities available in the district with different departments/agencies:

Table 2.3 Resources/capacities available in the district with different departments/ agencies

Sl.No	Capacity/resources	Number and Details
1	Fire and Rescue Services (Vellore Division) Fire Stations	Gudiyatham Katpadi Odugathur Peranampattu Vellore
	Fire Fighting Equipments	Instruments (1263)
2	Hospitals	Number of Hospitals (4) Private Hospitals (73) Ayurvedic Hospitals (1) Dispensaries (8) Primary Health Centres (33) Urban Primary Health Centres(13) Health Sub Centres (221) Beds in Hospitals and Dispensaries (2075) Total Number of Doctors (475) Total Number of Nurses (924)
	Health Department	Instruments (379)

3	Transport – Road Network	National Highways (126.0 Km) State highways (212.058 Km) Major District Roads(62.9 Km) Others District roads (621.558 Km) Roads of Urban Local Bodies (1039.478 Km) Roads of Rural Local Bodies (1875.72 Km)
4	Registered Motor Vehicles	Commercial (23541) Non Commercial (371876)
5	Railway Length	Route Length Broad Guage 165.4 Km Number of Railway Station (28)
6	Closest Airport	Chennai/Emergency landing May be in Abdullapuram, Vellore, Maintained by AAI
7	Closest Helipads	VIT University, Katpadi, Vellore Golden Temple, Vellore,
8	Closest Sea Port	Chennai
9	Communications	Post Offices doing postal business alone (151) No.of Telephones in use (11640) No.of Telephones Exchanges (30)
10	Police	Police Force (968) Armed reserve (725) Police Station (33) Police Out Spots (5)
11	Banks	Total Banks (188) Primary Cooperative Banks (116)
12	Nearest National Disaster Response Force (NDRF) Unit	Nearest Location 4th Battalion Arakkonam (82 Km)
13	Non Governmental organization in Vellore District	Active NGO's (10)

14	Educational Institutions	Government Colleges for General education (5) Aided Colleges for general education (3) Self-Financing Colleges for general education (4) Colleges for professional education (16) Primary & secondary schools (1003) Higher Secondary Schools (138) Other Professional Institutes (10)
Sl.No	**Capacity/resources**	**Number and Details**
15	Radio Station	Available in Vellore (1) VIT Community Radio (1)
16	River/canal	Major River – Palar
16	Power-grid sub-station	Thiruvalam
17	Nearest IMD office	Chennai RMC Vellore Collectrate
18	District EOC	Vellore Collectorate - 1077
19	First responders	For Vulnerable Areas – 126 Exclusivly for Animals – 90 Tree Cutting and Tree Plantation – 80 Women Firtst Responders - 0
20	Relief Centres	Government - 18 Private – 8
21	Temporary Cattle Shelters	8 Nos



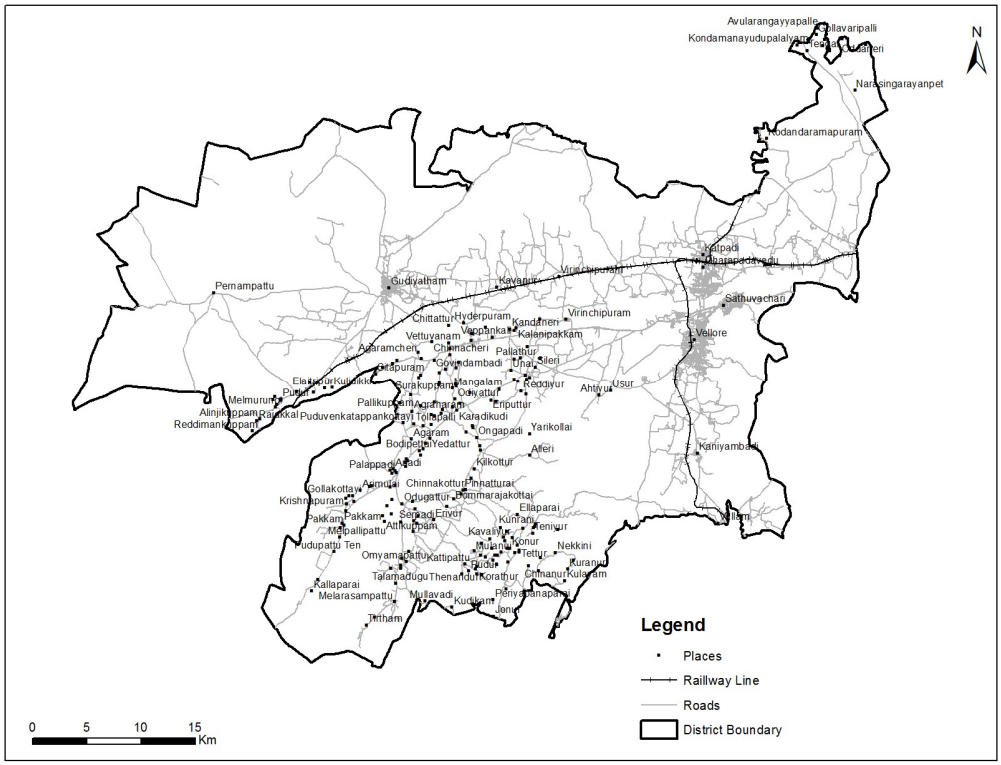


Figure 2.3 Villages contain Fire Stations in Vellore District

Figure 2.4 Road and Railway Network in Vellore District

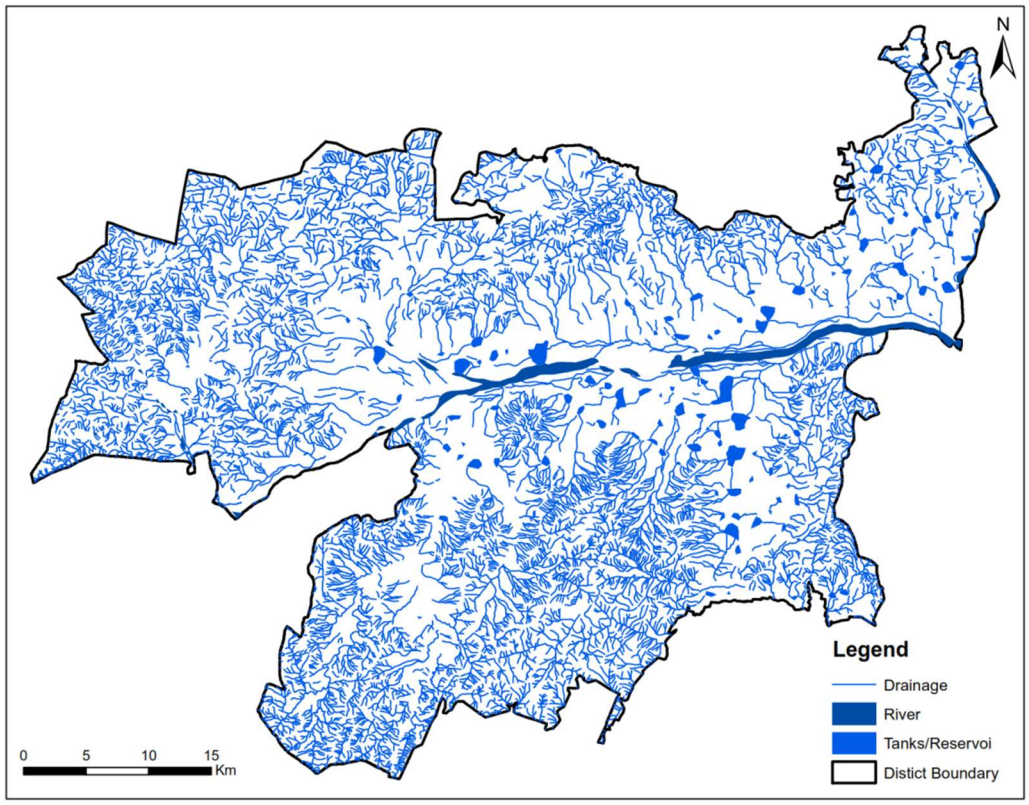
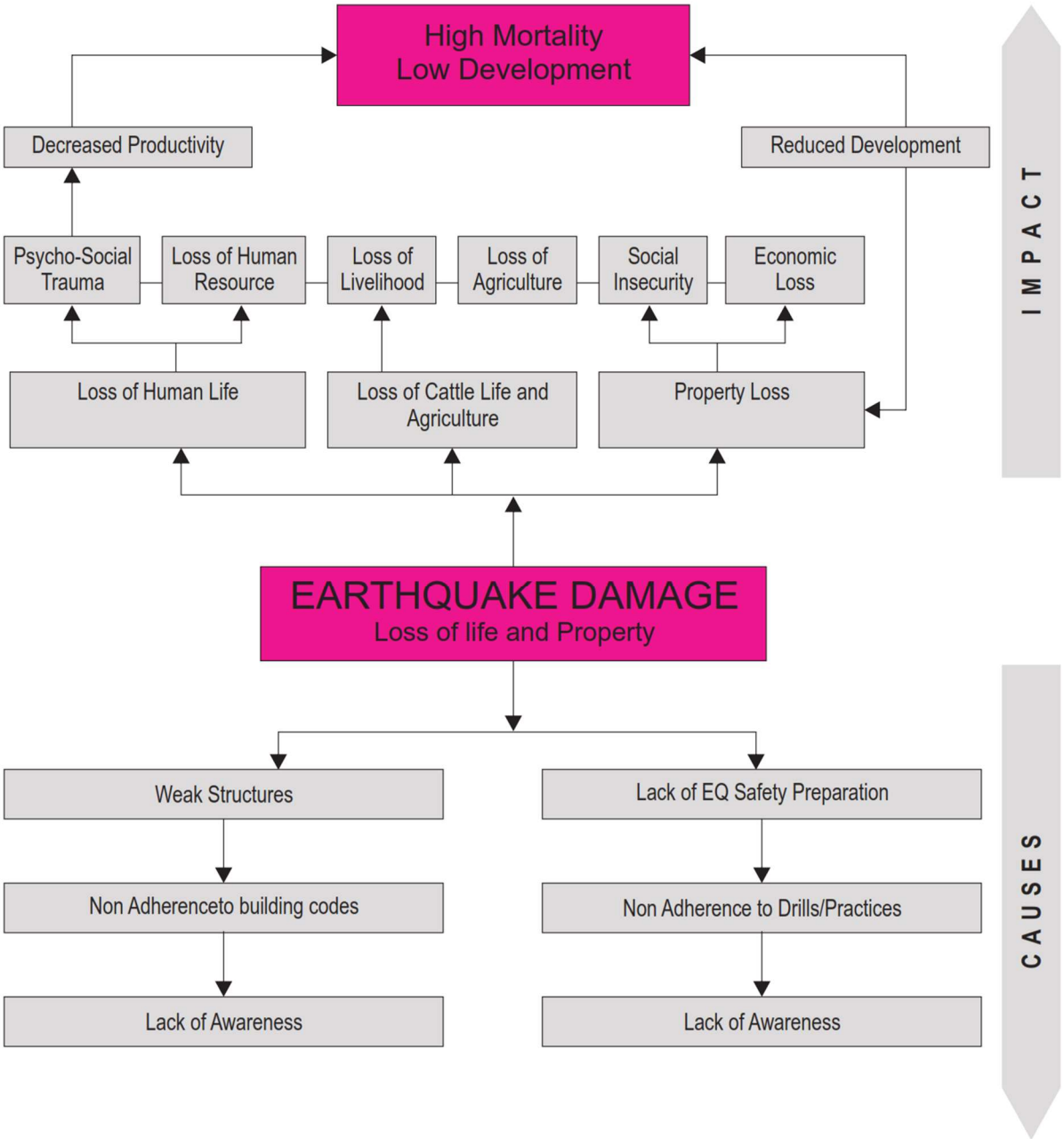


Figure 2.5 Location of Water Bodies in Vellore District

3.0 Problem Analysis

3.1 Macro Analysis

The major problems in the district arise out of recurrent floods which occur during monsoon season and frequent fire incidents occurring in summer season. These two main disasters account for the major proportion of losses (lives, property, crops etc). The other major problem may arise in case of earthquake in the region. Analyzing the historical information and experiences drawn from consultation with different stakeholders, the underlying causes and the impact of these major hazards can be understood with the help of following figures.



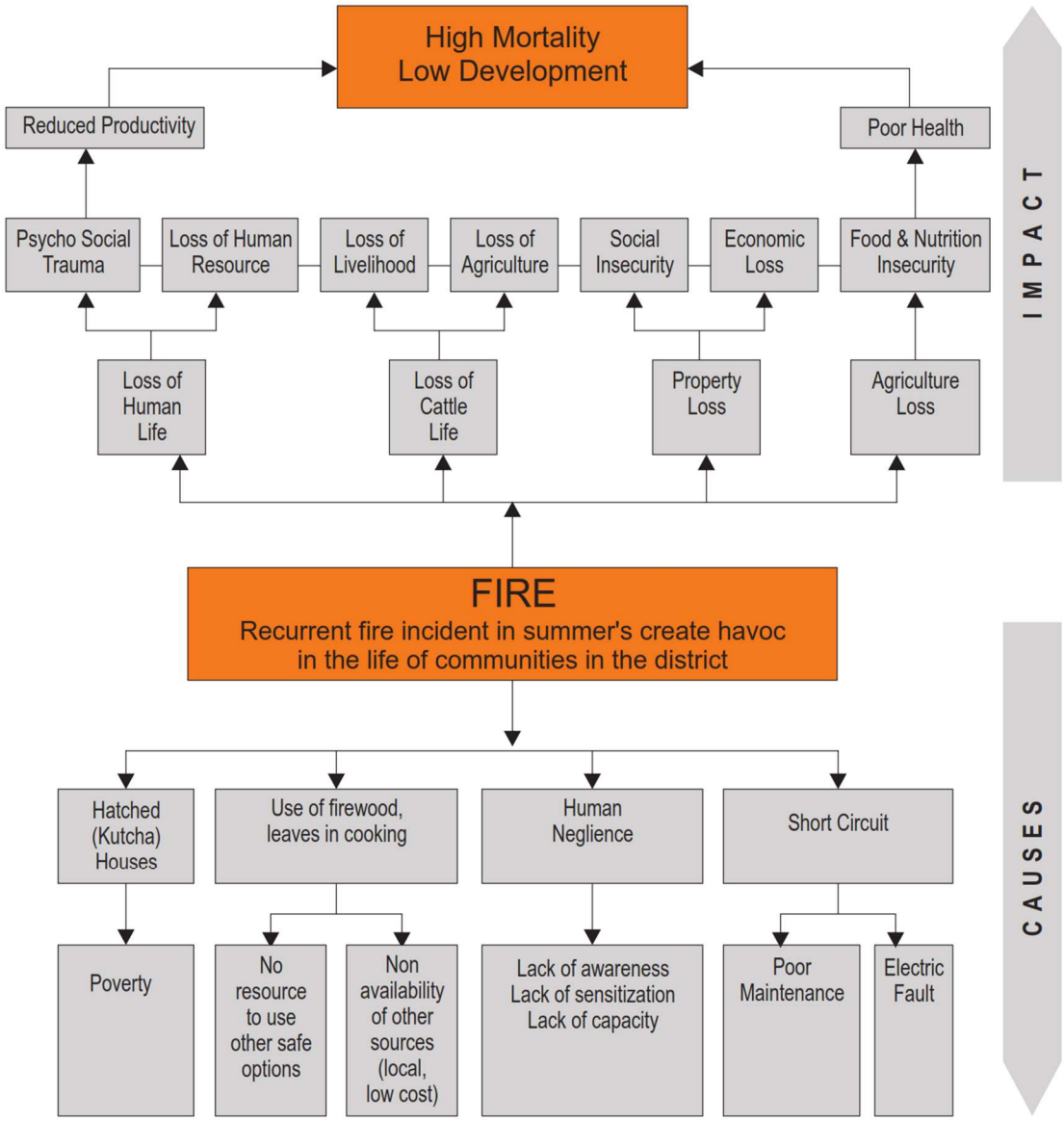

High Mortality
Low Development
Reduced Productivity
Poor Health
Psycho Social Trauma
Loss of Human Resource
Loss of Livelihood
Loss of Agriculture
Social Insecurity
Economic Loss
Food & Nutrition Insecurity
Loss of Human Life
Loss of Cattle Life
Property Loss
Agriculture Loss
IMPACT
FIRE
Recurrent fire incident in summer's create havoc in the life of communities in the district
Hatched (Kutcha) Houses
Use of firewood, leaves in cooking
Human Neglience
Short Circuit
Poverty
No resource to use other safe options
Non availability of other sources (local, low cost)
Lack of awareness
Lack of sensitization
Lack of capacity
Poor Maintenance
Electric Fault
CAUSES

Table 3.1. List of Earthquake/Earth Tremors in and around Vellore District (1800-2003)

Sl.No	Year/ Month/ Date	Latitude	Longitude	Magnitude	Name of Location/ District
	05.02.1859	12.5	78.60	4.3	Tirupattur, Vellore
	17.12.1859	12.5	78.6	4.3	Tirupattur, Vellore
	02.08.1865	12.7	78.7	5	Vaniyambadi, Vellore
	07.09.1980	12.739	78.698	2.2	Vaniyambadi, Vellore
	05.07.1982	12.725	78.722	2.6	Vaniambadi, Vellore
	13.05.1984	12.474	78.564	2.9	Tiruppattur, Vellore
	27.11.1984	12.533	78.699	4.1	Tirupattur, Vellore
	27.11.1984	12.539	78.705	2.9	Tirupattur, Vellore
	27.11.1984	12.551	78.702	2.6	Tirupattur, Vellore
	28.11.1984	12.526	78.843	3.3	Tirupattur, Vellore
	29.11.1984	12.568	78.692	2.6	Tirupattur, Vellore
	30.11.1984	12.556	78.707	2.9	Tirupattur, Vellore
	03.12.1984	12.56	78.747	3.5	Tirupattur, Vellore
	03.12.1984	12.566	78.74	3.3	Tirupattur, Vellore
	03.12.1984	12.572	78.733	4.3	Tirupattur, Vellore
	04.12.1984	12.521	78.726	2.9	Tirupattur, Vellore
	04.12.1984	12.521	78.726	2.6	Tirupattur, Vellore
	10.12.1984	12.592	78.773	2.9	Tirupattur, Vellore
	22.01.1985	12.537	78.74	2.5	Tirupattur, Vellore
	20.10.2003	12.761	78.574	4.0	Pernambet, Vellore

(Source : 1. Seismo Tectonic Atlas of India (2011), Geological Survey of India (GSI).
2. Dr. G.P.Ganapathy (2005), Seismic Hazard Assessment for Tamil Nadu, Ph.D Thesis (un Published report)

Table 3.2. List of Earthquake/Earth Tremors in 100 km radius of Vellore District (1985-2024)

S_No	Year	Month	Date	Hour	Minute	Seconds	Latitude	Longitude	Magnitude	Source
1	1985	5	7	8	11	50	13.56	77.41	3.10	GBA
2	1959	12	17	-	-	-	11.70	78.10	4.30	GUB
3	1968	8	15	-	-	-	12.00	79.00	3.70	UMC
4	1969	1	16	20	55	52	14.10	78.70	3.50	INR
5	1970	4	3	2	26	44	14.70	78.10	3.00	INR
6	1971	11	26	20	40	3	12.80	78.30	4.40	INR
7	1971	11	26	21	5	41	12.80	78.30	4.70	INR
8	1972	12	28	16	20	21	12.80	78.30	3.70	INR
9	1974	5	23	12	3	28	12.80	78.30	3.90	INR
10	1974	7	31	23	53	39	12.80	78.30	4.10	INR
11	1975	3	28	14	27	27	14.50	79.30	3.10	INR
12	1976	2	9	11	6	35	14.70	78.10	3.50	INR
13	1977	12	7	8	17	0	13.08	78.23	3.30	GBA
14	1978	8	8	12	17	28	13.44	77.82	3.90	GBA
15	1978	7	6	2	13	16	13.06	78.22	3.00	GBA
16	1979	6	9	6	52	13	12.40	77.94	3.20	GBA
17	1979	4	18	15	17	0	11.80	78.30	3.80	BRR
18	1980	12	25	22	9	0	12.40	77.50	3.20	CVR
19	1982	9	8	8	29	47	13.10	78.20	3.00	GBA
20	1982	11	3	7	43	5	13.06	78.21	3.00	GBA
21	1982	2	7	12	34	29	13.07	78.21	3.00	GBA
22	1982	1	27	11	51	14	13.06	78.22	3.30	GBA
23	1982	3	13	18	42	17	13.06	78.22	4.00	GBA
24	1982	2	24	22	24	0	12.40	78.30	3.00	CVR
25	1982	3	13	18	43	0	12.80	78.30	3.70	BRR
26	1983	3	27	11	17	25	13.05	78.20	3.00	GBA
27	1983	10	1	11	41	29	13.06	78.22	3.30	GBA
28	1983	2	5	15	43	39	13.08	78.25	3.40	GBA
29	1984	3	20	10	45	22	12.55	77.77	4.40	GBA
30	1984	7	3	8	32	31	13.10	78.21	3.40	GBA
31	1984	9	12	3	34	7	13.06	78.22	3.40	GBA
32	1984	11	27	17	19	43	12.53	78.69	4.10	GBA
33	1984	12	3	17	2	58	12.57	78.73	4.30	GBA
34	1984	11	28	2	29	49	12.52	78.74	3.30	GBA
35	1984	12	3	19	17	19	12.56	78.74	3.50	GBA
36	1985	8	23	11	39	51	13.11	78.20	3.40	GBA
37	1985	9	22	7	20	52	11.67	79.06	3.30	GBA
38	1986	10	14	16	36	30	13.03	78.21	3.10	GBA

39	1986	12	3	15	51	43	13.10	78.21	3.30	GBA
40	1986	9	22	21	9	38	13.08	78.23	3.20	GBA
41	1987	3	17	10	48	21	13.10	78.20	3.20	GBA
42	1987	8	24	10	39	8	14.50	78.56	3.00	GBA
43	1988	5	19	14	58	27	12.16	79.40	3.80	GBA
44	2021	4	11	15	11	27	12.33	78.72	3.00	NCS
45	2021	11	28	22	47	22	12.78	78.60	3.60	NCS
46	2021	12	22	1	39	36	13.59	77.73	3.10	NCS
47	2021	12	22	1	44	32	13.55	77.76	3.30	NCS
48	2021	12	23	8	46	18	13.54	77.74	3.60	NCS
49	2021	12	23	9	44	12	13.06	78.69	3.50	NCS

Tabe 3.3 Average Rainfall of Vellore District – 2023

Season	Average Rainfall (in mm)	Actual Rainfall (in mm)	% of Departure
Winter (Jan-Feb)	14.5	1.5	-90%
Summer (Mar-May)	103.9	215.5	+107%
SWM (Jun-Sep)	431.3	573.5	+33%
NEM (Oct-Dec)	375.8	286.8	-24%
Annual	**925.5**	**1077.3**	**16%**

Table 3.4 Vellore District- Comparison Of Rainfall 2022 & 2023

Month	Normal	2022	2023
WINTER SHOWERS (Jan to Feb)	14.5	45.4	1.5
SUMMER SHOWERS (March to May)	103.9	143.1	215.5
SOUTHWEST MONSOON (June to Sept)	431.3	454.9	573.5
NORTHEAST MONSOON (Oct to Dec)	375.8	332.4	286.8
TOTAL	**925.5**	**975.8**	**1077.3**

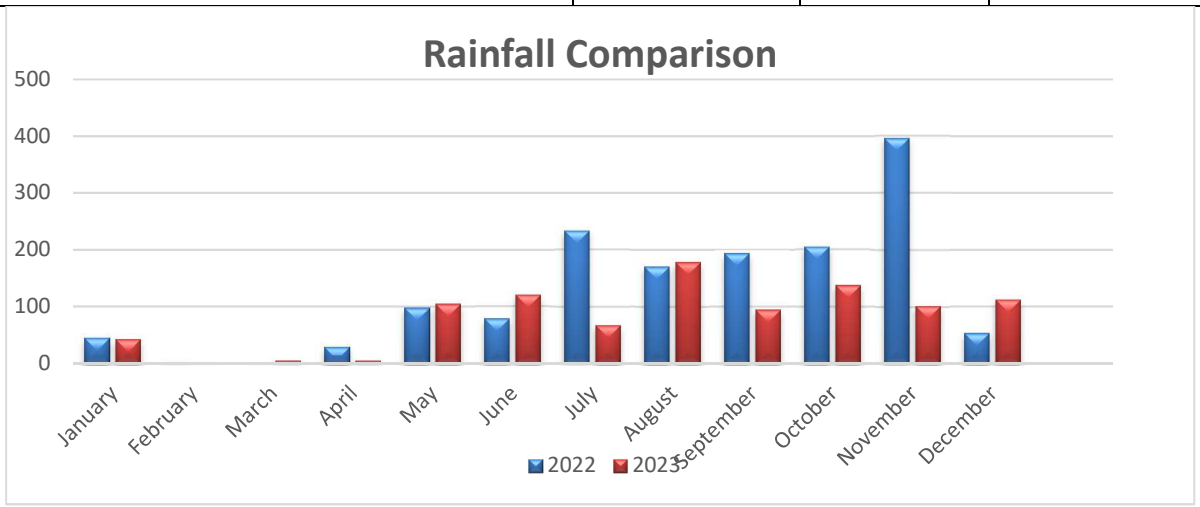


Figure 3.1 Rainfall data Comparison for the Years 2022 and 2023 for Vellore District

4.0 District Disaster Management Plan Development

The context analysis, historical learning's from past disasters, national andinternational good practices and current paradigms in disaster management have been thebasis of defining the vision and objectives of this plan. Further considering the principles ofplanning for disaster management, through an inclusive and participatory approach, thefollowing strategies are adopted to develop this initial modal plan.

i) Comprehensive Planning:

The plan engages all possible stakeholders at all levels, included all possible hazardsand all phases of disaster (Preparedness, Response, Recovery and Mitigation)

ii) Essential Service Functions (ESF):

The plan includes for considerations of planning, reducing disaster risks, continuityand maintenance of essential services functions at different levels.

iii) Integration and Coordination of all stakeholders and essential services functions:

The plan includes institutional mechanism, tools and good practices for integration andcoordination of all stakeholders and essential service functions at different levels.

iv) Worst case scenario and contingency planning:

The plan includes the contingency planning for worst case scenarios (past disasters orassumed situations), periodic validation and testing as per that.

v) Follow up actions:

The plan suggests the follow up actions for the stakeholder groups, ESFs and local selfgovernments at each level to develop their own comprehensive plans.

5.0 Stakeholder Analysis

Vellore District has got various key stakeholders at different levels starting from community level to the district level. Apart from the known stakeholder groups, there are other few key non-govt. stakeholders who have crucial role during disasters and peacetime. The following tables ananalysis of the stakeholders identified at different levels.

- Information and Public Relation Department
- Labour Resource Department
- Rural Development Department
- Public Health Department
- Police Department
- Post and Telegraph Department
- Statistics Department
- Transport Transport
- Municipal Administration
- Water Resource Department
- Agriculture Department
- Animal and Fisheries Department
- BSNL Company
- PWD Department
- Education Department
- TNEB
- Fire Service Department
- Civil Supplies
- Health Department
- Industries Department
- Academic Institutions
- Business Groups (Private sector to include corporate, Industry, SMEs, Traders) and Markets and Market Associations.
- Ex Servicemen and Retired Professionals Association
- Health Association (Medical Association, Chemist and Druggist Association,
- News and Media
- Local NGOs, Red Cross,
- SHG, Women, Farmers
- Transporters
- Youth Group

5A. Climate Change and Disaster Risk Assessment

Climate Change and Disaster Risk Reduction – Chief Ministers Message

"Our government views climate change as a major humanitarian crisis... Global warming has occurred due to high carbon emissions. Many scientists have said the world should reach carbon neutral by 2050. Last year, the Central Government declared that it would become carbon neutral by 2070. Let me assure that Tamil Nadu will achieve carbon neutrality before that," Climate change concerned all and the state government viewed this issue seriously. "I am proud to lead from the front. I see this as my life's mission"

Tamil Nadu Climate Change Mission

Climate Change is an undisputed reality causing severe impact on the natural environment, human lives, economic assets and activities thus posing an urgent need for comprehensive climate action. The challenge of Climate Change calls for extraordinary vision, leadership, understanding and wisdom. Human ingenuity and intellect will play a critical role in addressing issues arising out of Climate Change impact. With the climate crisis becoming more widespread and severe, the state government of Tamil Nadu understands the importance for climate policy and planning. In accordance with the budget announcement made in the year 2021-2022, by the Hon'ble Minister for Finance

Climate Change and Its Impact In Tamil Nadu

Technical information generated through scientific studies from PRECIS regional climate model indicated that maximum temperature over Tamil Nadu may increase by about 3.1 °C with a general maximum increase of 3.3–3.5 °C, over western zone and minimum temperature by about 3.5°C. The minimum temperature projections consistently show higher values when compared to maximum temperature with a difference ranging from 0.2 to 0.5 °C. No significant change in the rainfall is seen from the baseline by the end of the century for the whole Tamil Nadu. However, there is a slight increase in rainfall during the northeast monsoon season (October–December). PRECIS-generated rainfall and temperature scenarios were evaluated with ground-based observed data during 1970– 2000 in Tamil Nadu.

Tamil Nadu is also one of the extremes-prone States in India that faces more extremities of cyclones and drought recurrently. With respect to extreme weather events future projections clearly indicate an increased probability of extreme temperature spells that would be expected to be very detrimental for public health. Specific conclusions reveal that there may be an increase of 3.30 °C during daytime and 3.55 °C during night-time and denotes a decrease in rainfall of 3.24% by the end of the century. The maximum temperature above 40°C (summer days) is projected to increase drastically with a strong slope. These results intimate that

Tamil Nadu will be adversely affected by warmer condition by the last quartile of the century, which will make the environment hostile for ecosystem and crop productions, and furthermore, the change may increase the occurrences of heat wave and health hazards in the future.

Tamil Nadu being a coastal state, is prone to the sea level rise. It has been estimated that the projected average medium range of SLR for the chosen study area may range from 7.12 cm to 36.98 cm for Representative Concentration Pathways RCP 2.6; 7.39 cm to 50.01 cm for RCP 4.5; 7.18 cm to 51.91 cm for RCP 6.0; 7.40 cm to 78.15 cm for RCP 8.5 for the time slices from 2025 to 2100. With regard to extreme rainfall there is an overall increasing pattern. This increases the possibility of storm and flash floods in the 2080s. Furthermore, the probability of 1-day rainfall is higher than 5-day rainfall which implies that the duration of extremes will be reduced but the intensity will be increased. It was further explored that internal climate variability of El Niño Southern Oscillation ENSO also contributes to the North East Monsoon rainfall in the coastal districts of Tamil Nadu. These consequences will have a profound impact on agriculture, health, water resources, and coastal and economic sectors.

The District Climate Change Mission

The District Climate Change Mission is a dedicated unit established within a district to address the challenges of climate change and implement measures to mitigate its impacts. This unit is headed by the District Collector, who serves as the Mission Chairperson, and the District Forest Officer, who assumes the role of the Climate Officer. The primary objective of the District Climate Change Mission is to coordinate and facilitate the efforts of various line departments operating at the district level in the implementation of the Tamil Nadu State Climate Action Plan. The mission aims to bring together key stakeholders and create a collaborative platform for effective climate action.

Climate Change and Vulnerability Risk of Vellore District

Land use and Land Cover

Vellore district claims a rich natural resource profile. The Palar River basin is the major source of water, with the Cheyyar river playing a key role. The district also has a well-developed water storage system with one dam and 484 tanks. Agriculture is a major industry, with over 48,940 hectares of land cultivated and a cropping intensity of 126%, indicating that farmers are able to grow multiple crops throughout the year. The district also has significant forest cover, with nearly 500 square kilometers of moderately dense forest and over 78 square kilometers of very dense forest (Figure 5A.1) . The district has a substantial built-up area of 142

square kilometers, with Vellore Corporation accounting for over 87 square kilometers of that area.

Water Resources: (IWS & PWD, 2017)

- Major River Basin: Palar River Basin
- Major river - River Cheyyar
- Water Systems: 1 dam and 484 tanks

Agriculture: (Agriculture statistics, 2021)

- Net area sown - 48940 ha
- Cropping intensity -126%

Forests: (FSI 2021)

Moderately Dense Forest: 499.21 sq.km &

Very Dense Forest: 78.63 sq.km

Sustainable Habitat: (District Profile 2016)

Built up area 142.15 sq.km (NRSC, 2015)

Vellore Corporation area - 87.95 sq.km

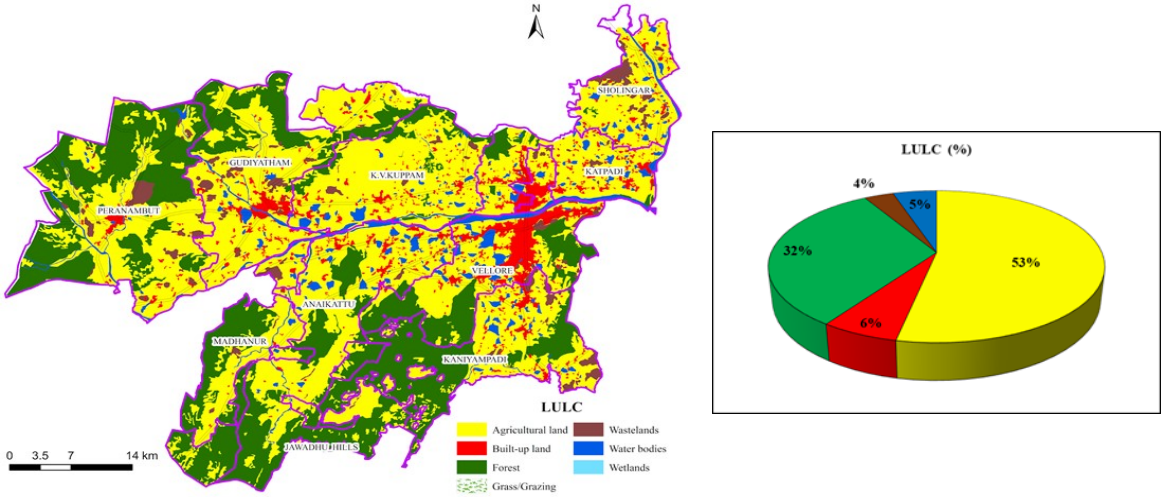


Figure 5A.1 Landuse and Land Cover of Vellore District

Climate Projection - Temperature

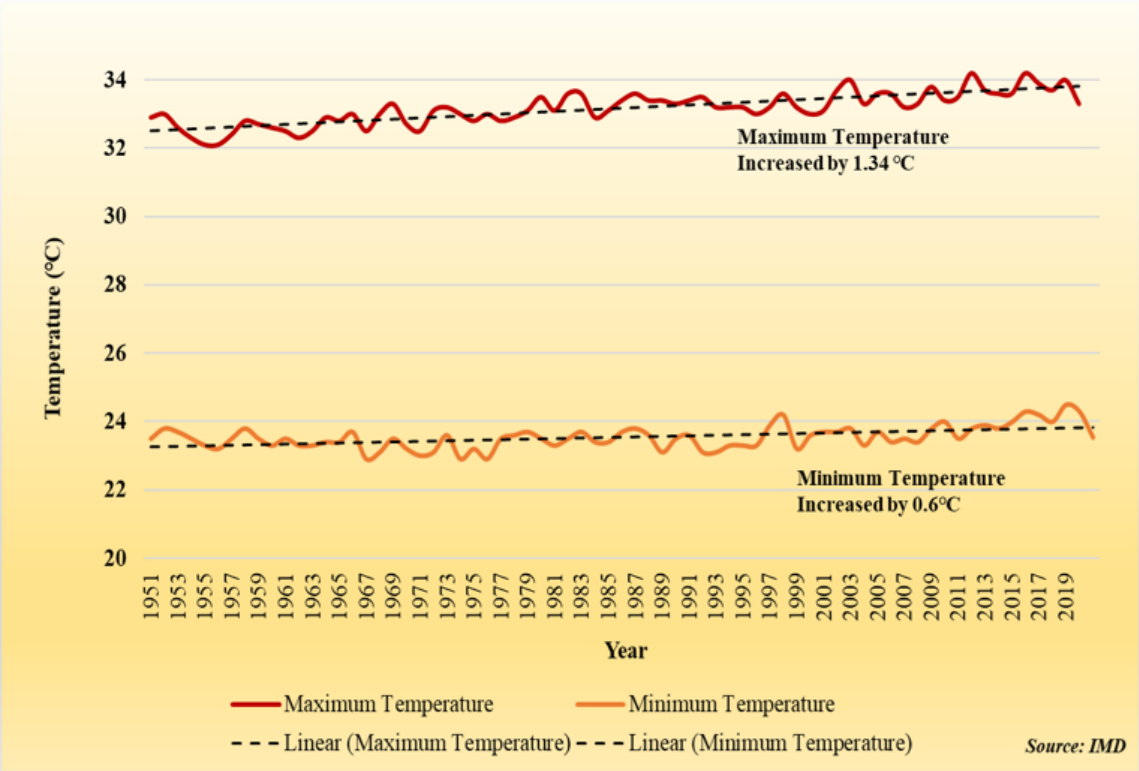


Figure 5A.2 . 70 Years of Temperature History in Vellore District

Projection Period	Increase in Annual Average Maximum Temperature (°C)	
	SSP2 4.5 Scenario	SSP5 8.5 Scenario
Near Century (2020-2046)	0.8	1.0
Mid Century (2047-2073)	2.0	2.8
End Century (2074-2100)	2.8	5.6
Projection Period	**Increase in Annual Average Minimum Temperature(°C)**	
	SSP2 4.5 Scenario	SSP5 8.5 Scenario
Near Century (2020-2046)	1.1	1.2
Mid Century (2047-2073)	2.0	3.1
End Century (2074-2100)	2.9	6.1

Figure 5A.3 . Projected Temperature Variation for Vellore District

Climate Projection - Rainfall

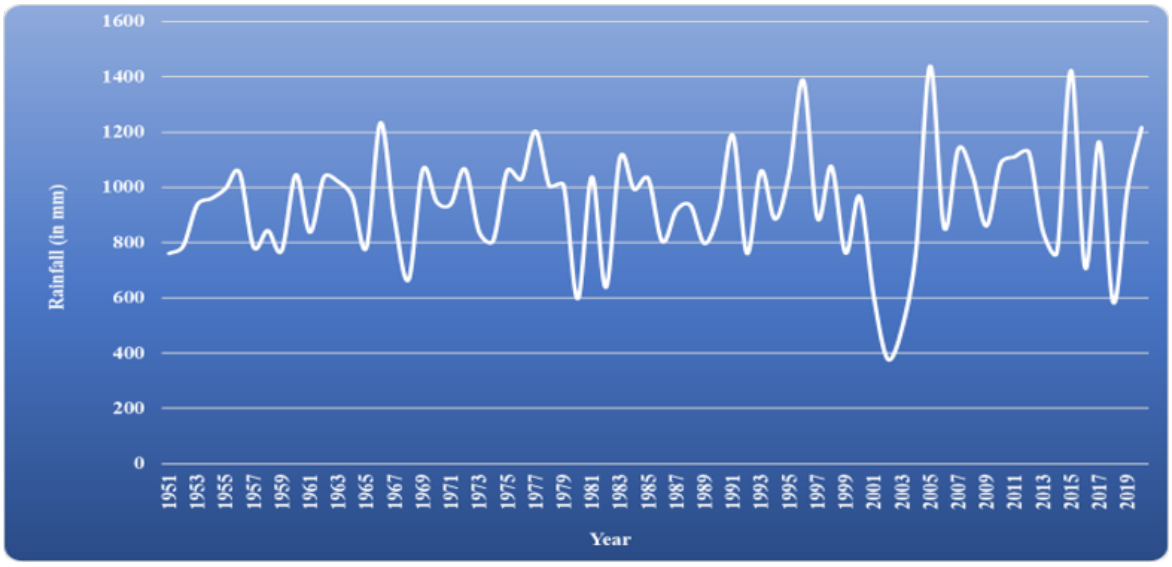
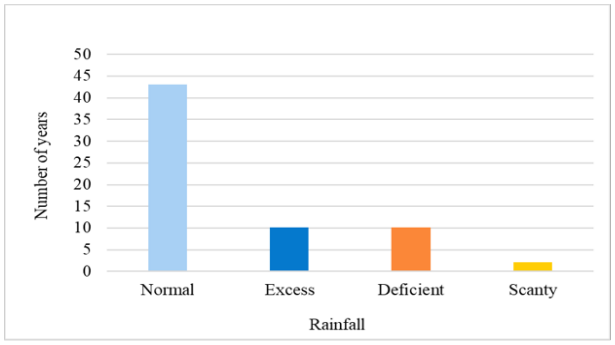
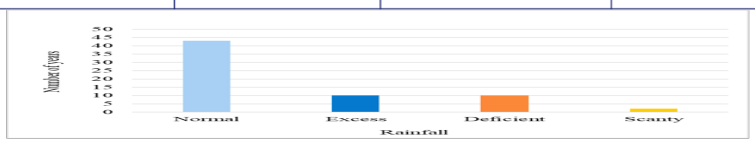


Figure 5A.4 . 70 Years of Rainfall Variation in Vellore District



Parameter	SSP2 4.5 Scenario		
	Near century (2020-2046)	Mid Century (2047-2073)	End Century (2074-2100)
Percentage Change in Annual Average Rainfall(%)	2.0	8.8	18.4



Parameter	SSP2 4.5 Scenario		
	Near century (2020-2046)	Mid Century (2047-2073)	End Century (2074-2100)
Percentage Change in Annual Average Rainfall(%)	2.0	8.8	18.4

Figure 5A.4 . Projected Rainfall Variation for Vellore District

Climate Change impact on Water Resources

Drought Risk Projected to be increase whereas the flood risk is relatively low and remain unchanged during near century

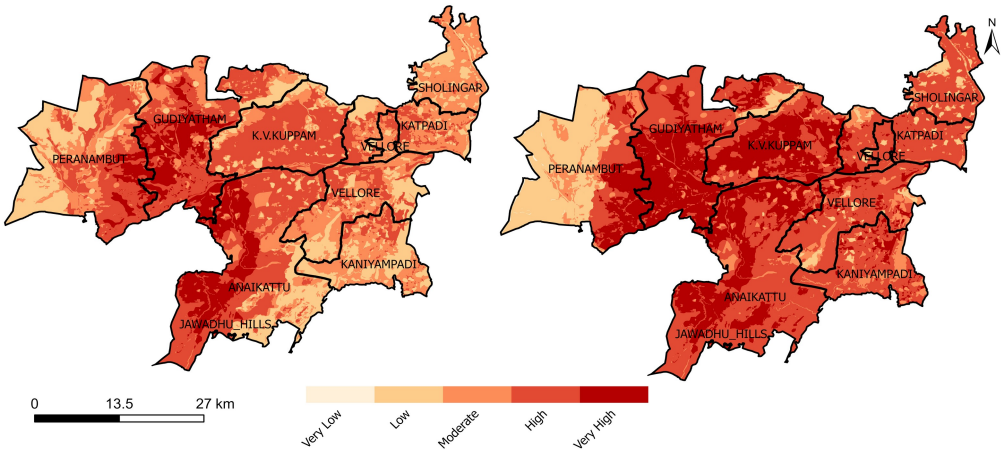


Figure 5A.5 . Projected Climate Impact on Water resources for Vellore District

Climate Change impact on Agriculture

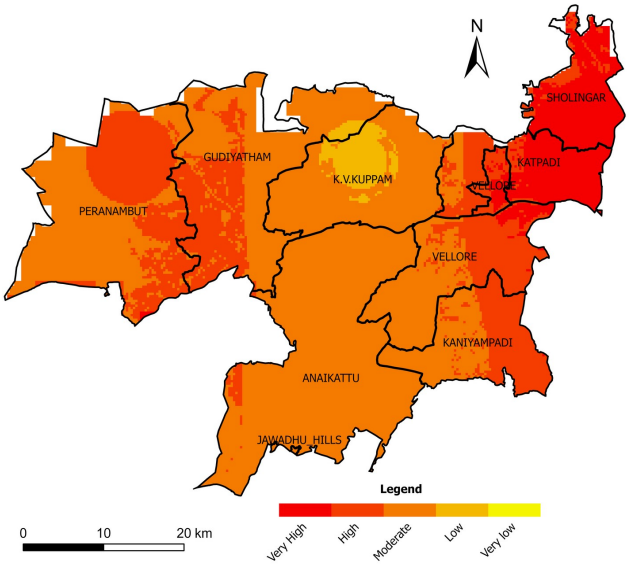


Figure 5A.6 . Projected Climate Impact on Agricultural Sector for Vellore District

Major Crop	Base Period (1985-2014) Yield (kg/ha)	Near Century (2021-2050) Yield (kg/ha)
Rice	**4350**	**3900**
Maize	**4350**	**3950**
Sorghum	**2300**	**1950**
Blackgram	**600**	**650**
Groundnut	**2350**	**2150**

Table 5A.1 . Projected Climate Impact on Agricultural Practices for Vellore District

Climate Change impact on Forest

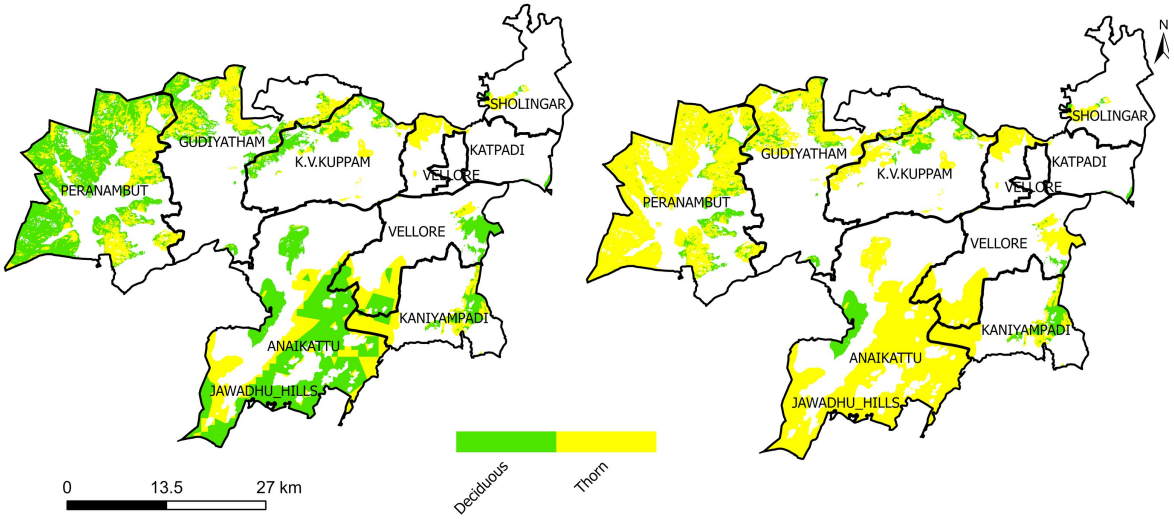


Figure 5A.7 . Projected Forest Type Changes for Vellore District

Table 5A.2 . Projected Forest Type Changes for Vellore District

Forest Suitability Type	Base Period (1985-2014) (sq.km)	Near Century (2021-2050) (sq.km)
Deciduous Forest	218.24	15.41
Thorn Forest	165.57	368.40

Climate Change impact on Urban Habitat

Discomfort days increasing across northern coastal regions (100-125 days), projected to increase (200-300 days) per year. Vellore has urban green space of 22 sq.m per person; WHO recommendation (9 sq.m)

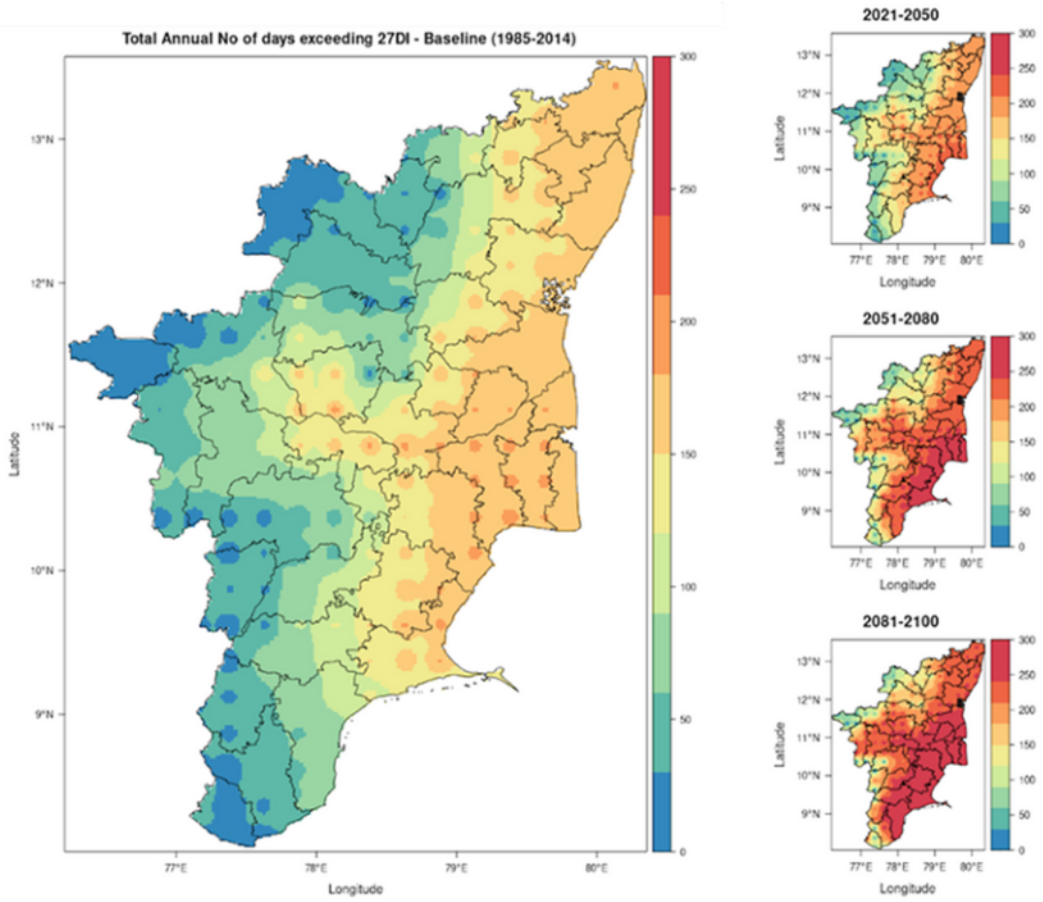


Figure 5A.8 . Annual Average Days With Discomfort Conditions

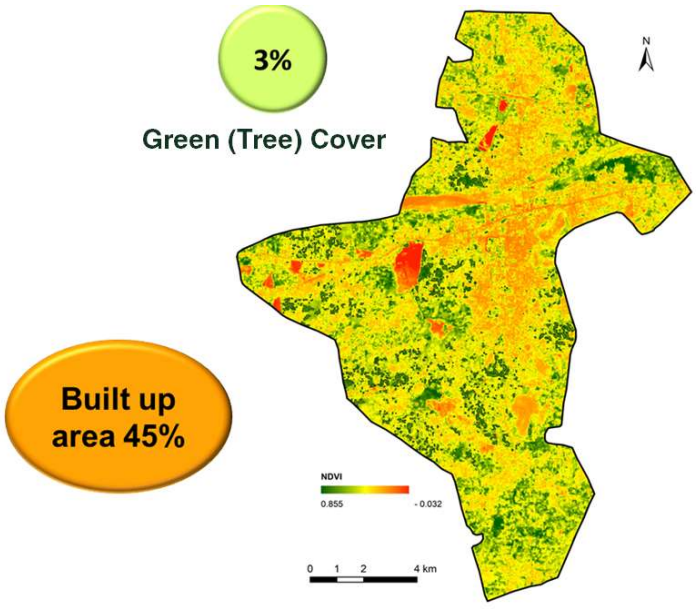


Figure 5A.8 . Urban Green Cover in Vellore City

6.0 Disaster Prepardness

Disaster preparedness refers to measures taken to prepare for and reduce the effects of disasters. A comprehensive disaster preparedness strategy would therefore include the following elements:

1. Hazard, vulnerability and risk assessments
2. End-to-end early warning systems
3. Information Management & Risk Communication
4. Community-Based disaster preparedness
5. Public education,training& rehearsals
6. Risk Reduction Strategies
7. Response mechanisms
8. Institutional Frame work & Coordination
9. Resource mobilization

Based on context analysis, historic learning from past disasters, national and international good practices come across the following strategies are adopted to develop this initial modal plan.

i)Comprehensive Planning:

The plan engages all possible stakeholders at all levels, included all possible hazards and all phases of disaster (Preparedness, Response, Recovery and Mitigation)

ii)Essential Service Functions(ESF):

The plan includes for considerations of planning, reducing disaster risks, continuity and maintenance of essential services functions at different levels.

iii) Integration and Coordination of all stakeholders and essential services functions:

The plan includes institutional mechanism, tools and good practices for

integration and coordination of all stakeholders and essential service functions at different levels.

iv) Worst case scenario and contingency planning:

The plan includes the contingency planning for worstcase scenarios (past disasters or assumed situations), periodic validation and testing aspert hat.

v) Followup actions:

The plan suggests the follow up actions for the stakeholder groups, ESFs and local self-governments at each level to develop their own comprehensive plans.

The major problems in the district arise out of drought, frequent Fire during Summer, floods which is occasionally occur during monsoonseason. The years2002, 2003, 2012 and 2016 in Vellore declared as drought by the Tamil Nadu State Government, These two main disasters account for the major proportion of losses (lives, property, cropsetc). The other major problem may arise incase of earthquake in the region. Analyzing the historical information and experiences drawn from consultation with different stakeholders, the underlying causes and the impact of these major hazards can be understood with the helpbased on the following details. Apart from this, the district faces fire incidents every year mostly during the summer season and caused a lot of damage to houses, cropsetc.

Table 6.1 List of Disasters and its Severity in Vellore District

Sl.No	Event	Status Major/Minor/Nil	Severity
1.	Flood	Major	Moderate
2.	Drought	Major	High
3.	Earthquake	Major	Moderate
4.	Fire	Major	Moderate
5.	Cyclone	Major	Moderate
6.	Flash flood	Major	Moderate
7.	Heat wave	Minor	Moderate
8.	Hailstorm	Minor	Low
9.	Landslide/Rock Fall	Minor	Moderate
10.	Explosion	Minor	Moderate
11.	Structural/Building Collapse	Minor	Moderate
12.	Lightning	Minor	Low
13.	Accident (Road/Chemical/Industrial)	Minor	Moderate
14.	Forest fire	Minor	Low

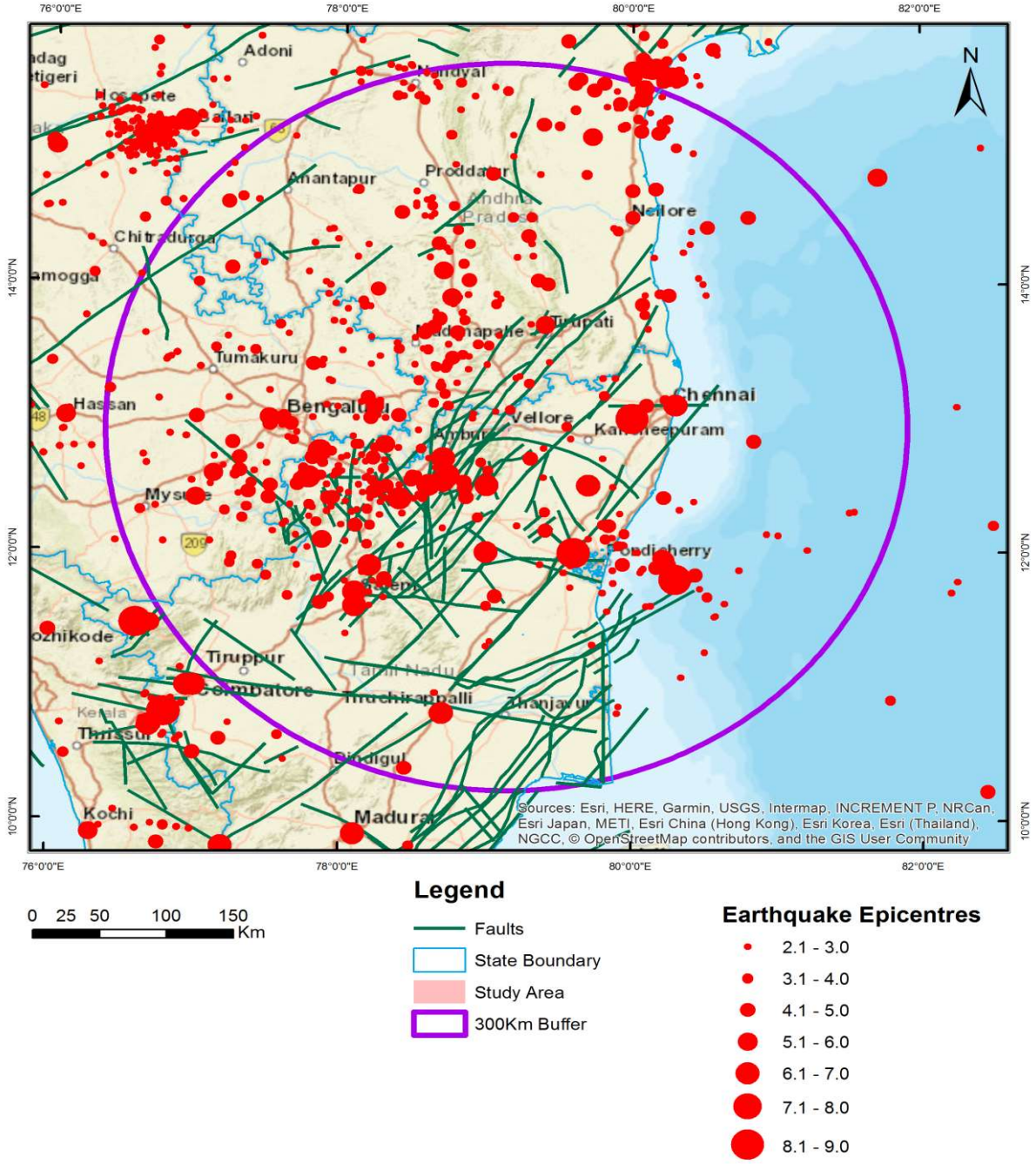


Figure 6.1 Spatial distribution of Earthquake/tremors 300 km radius of Vellore for the Years 1800 to 2019

Table 6.2. List of recent tremors in the Composite Vellore District (2022)

Sl.No	YYYY	Month	Date	Hours	Minutes	Latitude	Longitude	Magnitude
1	2022	1	4	12	37	12.33	78.15	1.5
2	2022	1	4	12	56	12.93	78.79	1.2
3	2022	1	4	13	12	12.88	78.77	1.2
4	2022	1	4	21	46	13.52	77.88	2.4
5	2022	1	5	0	6	12.92	78.73	1.4
6	2022	1	5	1	17	12.94	78.74	1.7
7	2022	1	5	1	23	13.50	77.89	2.0
8	2022	1	5	1	36	13.47	77.87	2.0
9	2022	1	5	2	14	12.89	78.79	1.3
10	2022	1	5	4	53	12.90	78.97	1.3
11	2022	1	5	12	33	14.01	78.40	2.2
12	2022	1	5	13	10	12.93	78.80	1.1
13	2022	1	6	10	25	13.99	78.77	1.7
14	2022	1	6	11	28	13.45	78.70	2.2
15	2022	1	6	12	52	12.96	78.72	1.2
16	2022	1	6	13	3	13.62	78.49	1.6
17	2022	1	7	12	23	14.24	78.13	1.8
18	2022	1	7	12	55	13.51	78.02	2.3
19	2022	1	7	13	12	13.14	78.69	2.2
20	2022	1	7	13	9	12.92	78.80	1.0
21	2022	1	7	13	20	13.10	78.17	1.7
22	2022	1	7	13	53	12.92	77.93	2.1
23	2022	1	7	22	14	12.76	78.53	2.0
24	2022	1	8	4	23	13.04	78.85	2.0
25	2022	1	8	5	47	12.59	79.68	2.5
26	2022	1	8	7	25	13.26	78.29	2.5
27	2022	1	8	8	18	13.43	78.34	2.8
28	2022	1	8	8	13	12.80	78.14	2.1
29	2022	1	8	8	46	13.57	77.92	2.0
30	2022	1	8	10	15	13.44	78.45	2.5
31	2022	1	8	11	35	13.01	79.05	2.2
32	2022	1	8	12	56	13.47	78.24	2.8
33	2022	1	8	13	22	12.62	77.46	2.8
34	2022	1	8	14	20	12.89	78.56	2.3
35	2022	1	8	19	22	12.99	78.48	1.8
36	2022	1	9	3	5	13.11	78.74	2.2
37	2022	1	9	3	31	12.64	78.05	2.7
38	2022	1	9	8	21	13.41	78.70	2.2
39	2022	1	9	9	37	12.98	78.20	2.0
40	2022	1	9	12	37	12.99	78.04	2.3

41	2022	1	9	12	40	12.94	78.79	1.9
42	2022	1	9	13	23	12.97	78.16	2.1
43	2022	1	9	17	34	12.95	78.75	1.7
44	2022	1	9	22	24	12.99	78.79	1.0
45	2022	1	10	9	52	12.86	78.28	2.1
46	2022	1	10	10	57	13.90	78.95	2.4
47	2022	1	10	11	14	13.99	77.89	2.3
48	2022	1	10	11	55	12.71	78.10	2.5
49	2022	1	10	12	14	12.68	79.57	2.1
50	2022	1	10	12	30	13.54	78.59	2.1
51	2022	1	10	12	51	12.69	77.91	2.5
52	2022	1	10	13	5	12.70	78.39	1.9
53	2022	1	10	19	25	12.94	78.77	1.7
54	2022	1	10	22	27	12.95	78.70	2.1
55	2022	1	11	10	13	14.25	79.34	3.1
56	2022	1	11	10	53	13.37	78.46	2.0
57	2022	1	12	4	48	13.70	78.33	2.2
58	2022	1	12	8	22	13.13	78.68	2.0
59	2022	1	12	11	50	13.34	79.51	2.7
60	2022	1	12	12	34	13.26	79.43	3.0
61	2022	1	12	12	43	12.69	79.61	2.1
62	2022	1	12	20	12	13.28	78.42	1.6
63	2022	1	13	8	9	13.25	78.89	2.3
64	2022	1	13	8	37	13.44	79.12	2.3
65	2022	1	13	10	35	12.81	78.50	1.8
66	2022	1	13	11	47	13.05	79.03	1.8
67	2022	1	13	12	32	12.96	78.94	2.0
68	2022	1	13	13	2	12.90	78.51	1.8
69	2022	1	13	14	10	12.91	78.22	2.4
70	2022	1	14	6	49	11.64	79.79	2.6
71	2022	1	14	10	47	14.66	78.28	2.5
72	2022	1	14	12	57	13.33	78.16	1.8
73	2022	1	14	13	3	13.44	77.75	2.4
74	2022	1	14	13	22	12.56	78.79	2.3
75	2022	1	15	13	31	13.56	77.82	2.3
76	2022	1	17	7	31	12.89	78.30	2.5
77	2022	1	17	13	6	13.63	78.50	2.5
78	2022	1	18	1	41	13.38	79.01	2.2
79	2022	1	18	3	24	13.34	78.97	2.0
80	2022	1	18	3	28	13.98	79.35	2.1
81	2022	1	18	4	1	13.42	79.04	2.1
82	2022	1	18	4	21	12.94	78.62	2.0
83	2022	1	18	12	42	12.97	78.75	1.6

84	2022	1	19	13	13	13.03	78.72	1.6
85	2022	1	19	16	54	13.05	78.72	1.9
86	2022	1	20	6	48	13.28	79.11	2.0
87	2022	1	20	12	18	12.49	78.07	2.2
88	2022	1	20	12	33	13.72	78.76	2.0
89	2022	1	20	13	7	13.14	78.69	1.8
90	2022	1	21	7	43	12.86	77.91	1.7
91	2022	1	21	9	10	12.88	78.75	1.6
92	2022	1	21	9	34	13.33	79.11	2.0
93	2022	1	21	11	18	13.34	77.90	2.2
94	2022	1	21	13	8	12.94	78.75	1.8
95	2022	1	21	13	47	13.47	77.86	2.5
96	2022	1	21	17	1	13.47	78.23	1.7
97	2022	1	22	9	18	13.64	78.29	2.4
98	2022	1	22	12	53	13.03	78.70	2.0
99	2022	1	22	13	9	12.93	78.54	1.9
100	2022	1	22	13	29	12.92	78.21	2.0
101	2022	1	23	7	21	12.73	78.00	1.6
102	2022	1	23	7	56	13.85	78.80	2.3
103	2022	1	23	9	51	13.90	78.22	2.1
104	2022	1	23	11	57	12.98	78.09	2.0
105	2022	1	23	12	7	13.41	78.52	1.8
106	2022	1	23	12	51	13.00	78.77	1.2
107	2022	1	24	10	57	13.11	79.14	2.2
108	2022	1	24	12	9	13.13	78.98	2.1
109	2022	1	24	12	37	12.95	78.39	2.2
110	2022	1	24	13	33	12.90	78.78	1.8
111	2022	1	24	21	4	13.30	78.97	1.7
112	2022	1	25	7	42	13.00	78.22	2.1
113	2022	1	25	8	4	13.50	77.80	2.4
114	2022	1	25	12	58	12.91	78.24	2.0
115	2022	1	25	12	56	12.77	78.44	1.5
116	2022	1	26	7	20	13.59	78.32	2.6
117	2022	1	26	7	43	13.28	79.22	1.7
118	2022	1	26	11	35	13.35	78.63	2.1
119	2022	1	26	12	56	12.83	78.84	1.4
120	2022	1	26	13	22	12.91	78.21	2.2
121	2022	1	26	17	18	13.52	78.33	2.1
122	2022	1	27	3	17	13.44	79.32	1.8
123	2022	1	27	9	45	13.84	79.15	2.0
124	2022	1	27	12	58	12.97	78.81	1.6
125	2022	1	27	13	13	12.85	78.12	2.3
126	2022	1	27	15	57	12.74	78.10	1.6

127	2022	1	27	16	48	12.96	78.44	2.1
128	2022	1	27	22	38	13.17	78.77	1.8
129	2022	1	29	12	58	12.93	78.80	1.9
130	2022	1	29	13	37	12.96	77.96	2.4
131	2022	1	30	5	2	12.90	78.41	2.1
132	2022	1	30	8	3	12.82	78.01	2.2
133	2022	1	30	9	0	12.93	78.26	2.0
134	2022	1	30	10	54	13.40	77.40	2.6
135	2022	1	30	11	10	13.76	78.44	2.3
136	2022	1	30	12	11	12.78	78.02	2.3
137	2022	1	30	13	12	13.87	78.39	2.6
138	2022	1	30	13	23	12.64	77.97	2.3
139	2022	1	31	0	27	12.73	78.10	2.1
140	2022	1	31	1	35	13.26	78.36	2.0
141	2022	1	31	2	12	12.56	78.92	1.9
142	2022	1	31	5	27	13.49	78.47	2.3
143	2022	1	31	10	18	12.82	78.24	2.2
144	2022	1	31	12	27	12.99	78.78	1.9
145	2022	1	31	18	12	12.93	78.72	1.6
146	2022	2	1	12	47	12.70	79.03	2.0
147	2022	2	1	13	1	13.47	78.33	2.3
148	2022	2	1	14	12	13.00	78.49	1.8
149	2022	2	2	8	49	13.45	78.32	2.2
150	2022	2	2	9	10	13.12	78.62	2.4
151	2022	2	2	12	17	13.13	78.71	2.1
152	2022	2	2	12	42	13.35	78.55	2.3
153	2022	2	2	13	32	12.60	78.29	2.3
154	2022	2	2	16	38	12.84	78.37	1.7
155	2022	2	2	22	52	13.52	78.28	1.9
156	2022	2	3	2	12	12.94	79.56	2.1
157	2022	2	3	3	21	13.47	78.34	2.4
158	2022	2	3	7	8	13.20	77.71	2.3
159	2022	2	3	8	26	12.63	78.07	2.4
160	2022	2	3	11	12	13.18	79.37	2.3
161	2022	2	3	11	9	13.02	78.67	2.0
162	2022	2	3	12	37	13.00	78.94	1.7
163	2022	2	3	12	41	12.93	78.94	1.8
164	2022	2	3	13	4	12.90	78.79	2.0
165	2022	2	3	13	30	13.11	78.29	2.0
166	2022	2	3	13	47	13.13	78.89	1.7
167	2022	2	3	22	48	13.07	79.02	1.8
168	2022	2	4	7	55	13.35	78.21	2.1
169	2022	2	4	8	8	13.00	78.31	2.1

170	2022	2	4	12	13	13.69	79.36	2.2
171	2022	2	4	12	35	13.48	78.60	2.1
172	2022	2	4	12	21	12.59	78.01	1.9
173	2022	2	4	12	48	13.02	78.93	1.9
174	2022	2	4	13	9	12.90	78.79	1.6
175	2022	2	5	2	48	12.77	79.46	1.9
176	2022	2	5	10	36	12.81	79.14	2.1
177	2022	2	5	12	41	12.93	78.80	2.0
178	2022	2	5	12	54	12.98	78.59	1.9
179	2022	2	5	13	42	13.04	78.55	2.1
180	2022	2	6	3	11	13.59	78.30	2.8
181	2022	2	6	8	26	12.81	78.24	2.1
182	2022	2	6	10	9	13.66	78.69	1.6
183	2022	2	6	11	56	13.43	78.56	2.2
184	2022	2	8	12	57	12.48	79.03	1.8

Tabe 6.3 List of Extreme Weather Events during Summer Season in Vellore District

Year	Temperature(°C)		Rainfall (mm)	
	Highest Maximum(Date)	Lowest Minimum(Date)	24 Hours Highest (Date)	Monthly Total
2024	43.7 (01.05.2024)	23.2 (26.05.2024)	38.0 (08.05.2024)	65.0
2023	42.3(15)	20.3 (02)	120.6 (06)	836.3
2022	42.3(01)	21.7 (04)	40.8 (01)	40.8
2021	41.4(29)	20.4 (08)	49.3 (24)	56.1
2020	42.04(22)	25.10 (6)	699.40 (27.11)	1447.6
2019	42.0 (16)	22.6 (15)	41.0 (21)	118.3
2018	42.4 (23)	35.1 (02)	13.80	13.8
2017	44.1 (23)	26.5 (05)	19.0	84

2016	43.7 (25)	25.3 (01)	0.0	0.0
2015	41.4 (05)	19.3 (14)	55.4 (14)	111.8
2014	41.6 (28)	22.4 (01)	0.0	0.0
2013	42.0 (18)	24.0 (20)	13.4 (19)	21.6
ALL TIME RECORD High	44.4 (29, 2000)	17.8 (02, 1950)	84.0 (14, 1984)	1447.6 (2020)

6.1 Heat Waves

- In Vellore District there is no death due to Heat Stroke / Heat Waves in 2023-24.
- Further, in the last five years also there was no death due to Heat Stroke / Heat Waves.
- People in Vellore District were communicated by various means like Press Release and T.V.scrolls in local media to avoid going out during the day time especially between 11.00 noon to 3.00 p.m.
- In Vellore District maximum temperature is more than 40^0 Celsius in the months of March, April, May and June.
- In the year 2023 the following months had maximum temperature.
    - March 2023 : 38.0^0 C
    - April 2023 : 40.4^0 C
    - May 2023 : 42.3^0 C
    - June 2023 : 42.0^0 C
- In this year 2024 in the month of April following maximum temperature recorded in Vellore District is in the following days.
    - 19.04.2024 : 41.9^0 C
    - 30.04.2024 : 41.6^0 C
    - 22.04.2024 : 41.5^0 C
    - 23.04.2024 : 41.5^0 C

6.1.1 Roles and Responsibilities of Departments and Agencies in responding to Heat Waves

- There needs to be greater clarity around the roles and responsibilities in the management of Heat wave, for that matter any disaster. Preparation andresponsetoHeat wave istobe managed in anintegrated manner for which clear leadership to anchor the process is necessary. A controlagency leads there sponse to a particularty peofemergency. Support agencies providere sources, suchaspersonnel, essential servicesand materials, tosupportorassista control agency oraffected person. Disaster Management Departmentis the control agency for theresponse to heatwave, and that other agencies, including the Departmentof Health, have a support role.

- **The District Collector isthe Incident Controller and Nodal Officer atDistrict Level.**

  Generally the Responsibilities of Incident Controller and Nodal Officer include:

  - managing all response activities
  - notifying support agencies
  - establishing incident and emergency management teams
  - collecting, analyzing and disseminating information regarding the emergency
  - leading multi-agency response planning
  - issuing timely information and warnings to the community
  - developing incident action plans

6.2 Explosions

6.2.1 Explosive Accidents Took Place Recently In Vellore District

Sl.No	Date	Location	Persons	
			Died	Injured
1.	27.05.2023	Fire accident happened in a matchbox industry at Pernambut.	1	1

Due to the in experience approach of the persons who handled the explosive substances resulted in the said explosive accidents. In all the above said incidents the Government Machinery (Revenue. Police, Fire and other related Departments) acted swiftly in the rescue operations and saved many lives. Apart from this stringent criminal action was initiated against the persons concerned who have violated the laws.

6.3 Potential for Off-Site Emergencies

A hazard is the characteristic of a system, plan to process that presents the potential of an accident. Hence this chapter involves examining all the components of a system, plant, process & storage and thoroughly assessing their potential for triggering an unplanned even to sequence of events which may lead to an accident. Hazard an analysis involves identification of the type, quantity, location and conditions of release of a flammable/explosive substance in order to estimate its damage in effects, the area involved and work out the possible preventive measures required to be adopted.

6.3.1 Identification of Major Hazards

Under the Environment (Protection) Act, 1986, amended in 1991, Manufacture, Storage and Import of Hazardous Chemicals(MSIHC) Rules were formed which were further amended In 2000; with a view regulate the handling of hazardous chemicals. The rules provide an indicative list of hazardous chemicals in Part II of Schedule 1. A substance which is not covered by the indicative list could be identified as hazardous provided it satisfies the indicative criteria of Part I of Schedule 1 of MSIHC Rules.

Besides identification of hazardous substances, the rules also stipulate threshold quantities of hazardous substances at a given industrial unit. The threshold limits for various chemicals are listed in Schedule 2 and 3 of the rules.

Therefore, any industrial unit which imports/stores or handles a hazardous chemical in quantity exceeding the threshold limit specified in the rules is a Major Accident Hazard(MAH) unit.

6.3.2 Identification of Possible Failure Modes

From the above tables it can be observed hazardous substances handled in Vellore District fall in Mono Methyl Amine Gas.

i. Explosive (LPG, Mono Methyl Amine Gas, PETN, Industrial Explosives)

6.3.3 Delineation of Vulnerable Zones

The approach adopted for the detailed analysis is based on the micro-methodology given by MoEF&CC&CC for this assignment and the following assumptions.

Methodology
Ambient temperature : 35°C
Weather conditions : Neutral weather class D, windspeedof3m/s.
Very stable weather-class F, windspeedof1.5 m/s.

ii) Release: Catastrophic failure of storage vessels has been assumed to characterize worst case scenario.

Characterization: Rupture of the vessel/pipe/equipment followed by release for 10 minutes has been considered

The materials analyzed for their inclusion in the emergency planning are based on the following criteria:

Fire: Fatality Zone Radius(signifying1% lethality)or 10Kw/m2

- Explosion: Peak over pressure greater than or equal to0.06Bar.

Based on the above criteria, the unit is assumed to have a potential for off-site damage effect if the values off at a laity zone radius and/or peak over pressure , across the plant boundary exceed the limits given above.

6.3.4 Consequence Analysis

Chemical emergencies either arise from the industrial installations or from transportation of chemicals. Where very to occurs, depending on the nature and quantity of hazardous chemical and the location of accident, it may have the potential of affecting the general population in the surrounding area.

The summary results of accident scenarios at the MAH units in the see reassure given in table1&2.

6.3.5 Accidents During Transportation

Road Transportation

A scan be observed from the foregoing sections, Vellore District has 4 operational MAH units, handling LPG, Mono Methyl Amine Gas, HSD, Phthalic Anhydride, various types of detonators, explosive fuses and O'Xylene. All the units receive chemicals through road tankers. There fore the reins substantial transportation of hazardous chemicals along the highway.

Major Hazchems Transported

Based on the field survey carried out during the visit to the district, following major hazchem were found to be transported through the district. However currently there is operation .

• Mono Methyl Amine Gas
• Pentaerythritoltetra nitrate
• DetonatorFuses
• Lead Azide
• Lead Nitrate
• Ammonium Nitrate
• Dinitro Toluene

6.3.6 Transport Accident Scenarios

S.No.	Transport Accident	Area Likely to be Affected
1.	Dinitro Toluene	The material is transported in explosive vans in compliance to the explosives rules and CMVR. The material is shock sensitive. Impact sensitivity-minimum fall of a 2 kg. Weight from a height to foyer 100cm to cause at least1 explosion in ten trials. Incase of an accident keep away from the vehicle an desolate 150m on all sides. Incase of small fires involving the material use DCP. Incase of large fires use waterspray, fogor foam. Donot usewater jet.
2.	Mono methyl Amine	The material is transported as compressed gas in cylinders or aqueous solution in 200Kg drum shaving 170Kg aqueous solution. The gas release may resulting jet/flash fire in contact with ignition source. Isolate 100 m around the accident site.

Other items that will have bearing on the extent of damage are:

- Rate of chemical release-low errata espouse lesser risks. As per the guidelines of the MoEF&CC&CC, we have considered cat a strophic failure of container. However, its Eldon happens in actual incidents and the material escapes from the container at a much lesser rate.
- Location: high population density–unfavorable
- First response by the driver, if possible–favorable
- Prompt action by response agencies–favorable

6.3.7 Hazard Identification for Natural &Other Man Made Disasters

Chemicals disasters could also occur as an outfall of natural disasters such as earthquakes, floods and cloud bursts, cyclones, aircraft strike and sabotage/war. Floods and earthquakes could result in large-scale damage to life and property even without the exposure to chemicals. The presence of chemicals in the affected area could only complicate the emergency and would have to be dealt with special precautions. In order to make informed decisions, it is essential to understand the hazard potential due to such natural calamities also.

6.4 Earthquake

The Bureau of Indian Standards, which is the official agency for publish in seismic hazard maps and codes in India, produced a four-zone map in 2000, which is currently valid. Zones Iand II, of earlier map of 1984, have been merged in the new map and new regions have been included in Zone III such as the Marathwada region of Maharashtra and the Chennai area in Tamil Nadu. Vellore lies in Zone III. This corresponds to moderate earthquake related damage potential expected a magnitude of 6.9. The details of do's and don'ts during earthquake are given in Annexures.

6.5 Road Accidents

6.5.1Road Accidents in Vellore District

Year	No of Cases Reported	Fatal Cases	Persons Died	Non Fatal Cases					Total Persons Injured
				Grevious Cases	Persons	Minor Cases	Persons	Non Injury	
2014	3309	793	862	224	344	2201	3839	91	4183
2015	3276	718	766	172	227	2318	3619	68	3846
2016	3245	825	878	107	145	2255	3582	58	3727
2017 (Up to April)	1039	284	299	28	33	717	1201	10	1234
2017 (May to Dec)	1631	321	345	18	25	1279	1815	13	1840
2018	2383	451	479	40	51	1867	2363	25	2927
2019	2177	303	340	20	23	1853	2566	1	2177
2020	725	222	230	267	305	221	280	15	585
2021	819	238	246	220	229	346	602	15	831
2022	1010	221	210	183	183	603	603	3	786
2023	1334	232	232	3	3	1090	1090	9	1102

Table 6.4 Pre Disaster Activities for Major Disasters

	DROUGHT	FLOOD	CYCLONE
1.Risk Identification			
Hazard Assessment Frequency	Recorded once in 2012-2013 and once in 2016-2017.	2021 North East Monsoon (October 2021)	Recorded in 2020 – (Nivar Cyclone)
Magnitude	Moderate	Moderate 23 Villages Low Vulnerable 11 Villages.	Moderate
Location	Through out the District in 2016	Some villages in Anickut, Vellore taluks.	Part of areas in Vellore and Katpadi taluk affected.
vulnerability Assessment 1.Population	In 2012-13 -8496. In 2016 around 12818 farmers affected.	In Composite Vellore District in the year 2015, totally 19196 farmers affected. 894 people have been avacuated. Human loss -53, Cattle loss-108	Normal life of around 1 Lakh people affected.
2.Assets exposed	In 2012-13 Coconut trees and 2016 Agriculture Crops, Horticulture Crops and Sericulture Crops are affected.	6067 huts and houses damanged. 7416 Acres of Agriculture Crops , 978 Acres of Horticultur Crops, 108 Cattle loss (data included for composite Vellore district).	259 huts and buildings are affected. 1290 Hectares of Crops affected, Around 981 electricity poles, 29 Transformer were affected, 13 cattle and around 6362 poultry loss in Niver Cyclone - 2020 in Vellore district.
Risk Assessment	Moderate	Moderate	Moderate
Hazard monitoring and forecasting	Low rainfall coupled with eratic behaviour of monsoon makes the	A dedicated Flood and Cyclone Control Emergency Operation	A dedicated Flood and Cyclone Control Emergency

	most vulnerable to drought. The Government of Tamil Nadu declared Vellore District as one of the drought district in 2016.	centres functioning in Collectorate Divisional and Taluk offices. Toll Free Number 1077 to receive information and Compliance from public. Warning from IMD and State Emergency Operationg Centres.	Operation centres functioning in Collectorate Divisional and Taluk offices. Toll Free Number 1077 to receive information and Compliance from public. Warning from IMD and State Emergency Operationg Centres.
2.Mitigation			
Structural	1.Check dams across the Rivers 2.Recharge Wells 3.Rainwater Harvesting 4.Kudimaramathu works in Lake and Canals (list of works enclosed in Annexure)	Desilting of all Water Tanks, Channels, Canals and Storm water drains from the starting point to disposal point.	Indigenous Tree plantation
Non-structural works and actions	A perfect co-ordination among all the departments in the district to carry out an efficient plan. To list out the essential areas of operation to design a holistic plan Water Foodgrains Fodder Medicine Temporary Shelter	Sufficient numberof sand bags and poles. List of Public buildings tobe used as shelters. Essential articles such as match boxes, candles, fuel and essential food commodities for preparing food packets. Availability of trained men by fire service, certain medicines for first aid. List of voluntary organisations, Important telephones, control room, Collectorate, Police Stations, Fire Stations, Hospitals and District Hospitals.	Despite low frequency of cyclonic activity there is a committee headed by the district collector for cyclone preparedness and that also prepares Cyclone Management Plans. Precautionary measures are taken in the cyclonic months and essential commodities are readied along with the NDRF, Transportation and emergency

			medicines. School buildings and other Public buildings are used for shelter.
Financial incentives for preventive behaviour	As per section 49 of the Disaster Management Act 2005,every department of the state government shall make provisions in their annual budget for carrying out the activities and programmes set out in their disaster management plans. **1)** SDRF **2)** DDRF **3)** SDMF **4)** DDMF Due to un precedent heavy rain during NEM 2015 to meet the heavy loss to lives and properties, Government of Tamil Nadu released funds over and above the SDRF/NDRF fund.	As per section 49 of the Disaster Management Act 2005,every department of the state government shall make provisions in their annual budget for carrying out the activities and programmes set out in their disaster management plans. **1)** SDRF **2)** DDRF **3)** SDMF **4)** DDMF Due un precedent heavy rain during NEM 2015 to meet the heavy loss to lives and properties, Government of Tamil Nadu released funds over and above the SDRF/NDRF fund.	As per section 49 of the Disaster Management Act 2005,every department of the state government shall make provisions in their annual budget for carrying out the activities and programmes set out in their disaster management plans. **1)** SDRF **2)** DDRF **3)** SDMF **4)** DDMF Due un precedent heavy rain during NEM 2015 to meet the heavy loss to lives and properties, Government of Tamil Nadu released funds over and above the SDRF/NDRF fund.
Education, training and awareness about risks and prevention	What disaster will do. The best immediate action to take personally & by families & other kin groups How best to help other members of the community. What the Government has planned to do to assist the community How to participate effectively in the	Spread of correct and timely warning. Information about rainfall will be regularly informed. The Police radio network is also kept in good condition so that vital information can be exchanged. Dissemination of information in lightning speed. Mock drills conducted	Spread of correct and timely warning. Information about rainfall will be regularly informed. The Police radio network is also kept in good condition so that vital information can be exchanged. Dissemination of information in

	Disaster communication &warning process. How to improvise shelter & sustenance until assistance is available. The role and functions of external aid agencies at the time of Disaster. What has happened or may happen to the community, property and environment due to the flood, earthquake and other emergencies What recovery is likely to involve. What plans are in place for the well beings of community What services and resources are available for recovery of the community The information which will assist the community to effect recovery	periodically.	lightning speed. Mock drills conducted periodically.
3. Risk transfer			
Insurance, reinsurance of public infrastructure and private assets	Awareness have been created among the public and private buildings to insure.	As per the Govt. Order, loss of infrastructure will be assessed and it will be compensated.	As per the Govt. Order, loss of infrastructure will be assessed and it will be compensated.
4. Preparedness			
Warning Systems, Communication systems, protocols	Failure of North East Monsoon.	Warning from IMD about prevalence of heavy rain. http://www.imd.gov.in	Warning from IMD about prevalence of Cyclone. http://www.imd.gov.in
Contingency planning	Coordination among all departments, proper planning for water scarcity, fodder management, food	Identifying disaster prone areas, rational plan of action for men and materials, requirement of vehicles, flood control	Identifying disaster prone areas, rational plan of action for men and materials,

	grains, medicines, etc.	room, Relief Camp sites, voluntary organisations, list of medical teams for first aid. Assessing adequate supply of food grains and list of fair price shops. Sufficient quantity of Drinking water and safe chlorination, proper sanitary measures like make shift latrines. Quick assessment of assets damage, lives, animals and crops.	requirement of vehicles, flood control room, Relief Camp sites, voluntary organizations, List of medical teams for first aid. Assessing adequate supply of food grains and list of fair price shops. Sufficient quantity of Drinking water and safe chlorination, proper sanitary measures like make shift latrines. Quick assessment of assets damage, lives, animals and crops.
Networks of emergency respondents	There will not be any damage absolutely to the communication and network and system of drought. Eventhen,District Emergency Operation Centre with toll free No. 1077 and SEOC No.1070 and concerned Taluk, Divisional and Departmental Offices will function.	Network of teams have been formed from District Emergency Operation Centre with toll free No. 1077 and SEOC No.1070 and concerned Taluk, Divisional and Departmental Officers up to the village level first responders.	District Emergency Operation Centre with toll free No. 1077 and SEOC No.1070 and concerned Taluk, Divisional and Departmental Officers.
Shelter facilities evacuation plans	Though many will not require such shelters,the basic arrangement can be done at the hour of need.	Government School Buildings, Noon Meal buildings, Private Marriage Halls and Community Halls have been identified as shelters.	Government School Buildings, Noon Meal buildings, Private Marriage Halls and Community Halls have been identified as shelters.

Table 6.14 Post Disaster Activities for Major Disasters

1. Emergency Response			
	DROUGHT	**FLOOD**	**CYCLONE**
Humanitarian assistance	Drought is a slow process which can be anticipated without any haste and thus proper planning would be possible. Vellore is one of the 99 districts in the Country come under rain fed. Drinking water supply, Dehydration mixture, relief measures for crop loss.	Providing shelters, food, drinking water, sanitation, first aid etc. Payment of cash doles, free rice, distribution of sarees and dhoties, supply of kerosene's, etc will be provided as per the Govt. Order.	Providing shelters, food, drinking water, sanitation, first aid etc. Payment of cash doles, free rice, distribution of sarees and dhoties, supply of kerosene's, etc will be provided as per the Govt. Order.
Clean-up temporary repairs and restoration of services	Local bodies will assess water demand in the region and supply as per need through tankers etc Recharge of bore wells, ring wells, desilting of tanks etc., will be done by Rural Development and PWD.	Restoration Electricity, restoration of communication and road networks, Resumption of transportation, supply of food, clothes and arrangements of medical support, disposal of carcass, and provision of relief measures etc	Restoration Electricity, restoration of communication and road networks, Resumption of transportation, supply of food, clothes and arrangements of medical support, disposal of carcass, and provision of relief measures etc
Damage assessment and identification of priorities for recovery	Preliminary damage assessment is carried out during Disaster and the detailed assessment will be conducted before commencing reconstruction and rehabilitation activities. Through concerned departments like Agri, Horticulture, Sericulture, Health, Animal Husbandry, PWD, WRO , local	Through concerned departments like Agri, Horticulture, Sericulture, Animal Husbandry, PWD, WRO and local bodies will assess the damage and action will be taken as per the priorities.	

	bodies and education departments will assess the damage and action will be taken as per the priorities.		
Mobilization of recovery resources (public-multilateral, Insurance)			
2.0 Rehabilitation and reconstruction			
Rehabilitation, reconstruction of damaged critical infrastructure	Recharge of bore wells, ring wells, desilting of tanks etc., will be done by Rural Development and PWD. Local bodies will assess water demand in the region and supply as per need through tankers etc	Providing claims and grants as per the relief manual. Providing and facilitating medical support for the victims requiring long term care. Clearing and disposing off the debris created as a result of collapse of physical infrastructure and elements. Incorporating. disaster resilient features to build back better guideline principal. Creation/ Retrofitting of structures-roads, bridges, canals. Restoration of transformers, creation of temporary health centres, trauma cares, livelihood	Providing claims and grants as per the relief manual. Providing and facilitating medical support for the victims requiring long term care. Clearing and disposing off the debris created as a result of collapse of physical infrastructure and elements. Incorporating. disaster resilient features to build back better guideline principal. Creation/ Retrofitting of structures-roads, bridges, canals. Restoration of transformers, creation of temporary health centre's, trauma cares, livelihood
Macroeconomic and budget management (stabilization,	1) State Disaster Response Fund, 2) District Disaster Response Fund,	1) State Disaster Response Fund, 2) District Disaster Response Fund,	1) State Disaster Response Fund, 2) District Disaster Response Fund,

protection of social expenditures)	3) State Disaster Mitigation Fund, 4) District Disaster Mitigation Fund, 5) National Disaster Response Fund. For meeting expenditure on disaster, the State Government will sanction the Relief Amount.	3) State Disaster Mitigation Fund, 4) District Disaster Mitigation Fund, 5) National Disaster Response Fund. For meeting expenditure on disaster, the State Government will sanction the Relief Amount.	3) State Disaster Mitigation Fund, 4) District Disaster Mitigation Fund, 5) National Disaster Response Fund. For meeting expenditure on disaster, the State Government will sanction the Relief Amount.
Revitalization of affected sectors(e.g.exports tourism, agriculture)	Relief amount for the affected farmers by the by the Government of Tamil Nadu after assessing the actual damages. Subsidy for seeds will also be sanctioned for revitalization of Agriculture.	Relief amount for the affected farmers by the bythe Government of Tamil Nadu after assessing the actual damages. Subsidy for seeds will also be sanctioned for revitalization of Agriculture.	Relief amount for the affected farmers by the bythe Government of Tamil Nadu after assessing the actual damages. Subsidy for seeds will also be sanctioned for revitalization of Agriculture.
Incorporation of risk management in reconstruction processes	Block wise Drought Management Plan will be prepared. Agriculture Department will provide seeds for drought resistance crops and soft loans and subsidies may also be arranged. Drinking water will be provided through lorries, recharge bore wells and chlorination of water for pure and free from contaminations.	Rescue and Relief activities will be initiated immediately. Police/Fire Rescue teams and ambulances will be put into service. Providing shelters, food, drinking water, sanitation, first aid etc. Payment of cash doles, free rice, distribution of sarees and dhoties, supply of kerosene's, etc will be provided as per the Govt. Order by concerned departments.	Assess the damage regarding properties, loss of human/ livestock, agricultural crops etc., Removal of debris, clearing the fallen trees, restoring power lines, restoration of basic infrastructures, disposal of carcasses on war-footing basis. Immediate restoration of roads to motorable condition. Keeping ready the JCB, trackters, power saws, etc.

6.5 Identified Flood Vulnerable Areas

As per the instruction of Principal Secretary / Commissioner of Revenue Administration, the criteria for the classification of Vulnerable areas have been applied to the already indentified Vulnerable areas. After applying the new nomenclature in Vellore District the below mentioned Vulnerable areas have been grouped. The details of Vulnerable Villages for Flood in Vellore District Presented in the following Table and Firka level Vulnerability map presented in below Figures.

Sl.No	**Type of Vulnerable areas**	**No. of Vulnerable areas**
1	Highly Vulnerable	-Nil-
2	Vulnerable	-Nil-
3	Moderately Vulnerable	8
4	Low Vulnerable	15

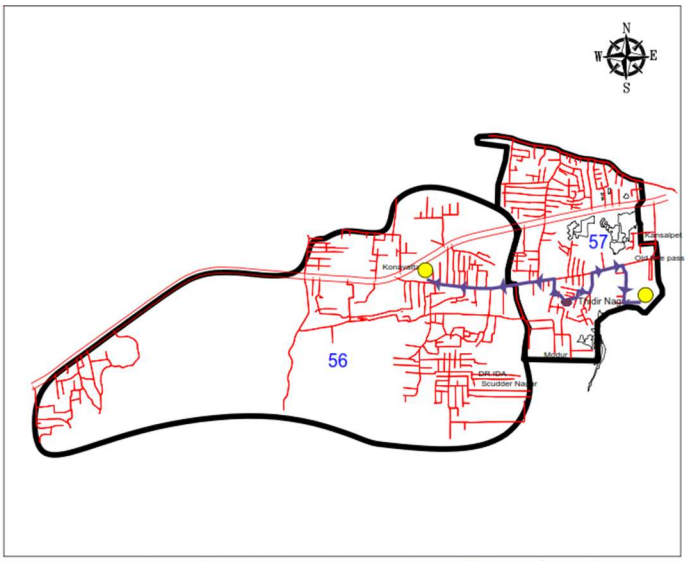
Details of Vulnerable Areas to Flood (Urban -Ward Level)

Vulnerable Areas

Ward No : 56, 57
Name of the Local Body : Vellore Corporation
Zone No : III
District : Vellore

I. Details of Vulnerability areas						
Types of Vulnerability in the area	Details of the area	Inundation details Water level (ft) / No. of days	Source of Flood	Name of Relief centres	Street to be used escape to relief centre	Distance to relief centre (in km)
1	2	3	4	5	6	7
Medium	Thidir Nagar	2 Feet for 3 Days	Heavy Rain	Saravana Bhava Mandapam G.H.S.S Konavattam	Fort Back Road	0.5

II . Details of Contacts		
	Name of Contacts Details (1)	Contact No. (2)
1. Name of the Nodal officer	Sub Collector Vellore	Land Line : 0416-2252395 Mobile No : 9445000417
2. Name of the Inter Departmental ZonalTeamLeader	D. Muralidharan DeputyTahsildar	Land Line : 04172-232519 Mobile No : 9790303377
3. Nearest Police Station	Bagayam	Land Line : 0416-2230777 MobileNo : -
4. Nearest Fire & Rescue Station	Vellore	Land Line : 0416-2221502 Mobile No : -
5. Name of Taluk	Vellore	Land Line : 0416-2220519 Mobile No : 9445000508



Note: Vulnerabilitty Area Maps - Urban Local Bodies - Ward wise and not more than 3 locations in each map alone to be marked. If morethan 3 location are there in the Ward,Additional maps to be prepared according to the numbers. (P.T.O)

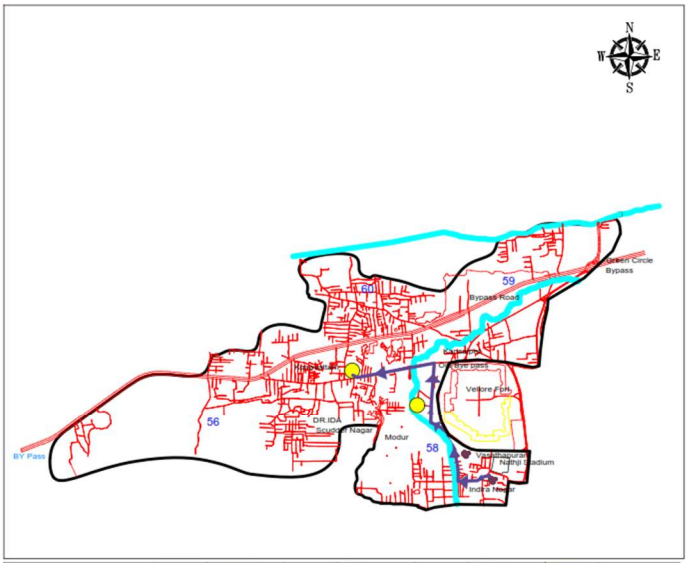
Details of Vulnerable Areas to Flood (Urban -Ward Level)

Vulnerable Areas

Ward No : 56,57,58,59,60
Name of the Local Body : Vellore Corporation
Zone No : IV
District : Vellore

I. Details of Vulnerability areas						
Types of Vulnerability in the area	Details of the area	Inundation details Water level (ft) / No. of days	Source of Flood	Name of Relief centres	Street to be used escape to relief centre	Distance to relief centre (in km)
1	2	3	4	5	6	7
Medium	Indira Nagar	2 Feet for 3 Days	Nicholson Channel	Saravana bhavaKalyana Mandapam GHSS Konavattam	Fort Road	0.5
Medium	Sambath Nagar	2 Feet for 3 Days	Nicholson Channel	Saravana bhavaKalyana Mandapam GHSS Konavattam	Fort Road	1

II . Details of Contacts		
	Name of Contacts Details (1)	Contact No. (2)
1. Name of the Nodal officer	Sub Collector Vellore	Land Line : 0416-2252395 Mobile No : 9445000417
2. Name of the Inter Departmental ZonalTeamLeader	D. Muralidharan DeputyTahsildar	Land Line : 04172-232519 Mobile No : 9790303377
3. Nearest Police Station	Bagayam	Land Line : 0416-2230777 MobileNo : -
4. Nearest Fire & Rescue Station	Vellore	Land Line : 0416-2221502 Mobile No : -
5. Name of Taluk	Vellore	Land Line : 0416-2220519 Mobile No : 9445000508



Note: Vulnerabilitty Area Maps - Urban Local Bodies - Ward wise and not more than 3 locations in each map alone to be marked. If morethan 3 location are there in the Ward,Additional maps to be prepared according to the numbers. (P.T.O)

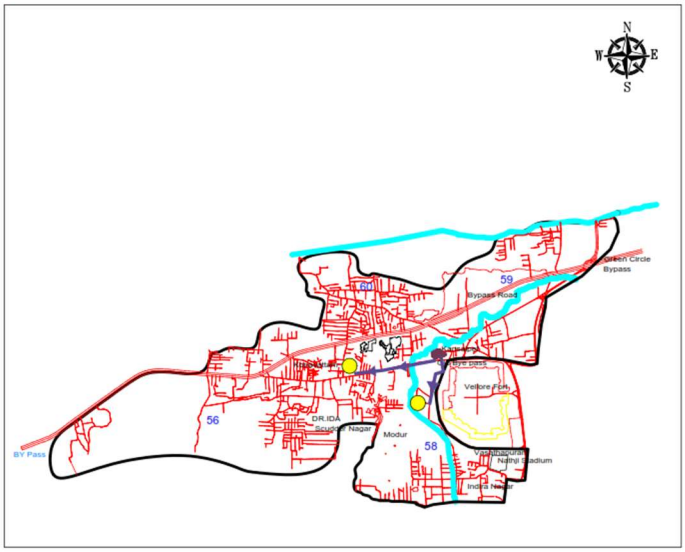
Details of Vulnerable Areas to Flood (Urban -Ward Level)

Vulnerable Areas

Ward No : 56,57,58,59,60
Name of the Local Body : Vellore Corporation
Zone No : IV
District : Vellore

I. Details of Vulnerability areas						
Types of Vulnerability in the area	Details of the area	Inundation details Water level (ft) / No. of days	Source of Flood	Name of Relief centres	Street to be used escape to relief centre	Distance to relief centre (in km)
1	2	3	4	5	6	7
Medium	Kansalpet	2 Feet for 3 Days	Nicholson Channel	Saravana bhavaKalyana Mandapam GHSS Konavattam	Fort Road	1

II . Details of Contacts		
	Name of Contacts Details (1)	Contact No. (2)
1. Name of the Nodal officer	Sub Collector Vellore	Land Line : 0416-2252395 Mobile No : 9445000417
2. Name of the Inter Departmental ZonalTeamLeader	D. Muralidharan DeputyTahsildar	Land Line : 04172-232519 Mobile No : 9790303377
3. Nearest Police Station	Bagayam	Land Line : 0416-2230777 MobileNo : -
4. Nearest Fire & Rescue Station	Vellore	Land Line : 0416-2221502 Mobile No : -
5. Name of Taluk	Vellore	Land Line : 0416-2220519 Mobile No : 9445000508



Note: Vulnerabilitty Area Maps - Urban Local Bodies - Ward wise and not more than 3 locations in each map alone to be marked. If morethan 3 location are there in the Ward,Additional maps to be prepared according to the numbers. (P.T.O)

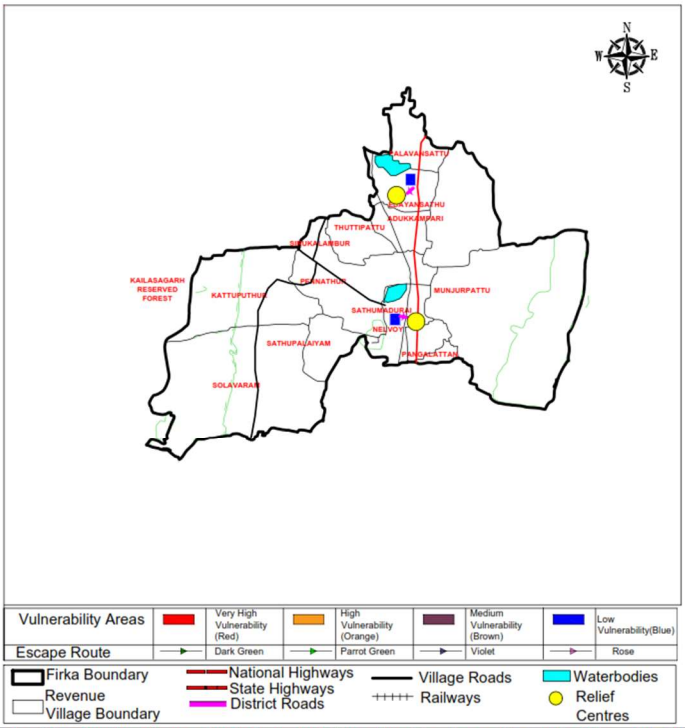
Details of Vulnerable Areas to Flood (Rural -Firka Level)

Vulnerable Areas

Firka Name : Pennathur
Block : Kaniyambadi
Taluk : Vellore
District : Vellore

I. Details of Vulnerability areas						
Types of Vulnerability in the area	Details of the area	Inundation details Water level (ft) / No. of days	Source of Flood	Name of Relief centres	Street to be used escape to relief centre	Distance to relief centre (in km)
1	2	3	4	5	6	7
Low	Edaiyansathu	Below 1 feet for 1 day	Heavy Rain storm waterfrom nearby hill	Magaleer kuzhu Kattidam Mooppanar Nagar	Main Road	0.5
Low	Nelvoy	Below 1 feet for 1 day	Nelvoy Lake	G.H.S.S Nelvoy	Main Road	0.5

II . Details of Contacts		
	Name of Contacts Details (1)	Contact No. (2)
1. Name of the Nodal officer	Sub Collector Vellore	Land Line : 0416-2252395 Mobile No : 9445000417
2. Name of the Inter Departmental Zonal Team Leader	M. Nedumaran DeputyTahsildar	Land Line : 04172-232519 Mobile No : 8778877511
3. Nearest Police Station	Bagayam	Land Line : 0416-2230777 MobileNo : -
4. Nearest Fire & Rescue Station	Vellore	Land Line : 0416-2221502 Mobile No : -
5. Name of Taluk	Vellore	Land Line : 0416-2220519 Mobile No : 9445000508



Note: Vulnerabilitty Area Maps - Rural Areas - Firka wise and not more than 3 locations in each map alone to be marked. If morethan 3 location are there in the Firka, additional maps to be prepared according to the numbers. (P.T.O)

Table 6.5 List of Vulnerable Villages for Floods in Vellore District

Sl. No	Name of the Taluk	Name of the Revenue Village	Name of the Vulnerable Area
1	2	3	4
1	Vellore	Pennathur	Edaiyansathu
2	Vellore	Nelvoy	Nelvoy
3	Vellore	Kilvalam	Kilvallam AD Colony
4	Vellore	Kaniyambadi	Kaniyambadi AD Colony
5	Vellore	North Vellore	Kansalpet
6	Vellore	South Vellore	Indira Nagar, Puliyanthoppe, Rangasamy Nagar, Vasanthapuram
7	Vellore	South Vellore	Sambath Nagar (Navaneetham Koil street)
8	Vellore	Shenpakkam	Thidir Nagar
9	Anaicut	Pallikonda	Pallikonda
10	Anaicut	Ganganallur	Ganganallur
11	Anaicut	Bramangalam	Bramanamangalam
12	Anaicut	Govinthampadi	Govinthampadi
13	Anaicut	Karadikudi	Karadigudi
14	Katpadi	Kalinjur	Gopalapuram
15	Katpadi	Ponnai	Ponnai Village
16	Katpadi	Melpadi	Melpadi Village
17	Gudiyatham	Sempalli	Sempalli
18	Gudiyatham	Agraharam	Agraharam
19	Gudiyatham	Rangasamudhiram	Rangasamudhiram
20	Gudiyatham	Perumbadi	Perumbadi
21	Gudiyatham	Nellurpettai	Nellurpettai
22	Gudiyatham	Seruvangi	Seruvangi
23	Pernambut	Pernambut	Othavadai

Table 6.6 Details of Relief Centers Identified In Vulnerable Areas

Sl.No	Name of the Taluk	No.of relief centers identiifed		Total
		Government	Private	
1	Vellore	6	1	7
2	Anaicut	2	4	6
3	Katpadi	3	1	4
4.	K.V.Kuppam	0	0	0
5.	Gudiyatham	6	0	6
6.	Pernambut	1	2	3
TOTAL		**18**	**8**	**26**

Table 6.7 Details of Relief Centres Idenfied Vulnerable Areas of Vellore District

Sl. No	Name of the Taluk	Name of the Revenue Village	Name of the Vulnerable Area	Name of Relief Center
1	2	3	4	5
1	Vellore	Pennathur	Edaiyansathu	Magaleer Kuzhu Kattidam Mooppanar Nagar, Edayansathu
2	Vellore	Nelvoy	Nelvoy	Govt.Higher Secondary School, Nelvoy
3	Vellore	Kilvalam	Kilvallam AD Colony	Panchayat Union Elementary School Vallam
4	Vellore	Kaniyambadi	Kaniyambadi AD Colony	Panchayat Union Elementary School, Kaniyambadi
5	Vellore	North Vellore	Kansalpet	1.Saravanabhava Kalyana Mandapam Shenbakkam, 2.Government Higher Secondary School Konavattam

6	Vellore	South Vellore	Indira Nagar, Puliyanthoppe, Rangasamy Nagar, Vasanthapuram	1.Saravanabhava Kalyana Mandapam Shenbakkam, 2.Government Higher Secondary School Konavattam
7	Vellore	South Vellore	Sambath Nagar (Navaneetham Koil street)	Police Kalyana Mandapam, Kottai Round, Vellore.
8	Vellore	Shenpakkam	Thidir Nagar	1.Saravanabhava Kalyana Mandapam Shenbakkam, 2.Government Higher Secondary School Konavattam
9	Anaicut	Pallikonda	Pallikonda	1.Little Flower Convent 2. Muthu Kalyana Mandapam
10	Anaicut	Ganganallur	Ganganallur	Kasthuri Thirumana Mandapam Genganallur
11	Anaicut	Bramangalam	Bramanamangalam	G.V.Mahal, Bramanamangalam
12	Anaicut	Govinthampadi	Govinthampadi	Panchayat Union Elementary School, Govindambadi
13	Anaicut	Karadikudi	Karadigudi	Government School, Karadigudi
14	Katpadi	Kalinjur	Gopalapuram	1. Panchayat Union Ele School, Kalinjur 2. BMD Jain School
15	Katpadi	Ponnai	Ponnai Village	Government High School, Ponnai,
16	Katpadi	Melpadi	Melpadi Village	Community Hall, Melpadi
17	Gudiyatham	Sempalli	Sempalli	Government High School Sempalli
18	Gudiyatham	Agraharam	Agraharam	Government High School, Agraharam
19	Gudiyatham	Rangasamudhiram	Rangasamudhiram	Government Primary School Rangasamudhiram

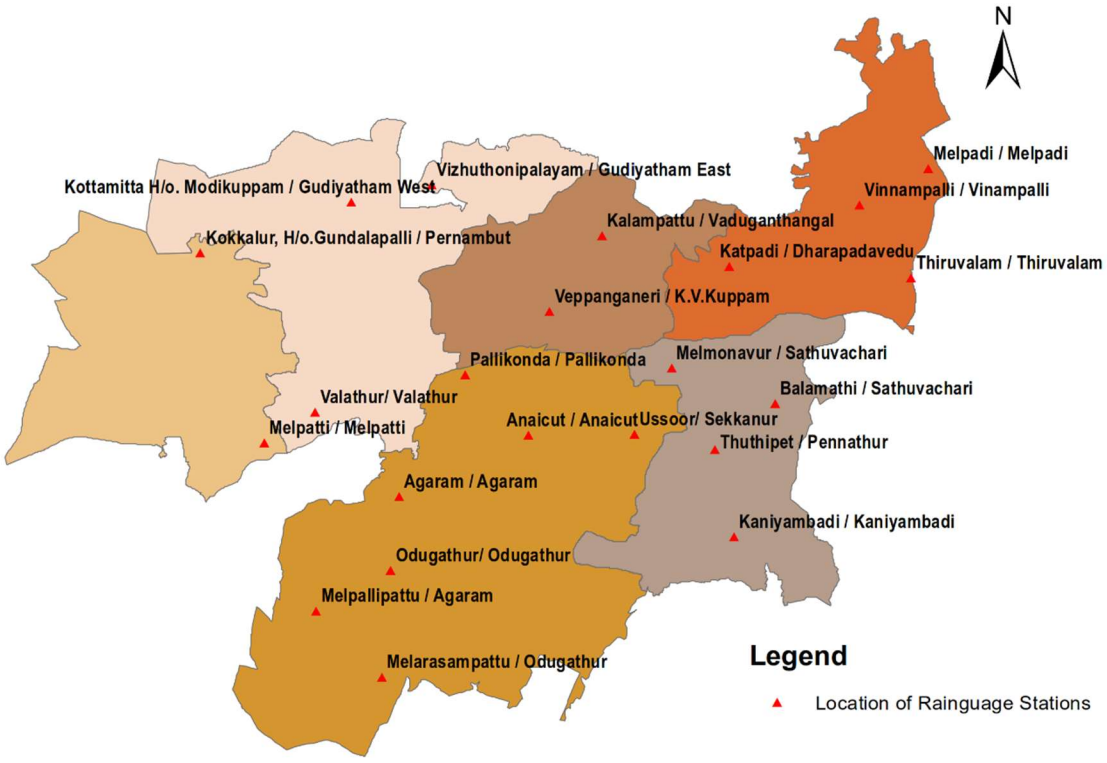
20	Gudiyatham	Perumbadi	Perumbadi	Government Elementary School Perumbadi
21	Gudiyatham	Nellurpettai	Nellurpettai	Government Higher Secondary School Nellorepettai
22	Gudiyatham	Seruvangi	Seruvangi	Government Elementary School, Seruvangi
23	Pernambut	Pernambut	Othavadai	1.Adi-Dravidar Welfare Higher Secondary School,Pernambut. 2.Islamia Elementary School Pernambut, 3.Ballimera Mahal, Pernambut

Table 6.8 List of places identified in vulnerable areas to be used as temporary cattle shelters for animals during disaster

Sl. No.	Name of the Taluk	Name of the Village	Place
1	Vellore	Adukkamparai	Moonjurpattu
2	Vellore	Melmonavur	Melmonavur
3	Anaicut	Anaicut	Anaicut
4	Katpadi	Ponnai	Aurangapalli
5	K.V.Kuppam	Kothamangalam	Kothamangalam
6	Katpadi	Brammapuram	Brammapuram
7	Gudiyatham	Valathur	Ulli
8.	Pernambut	Melpatti	Melpatti

6.5 Rainfall Monitoring

Rainfall monitoring is critical for a variety of reasons. It allows us to predict future weather patterns, helping with flood control and drought prevention. This information is vital for farmers who can adjust irrigation practices based on rainfall. Rainfall data is also crucial for understanding climate change and its impact on the environment. By tracking long-term trends, scientists can make predictions about future water availability and develop strategies to manage this precious resource. Based on SDMA instructions Totally 22 **Automatic Rain Guage** stations and 2 **Automatic Weather stations** are installed for the current Financial Year to Monitor the rainfall status in the District. The details are given in the Table 6.9 and locations are presented in the following Figure.



Location map of Rain Guage stations installed in different Taluks of Vellore District


GPS Map Cam
Agaram, Tamil Nadu, India
RVCR+R76, Madhanur - Odugathur Rd, Agaram, Tamil Nadu 635804, Ind
Lat 12.821811°
Long 78.891095°
17/05/24 05:43 PM GMT +05:30
Google


GPS Map Camera
Anaicut, Tamil Nadu, India
VX8P+P7H, SH 122, Anaicut, Tamil Nadu 632101, India
Lat 12.86701°
Long 78.985623°
18/05/24 04:08 PM GMT +05:30
Google


GPS Map Camera
Melpallipattu, Tamil Nadu, India
PRQJ+J4, Melpallipattu, Tamil Nadu 632107, India
Lat 12.738002°
Long 78.829838°
18/05/24 10:34 AM GMT +05:30
Google


GPS Map Camera
Odugathur, Tamil Nadu, India
QV8M+WRM, Odugathur, Tamil Nadu 632103, India
Lat 12.767791°
Long 78.884588°
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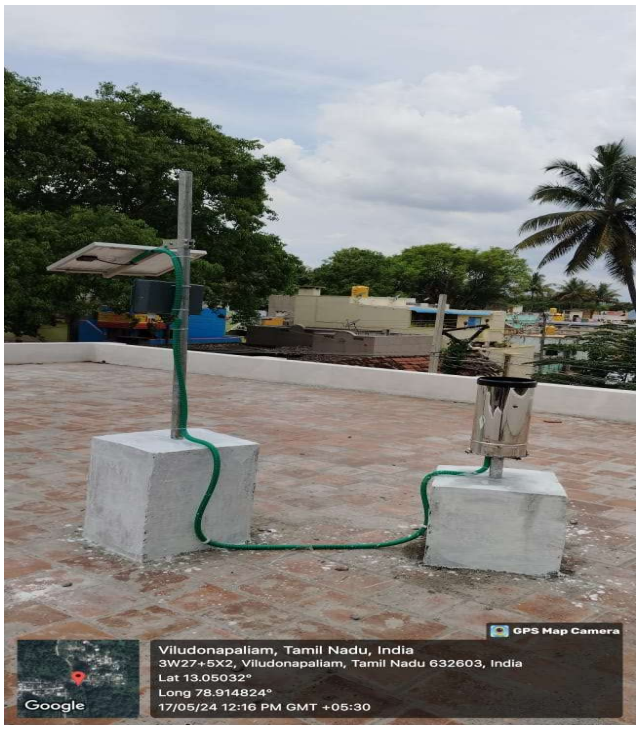


Table 6.9 Details of Newly installed Rainguage Stations and its locations in Vellore District

Sl. No	Latitude	Longitude	Name of Village / Firka	Name of ARG Location {Site Name}	ARG Code	ARG Location on Roof Top / Ground	Responsible Officer Name monitoring the entire process of ARG
1	12.82183	78.89112	Agaram / Agaram	Panchayat Union Primary School	ARG 1196	Building Top	Karthick, Revenue Inspector, Agaram Firka, 6379890193
2	12.86670	78.98575	Anaicut / Anaicut	Taluk Office Car Shed	ARG 1197	Building Top	Indhumathi, Head Quarters Deputy Tahsildr, Anaicut, 9500923408
3	12.68984	78.87795	Melarasampattu / Odugathur	Panchayat Seva Center	ARG 1195	Building Top	J.Sundaramoorthy, Revenue Inspector, Odugathur, 9159288753
4	12.73796	78.82986	Melpallipattu / Agaram	Government High School	ARG 1194	Building Top	E.Revathi, Revenue Inspector, Anaicut, 9940632871
5	12.76779	78.88465	Odugathur/ Odugathur	Revenue Inspector Quarters	ARG 1193	Building Top	Jayaprakash, Zonal Deputy Tahsildar Anaicut, 90803 07322
6	12.86741	79.06344	Ussoor/ Sekkanur	Panchayat Office	ARG 1191	Building Top	Thirukumaresan, Zonal Deputy Tahsildar, Anaicut, 90800 00400

7	12.91104	78.93934	Pallikonda / Pallikonda	Anganwadi Center	ARG 1198	Building Top	Anusuya, Revenue Inspector, Pallikonda, 95970 78757
8	12.88385	78.82919	Valathur/ Valathur	Ration Shop Building	ARG 1207	Building Top	Yeswanthiran, Revenue Inspector Valathur, 94873 26432
9	13.03720	78.85574	Kottamitta H/o. Modikuppam / Gudiyatham West	Government Higher Secondary School	ARG 1205	Building Top	M.Pugazharasan, Revenue Inspector, Gudiyatham West , 8248751679
10	13.05026	78.91482	Vizhuthonipalayam / Gudiyatham East	Panchayat Union Primary School, New Building	ARG 1206	Building Top	Balarama Baskaran , Revenue Inspector, Gudiyatham East, 8754029596
11	12.95759	79.00123	Veppanganeri / K.V.Kuppam	Taluk Office, Tahsildar Quarters New Building	ARG 1204	Building Top	K.Thirumalai, Revenue Inspector, K.V.Kuppam, 9940761291
12	13.01290	79.03979	Kalampattu / Vaduganthangal	Panchayat Union Primary School	ARG 1203	Building Top	P.Lakshmi, Revenue Inspector, Vaduganthangal, 8072751527
13	12.99047	79.13307	Katpadi / Dharapadavedu	Block e-Seva Center B.D.O Office	ARG 1200	Building Top	Sathish Kumar, Revenue Inspector, Katpadi, 9943760913
14	12.98175	79.26680	Thiruvalam / Thiruvalam	Revenue Inspector Quarters New Building	ARG 1202	Building Top	R.Karthigeyan, Revenue Inspector, Thiruvalam, 9994241282
15	13.03550	79.22837	Vinnampalli / Vinampalli	Government Higher Secondry School	ARG 1199	Building Top	Venkat Kumar, Taluk Supply Officer, Katpadi, 9843048674
16	13.06223	79.27937	Melpadi / Melpadi	Panchayat Union Primary School	ARG 1201	Building Top	J.Sujatha, Revenue Inspector, Melpadi, 7904276049
17	12.86131	78.79144	Melpatti / Melpatti	Sandhai Medu, Melpatti	ARG 1209	Ground	Sarguna, Revenue Inspector - Melpatti Firka, 9487619079
18	13.00047	78.74502	Kokkalur, H/o.Gundalapalli / Pernambut	Panchayat Union Primary School	ARG 1208	Building Top	Geetha, Revenue Inspector - Pernambut Firka, 8220606685
19	12.85650	79.12255	Thuthipet / Pennathur	Libray Building	ARG 1190	Building Top	S.Gokulakrishnan, Revenue Inspector, Pennathur, 9159059279
20	12.79263	79.13634	Kaniyambadi / Kaniyambadi	Integrated Agricultural Extension Center	ARG 1188	Building Top	R.Deepalakshmi, Revenue Inspector, Kaniyambadi, 6382231501

21	12.88994	79.16698	Balamathi / Sathuvachari	Panchayat Office	ARG 1189	Building Top	S.Saravanan, Revenue Inspector, Sathuvachari, 9786431118
22	12.91571	79.09083	Melmonavur / Sathuvachari	Anganwadi Center	ARG 1192	Building Top	D.Thangamani, Revenue Inspector, Vellore South, 9952399919

6.6 Mock Drill and IDNDRN

6.6.1 Objectives

- To test the Adequacy and Efficacy of the Emergency Response Plan of Vellore District of Tamil Nadu Against Fire, Earthquake and Chemical Nuclear and Biological Disasters
- To highlight the roles and responsibilities of the concerned stakeholders at the District level
- To enhance coordination and synergize efforts of various Emergency Support Functions at the District level in Vellore District
- To find gaps in the resource, manpower, equipment communication and systems at District.
- To empower the vulnerable groups to face disasters squarely with enhanced resilience.

6.6.2 Procedure to be followed

A half a day long training programme of the officials of the line departments on the Coordination of response and managing relief operation will be conducted on the opening day of the event. The training programme will be followed by a Table - Top exercise.

A major evacuation & relief operation simulation drill will be conducted on second day. A debriefing session called " Hotwash" will be conducted in the last session of the third day after the drill.

6.6.3 Deliverables of Mock Drill

This multi-disciplinary training and exercise will foster the development of skill sets focused on disaster management system of the Revenue Circle. Besides, it also provide an opportunity for various agencies to work together and practice a multi-

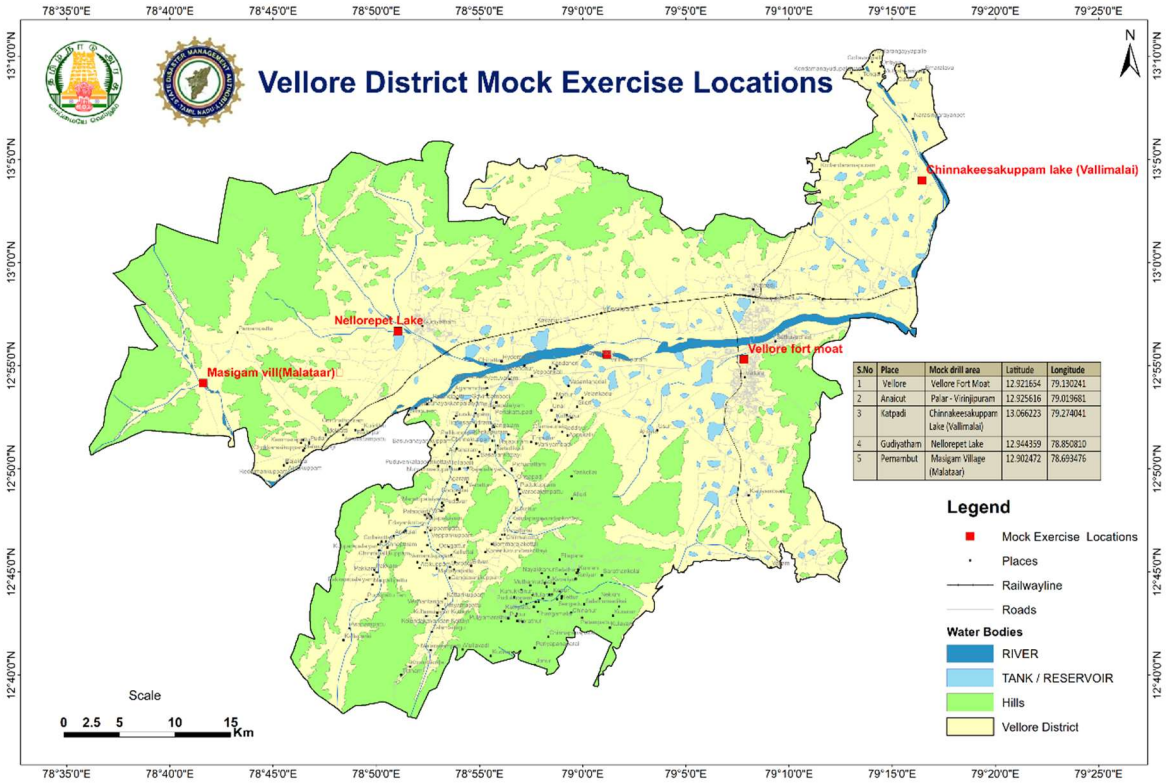
disciplinary, coordinated response to a flood situation in the Revenue Circle. Finally, the exercise will help in identifying the strengths and weaknesses of the Revenue Circle's emergency management plans and help in future preparedness

6.7 Mock Drill Exercised

BY DDMA: Based on TNDRRA instruction a District Level Table Top Exercise on 23.06.2022 and Mock Exercsie on Flood conducted on 01.09.2022 at various places in Vellore District by the DDMA, Vellore. The details of the Locations are depicted in the following Figures.

BY NDMA: Based on NDMA instruction a District Level Table Top Exercise on 02.03.2023 and Mock Exercsie on Earthquake Emergencies conducted on 04.03.2023 at various places in Vellore District by the DDMA, Vellore. The details of the Locations are depicted in the following Figure.

6.7.1 Based on TNDRRA instruction a District Level Table Top Exercise on 23.06.2022 and Mock Exercsie on Flood conducted on 01.09.2022 at various places in Vellore District by the DDMA, Vellore. The details of the Locations are depicted in the following Figures.



S.No	Place	Mock drill area	Latitude	Longitude
1	Vellore	Vellore Fort Moat	12.921654	79.130241
2	Anaicut	Palar - Virinjipuram	12.925616	79.019681
3	Katpadi	Chinnakeesakuppam Lake (Vallimalai)	13.066223	79.274041
4	Gudiyatham	Nellorepet Lake	12.944359	78.850810
5	Pernambut	Masigam Village (Malataar)	12.902472	78.693476

Communication of Flood Warning /Blow of Siren/Alerting the Public

Pre-emptive Evacuation of the Public Through Buses/other Transports

Assessing the Flood Situation through Modern Techniques/Drones

Rescue and Evacuation through TNFRS/TNDRF/NDRF Helicopter/Boats etc.

Participation of NGOs/Community Volunteers/ AAPDA Mitra/ First Responders

Rescue and Triage on the spot

Transportation of Affected People in Ambulance and Receiving at Hospital

Evacuation Shelters and Facilities Provided

Participation of All Line Departments

Coverage in Press and Media

6.7.2 Based on NDMA instruction a District Level Table Top Exercise on 02.03.2023 and Mock Exercsie on Earthquake Emergencies conducted on 04.03.2023 at Vellore Institute of Technology (VIT), Vellore jointlyorganised by NDRF, 4th Batallion, DDMA and VIT, Vellore.

Table Top Exercises


04 BN NDRF ARAKKONAM
CONFERENCE AND
TABLE TOP MEETING
MOCK EXERCISE

“Earthquake Disaster Mock Drill”
Date : 4th March 2023 (Saturday) 10.30 AM
Venue: VIT Mens Hostel Q Block, Katpadi

THEME OF THE MOCK DRILL:-

Today, the teams of the NDRF Batallion are presenting a mock drill on Mass Causality Management during an earthquake. The event simulates the occurrence of a Moderate earthquake in the District of Vellore. The On 4th March 2023 at about 10.00 AM, a Moderate earthquake of the magnitude of 6.5 Magnitude scale struck in Katpadi area. Katpadi Taluk and its vicinity is affected by the earthquake and catches fire due to the earthquake. It is feared that many victims are trapped inside the multi storey building located in Thiruvalam Road Katpadi. The DM Tahsildar who reside near the site calls the 101 Fire and Rescue Services as well as the Tahsildar Convey the message to the District Control Room 1077. The District Collector contacted the Operational Control room of 04th Bn, NDRF and informs about the disaster that has struck and seeks the help of the NDRF 4th Bn, which is stationed at Arakkonam for rescue and relief operations.

The Control Room of 4th Batallion, after taking directions from the Batallion Commander immediately rushes to the affected area for rescue and relief operations.

Managing the Disaster:-

The first responders from the district entered in the scene and try to rescue the victims. The officials from the district administration also reach and The Collector assume the role of the Incident Commander.

The team Commander assembles the team at a safe distance. Here, one thing is to be remembered; the safety of the rescuer is of prime importance, if even a single rescuer is injured, chances of many victims who may be rescued by the said one rescuer should be at stake. All the NDRF Team members are seen wearing appropriate personal protective equipment.

Once at the scene, the team commander carries out the scene size up in consultation with District Collector, gathers data and conducts a needs analysis and establishes the operational objectives.

After the scene size up, the team commander sends the cordoning team to secure the scene and cordon the area. The scene securing is a procedure to ensure safety

and protection to the maximum possible extent for the rescuers, by standers and victims.

Meanwhile, it is seen that the Team Commander has already established a First Aid center at a safe distance to provide the needed medical assistance to the victims of the incident. Medical First Responders are seen stationed there, fully equipped with equipment and life support system.

The team commander now sends the Search team to the spot. The search team is seen moving towards the incident site. The Team Leader is requesting the victims that whoever can walk unassisted, may come to Medical center. Search team members are on the task to locate the victims inside the Hostel building.

As reported by the Team leader of search team the locations of the victims are now known and the team commander is now sending the Rescue team to the incident site. By practically applying the approach strategies, the task of the rescue team members is to gain access to the victims and extricate victims ensuring no further injury to the victims within the minimum possible time.

The team members have adopted the method of horizontal approach and using appropriate equipments are trying to cut a triangular access. On gaining access to the victims, the rescuers are seen extricating victims from the hostel building and are being taken to the medical center for medical assistance. The goal of the team is to afford the greatest numbers of people the greatest chance of survival.

Meanwhile, the rescuers have found one student in unconscious condition on the top of the building and there is no access route to that victim.

In medical triage centre, after providing the essential first aid, the victims are being dispatched to designated hospitals by ambulances. These Hospitals are equipped with essential medicines, equipments and trained staff to provide treatment to victims.

Once again, the team commander is deploying the search team to the place of incident to ensure that no victims/personnel are left behind. Canine search uses the acute sense of smell of dogs specially trained to detect live humans. These dogs are specialized dogs which provide the best way to locate trapped victims in a large area in the shortest amount of time. They are able to access area too small or too unstable for humans to enter. It is seen that rescuers are coordinating their activities with that of the canine team during their search operations. The canine has detected one victims and by barking sound has given indication of the victims location. The rescuers have rushed to the spot and are extricating the victim.

Team Commander collects report on the activities undertaken during the operation, no. of victims, treatment provided, physical and mental condition of the team members etc from sub-team In-charges and conveys the same to the Incident commander. The Executive Engineer, PWD examined the building and declare that the building can be occupied further. The District Collector declares that the operation is over.

HOT WASH:-

After the operation is over various stake holders assemble at the control station to discuss any possible error in the operation, scope for future improvement and planning for the next event.

"Earthquake Disaster Mock Drill"

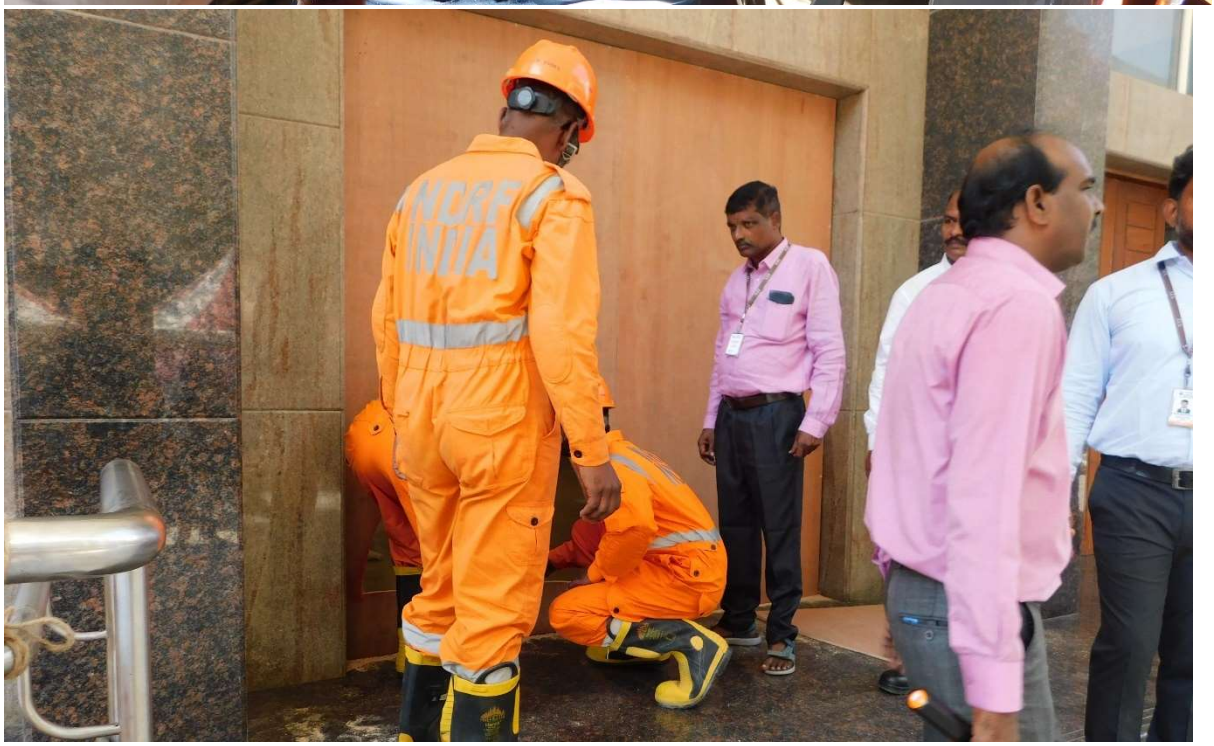
Date : 4th March 2023 (Saturday), 10.30 AM

Venue: VIT Men's Hostel "Q' Block

"Order of Drill Event"

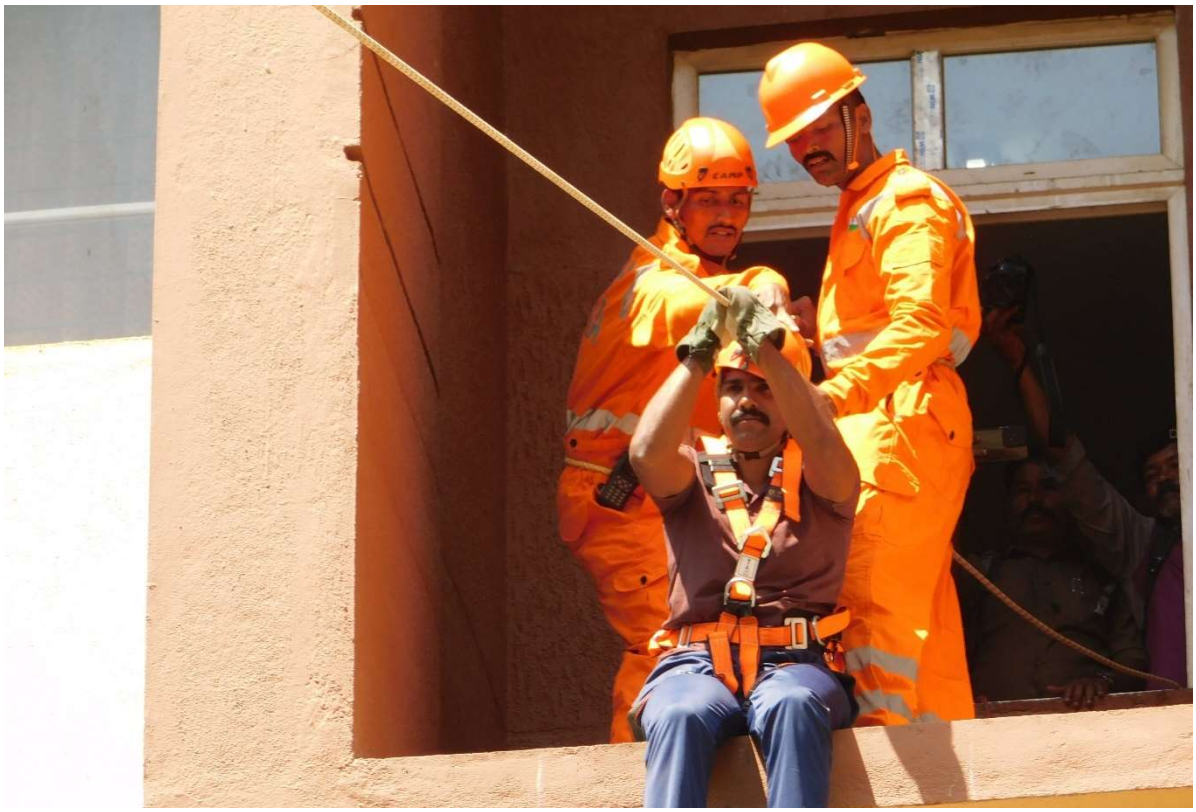
- Earthquake Sound followed by Siren Dr. G.P.Ganapathy
- Call for Fire and Rescue/Police/Ambulance and District Control Room 1077: DM Tahsildar, Vellore
- Call to District Control Room : DM Tahsildar, Vellore
- Call to NDRF : Respected District Collector/DRO
- First Responders/ Nearby public entering in the scene and try to rescue some victims
- Fire /Police and Ambulance entering in the Scene – Shifting Patience in Ambulance
- Fire Put off : Fire and Rescue
- Arrival of NDRF Batallion :Deputy Commandant/ Inspector NDRF
- Assessing the Site

- Cordoning the Area
- Set up of Medical : NDRF/JD Public Health/108 Ambulance
- Set up of Communication.
- Assessing the building for Victim
- Cutting the Main door Wall and Rescue
- Cutting the Window and Rescue
- Triage Simultaneously
- Loading in ambulance
- Check for Further Victims
- Building Assessment by PWD : EE Buildings
- Safe to enter further
- Declaration of Event Closure : Respected District Collector
- HOT wash and Debriefing


NDRF
INDIA


மாவட்ட பேரிடர் மேல
வேலூர் மா
அரக்கோணம் தேசிய பேரிடர்
VIT பல்கலைக்கழகம்


மாவட்ட பேரிடர் மேலாண்மை அலுவலம்,
வேலூர் மாவட்டம்.
அரக்கோணம் தேசிய பேரிடர் மீட்புப் பணிக்குழு மற்றும்
VIT பல்கலைக்கழகம் இணைந்து நடத்தும்
நிலநடுக்கம் தொடர்பான போலி ஒத்திகைப் பயிற்சி
நாள் : 04.03.2023
நேரம் : காலை 10.00 மணி
இடம் : VIT பல்கலைக்கழகம், காட்பாடி

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தமிழ்நாடு
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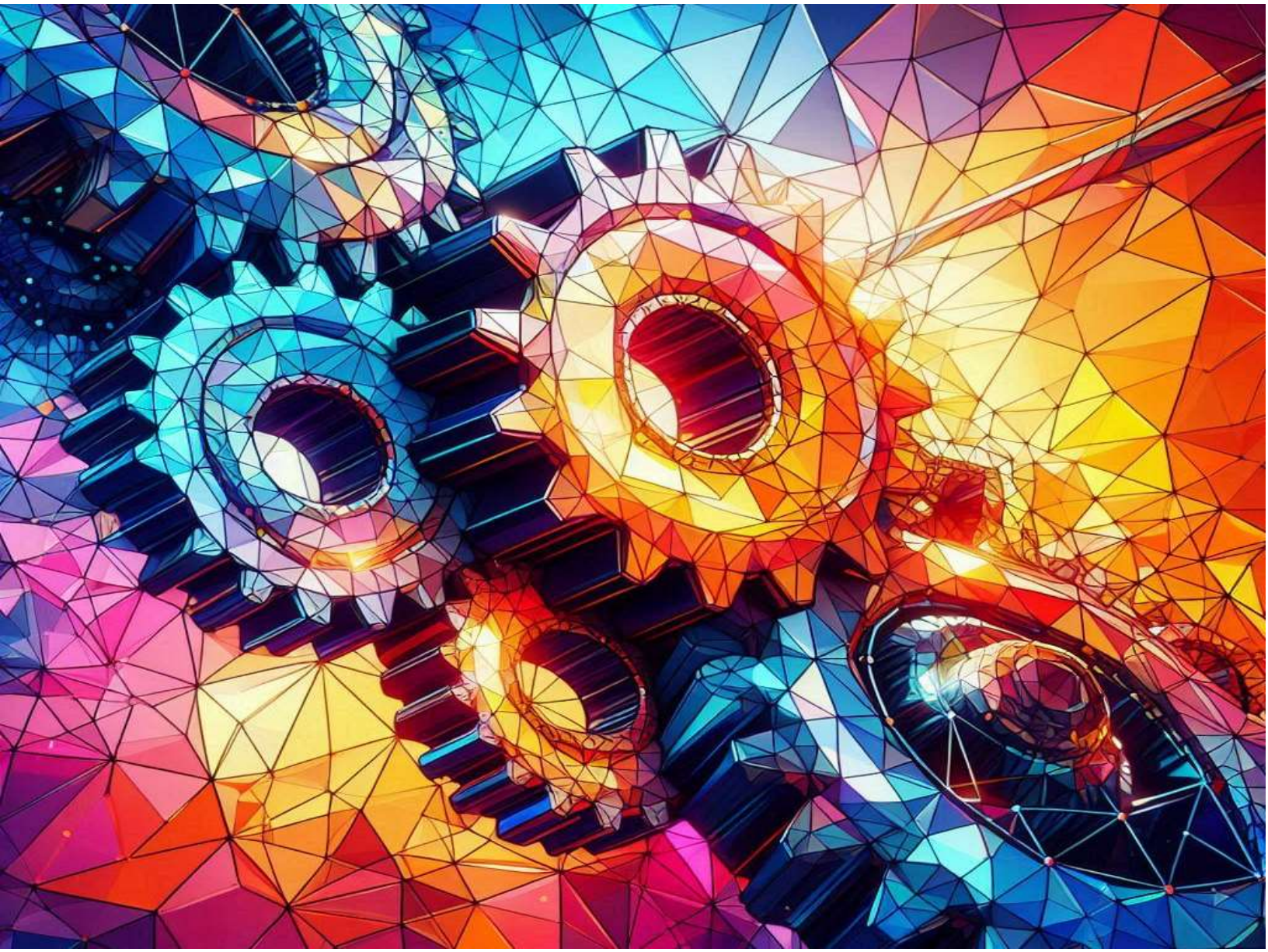
6.8 India Disaster Resource Network (IDRN)

National Institute of Disaster Management (NIDM) is maintaining a portal by name India Disaster Resource Network (IDRN) for a keeping a data base of various equipments, skilled humna resources and critical supplies available in the Districts for use during the Disaster situation.

As per the work process, for data collection for IDRN, the format for collection of datas will be sent to all line departments in the Vellore Disrict and the collected data will be entered in the IDRN portal by the District Authority.
The entries in IDRN portal will be updated every month.

7.0 Institutional Mechanism – Vellore District



7.1 Disaster Management Act 2005

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

7.2 District Disaster Management Authority

Whenever a disaster occurs in the district, all the department related to disaster management have to respond without any loss of precious time, to the expected and well-coordinated way to reduce the damages due to the disaster.

In Vellore District the apex body for disaster management is the District Advisory Committee. The Collector of Vellore District as the Chairman and the District Revenue Officer acting as Vice Chairman heads the Committee. The function of the District Advisory Committee is to coordinate the activities of various departments during the time of emergency in the District.

7.2.1 Formation of Committee on District Disaster Management Plan

As per the recommendations of the High Power Committee, the Principal Secretary & Commissioner of Revenue Administration, Chennai-5, has requested that a District Disaster Management Plan may be prepared and that the list of various disasters specified by the High Power Committee may be included in the District Plan. The Principal Secretary & Commissioner of Revenue Administration has also

requested that five Sub-Groups on disasters may be constituted in the District Level to deal with all kinds of disasters.

However in order to tackle the situation, that would arise in the ensuing North-East Monsoon season, and at the time of other crisis situation, the Contingency action plan has been prepared with details of the implementation of co-coordinated action on precautionary measures, rescue, relief and rehabilitation in various aspects to act in time of need and emergent circumstances promptly and speedily.

7.2.2 District Disaster Management Authority (DDMA)

The District Disaster Management Authority has been constituted under the Chairmanship of District Collector in all the Districts. The District Disaster Management Authority acts as the District planning coordinating and implementing body for disaster management and takes all measures in accordance with the guidelines laid down by the State Disaster Management Authority. The Members of District Disaster Management Authority are:

District Collector – Chairperson
District Revenue Officer – CEO of DDMA
Superintendent of Police (SP)
Personal Assistant (General)
Additional Collector Development
Joint Director (Health)
District Panchayat Chairman

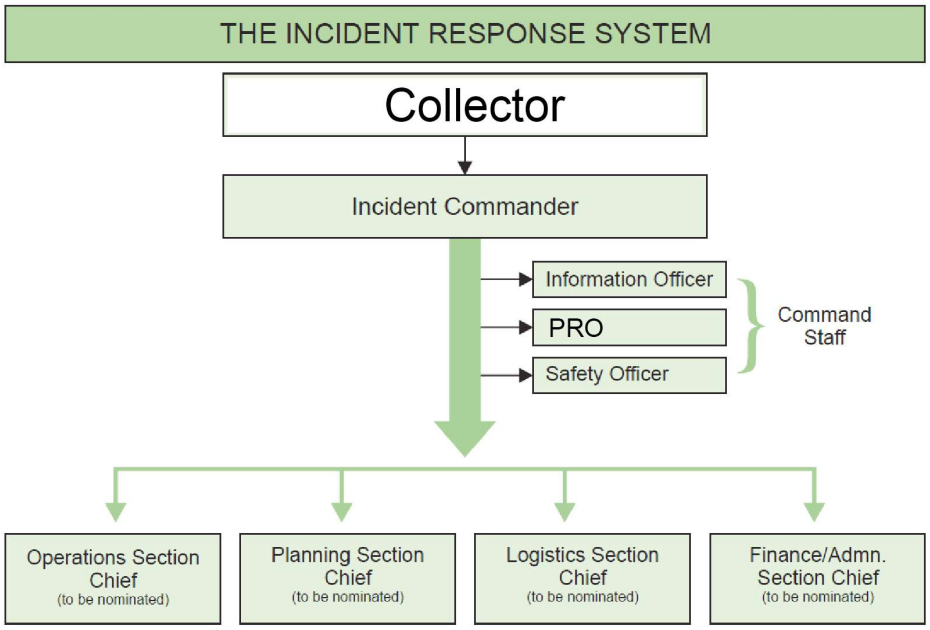
7.3 District Emergency Operation Centre (DEOC)

The District Emergency Operation Centre (DEOC) functions under the direct supervision of the District Collector. The DEOC acts as a communication centre at the district level for dissemination of information received from State Emergency Operation Centre to Taluk and Village level. During disaster period the centre functions round the clock by drafting the services of the Line Departments in the district for quick dissemination of alerts and collects information on the search, rescue, relief and rehabilitation operations from various quarters and updates the same to Commissioner of Revenue Administration & State Relief Commissioner.

This centre is accessed by the public by calling toll free No. 1077. Additional control rooms are established temporarily in the scene of occurrence.

7.4 Incident Response System

The Incident Response System organization functions through Incident Response Team (IRTs) in the field.The Collector as the chairman of theDDMA is a Responsible Person as overall incharge of the incident response management. If needed, he can delegate hisfunctions to anyother responsible officer or appoint an other senior officer as an incident commander. If the disaster is in more than one district, the DM of the district that has maximum loss will act as Incident commander.



On activation of the incident response system, all line departments/ Organizations/ individuals shall follow the directions of the Incident Commander as condition demands. He can divert all mechanisms and resources in the district to fight against a scenario leading to disaster/calamityinthedistrict.

On activation of IRS, an operation section with a chief and associates, planning section with a leader and associates, logistic section with a leader and section chief and finance section with a leader and associates shall be assume their roles. This

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

7.5 Taluk/Block/Zone level Disaster Management Committee

A Disaster can be effectively handled only to the extent that adequate delegation has taken place and involvement of all wings of Government, are clear about their respective roles. A Taluk/ Block level disaster management committee is necessary and shall be formed under the direction of the District Collector. This Committee will monitor the development and implementation of taluk level disaster management plans.

7.6 Inter Departmental Zonal Teams for group of vulnerable areas

Inter departmental Zonal Teams are formed under the leadership of Revenue Authority.

The team members are drawn from Police, Fire services, Rural Development, Forest, Agriculture Departments etc. Each team will closely monitor 2 to 3 vulnerable areas. 6 Inter departmental zonal teams were formed with 85 members to monitor the 34 vulnerable areas during North East Monsoon 2020.

7.7 Village/Ward Level Disaster Management Committee

The coastal districts bear the brunt of the monsoon and hence to have a better community involvement in disaster management, Village/Ward level Committees are formed. This Committee of First Responders is perhaps the most important to be formed and the District Collector directly takes care to put in place a balanced committee with good representation. Every disaster requires total involvement and wholehearted cooperation of the village/ward level citizens. The Panchayat, VAO, local institutions, NGOs, youth clubs and the like will be encouraged by the administration to be involved in the event of an emergency. The first responders are trained to make the communities strong and vibrant in proactively tackling the

disasters. Community participation at grass root level is enabled through enrolment of able bodied volunteers, with skills of swimming and climbing, as first responders (10 per vulnerable area). First responder teams are formed in Areas of very high and high vulnerability. The first responders are trained by Fire services / SDRF and Red Cross society. Mobile teams of First Responders and Snake Catchers at Block / Taluk / Sub-Divisional and District levels are formed for deployment based on need.

The First Responders play a key role in providing (first aid, search and rescue, extrication from damaged buildings, road clearance, fire fighting) raising awareness (about hazards, risks and disaster response)community drills (annual drills for disaster response in the community) equipping the community with minimum resources (first aid kit, extrication equipment, lifejackets, lifebuoys, rope etc.)

Sl.No.	**Functions**	**Departments/Agencies**
1	Activation of Trigger mechanism	DDMA
2	Risk Communication	RADM&M dept., DEOC, Media and telecommunication networks
3	Evacuation of People	RADM&M, Urban and local bodies, Police, Home Guards, Fire and Rescue services, SDRF, NDRF, Armed Forces, Volunteers, “108” ambu- lance, community and others
4	Shelter arrangement for rescued people, Search and Rescue Operations	RADM&M, Urban and Local bodies.
5	Trafficcontrol and diversions	TrafficPolice , Home Guards , Volunteers

6	Cordoningoffthedisasteraffectedareas,Search and Rescue Operations	SDRF , NDRF, Police , Home Guards and Volunteers
7	Law and Order maintenance, Search and Rescue Operations	Police and Home Guards
8	Search and Rescue operation	Fire and Rescue Services, SDRF, NDRF, Police etc.,
9	ProvisionofFirstAid/TraumaCare/Prevent Spread of Epidemic and Endemic diseases	Health department, Local bodies and RED Cross
10	Relief camps and basic amenities in shelters	RADM&M, Health Department &Local bodies
11	Identificationof dead and injured	RADM&M, Police, Health department and local bodies
12	Arrangement of medical support for causalities	Health Department
13	Impact & Resource Assessment	RADM&M, Urban and local bodies, Experts
14	Clearance of disaster affectedareas.	RD, PWD, Highways &Urban Local bodies
15	Preventive health camps	Health Department and local bodies
16	Need based Establishment of Temporary Shelters	RADM&M and local bodies
17	Mobilizing Resources for relief &restoration	RADM&M, Civil supplies and Consumer Pro- tection Dept, RD&PR and Urban Local bodies
18	Clearance of debris / Solid waste	SDRF, F&RS, PWD, Highways Department and local bodies
19	Restoration of Communication &Road net- works	PWD, High ways, Urban / Rural Local bodies, RD&PR, TANGEDCO

20	Provision of Water	TWAD,CMWSSB and local bodies
21	Restoration of Electricity	TANGEDCO
22	Resumption of Transportation	Road Transport and High ways
23	Food Arrangements	RADM&M , CS & CP Dept and local bodies
24	Provision of Relief supplies	RADM&M , CS & CP Dept, RD&PR and Ur- ban Local bodies
25	Temporarymortuary/Deadbodydisposal	Health, RADM&M and local bodies
26	Evacuationandshelterarrangementforcattle/ Livestock	Animal Husbandry Department, Blue Cross, Local bodies and Volunteers
27	Carcass disposal	Animal Husbandry
28	Restoring Normacalcy	RADM&M and all line departments

7.8 Institutional Frame Work

The district administration is the focal point for implementation of all governmental plans and activities. The actual day-to-day function of administering relief is the responsibility of the Collector, who exercises coordinating and supervising powers over all departments at the district level.

The institutional and policy mechanisms for carrying out response, relief and rehabilitation are well-established in the district. These mechanisms have proved to be robust and effective so far as response, relief and rehabilitation are concerned.

7.8.1 Revenue Department

7.8.1.1 At Village Level

The Village Administrative Officer (VAO) is the Coordinator at village level with the assistance of Village Assistants. The roles and responsibilities are as listed below.

- Ensuring fool proof surveillance during the Disaster time
- Nominates village assistants for monitoring the railway tracks during the flood, earth quake etc., to ascertain the breaches/damages
- Monitoring the irrigation tanks to avoid breaches during monsoon
- Advising the peoples who are dwelling in low lying areas
- Identifying suitable Govt. buildings to house the people during relief operation
- Timely information to the authorities concerned about the village situation
- Initiating appropriate action to save the human lives without seeking the approval of superior officers
- Documenting the activities/instances to develop a contingent plan.
- Making food arrangements for the affected people
- Informing the Public Health Department about epidemics, if any.
- Roping the Voluntary Organization, Non- Governmental Organization (NGOs) etc., in disaster management activities..

7.8.1.2 At Firka Level

- Revenue Inspector (RI) shall co-ordinate the villages falling in his /her jurisdiction.
- Whenever he/she gets the information about breaches in railway line or Irrigation Tanks they shall visit those areas on a war foot basis and inform the authorities about the contingent plan.

- Crop damage, epidemics, damage to irrigation sources shall be informed to the Tahsildar instantaneously.
- They shall also supervise the open line patrol of railway tracks.

7.8.1.3 At Taluk Level

- Tahsildar is responsible for overall assessment, action and reporting the disaster situation to the District Collector.
- They shall encourage their sub-ordinates for vigilant monitoring and ensure holistic participation.
- The rainfall details shall be collected from the stations/ rain gauges and informed to the District Administration.
- Information/suggestions received shall be communicated to the subordinates of his/her jurisdiction.
- He/She shall identify the local area voluntary organizations/NGOs that could support through resource sharing for providing food, shelter during the disaster times.
- They shall also identify/document the persons who are owning JCB, Cranes, Tractors, Bulldozers etc., so as to roping them during emergency.
- They can mobilize / carry tools like Torch, Umbrellas, Ropes, Sickle, Knife etc., while taking up the rescue operations.
- They shall liase with the Panchayat Presidents for information retrieval.
- For enabling relief distribution to evacuated families, proper documentation shall be done to avoid ambiguity.
- They shall submit the crop Damage report to the District Collector after confirming with the technical officers of Agriculture/Horticulture Departments.

7.8.1.4 At Revenue Divisional level

- The Revenue Divisional Officers shall co-ordinate with the Tahsildhars and other departments for disaster management.
- The level of damage to crops, livestock, properties etc., shall be ascertained besides ensuring sufficient stock of medicines.
- They shall visit the relief centres and ascertain the food availability, hygiene condition, epidemics etc.

7.8.1.5 Police Department

- The Superintendent of Police shall guide the police force to maintain Law & Order.
- A dedicated group shall be organized to work in tandem with the revenue officials.
- Whenever / wherever possible, the police force shall be roped in relief operations.
- Mock drills may be organized with Revenue, Fire and Voluntary Organization.
- They shall provide sufficient nos of wireless sets to Tahsildars and RDOs.
- Protection shall be extended to special relief camps to avoid unrest and commotion.

7.8.2 Fire and Rescue Department

- The Fire and Rescue Department shall take mock drills in the vulnerable areas so as to sensitize the people about the disaster management.
- Fire service personnel may be placed in sufficient strength to take up rescue operations.
- Necessary equipments like inflatable rubber boats, life buoys, life jackets, rubber dinghies etc., shall be stocked.
- Fire engines shall be serviced and maintained without defects/repairs.
- Whenever the need arise they shall coordinate with neighboring Fire Service Stations for additional machinery and man power.

7.8.3 Rural Development Department

- Rural Development Department functionaries shall inspect/monitor the minor irrigation tanks, channels, drainages and initiate measures for eviction and strengthening of banks.
- Protective measures may be taken to avoid damages while breaching.
- Supply of safe drinking water including transportation of drinking water shall be planned.
- Common kitchens must be provided to cook food for the affected people.
- Inventory of public buildings, community halls and marriage halls must be maintained so as to house people during evacuation.
- Village roads shall be repaired immediately for public use.
- The schools under the purview of Rural Development Department shall be inspected regularly and repairs may be taken up to protect the students during disasters.

7.8.4 Public Works Department (PWD)

7.8.4.1 Buildings Division

- They shall inspect cyclone shelters, school buildings, community halls and private marriage halls identified for accommodating people during relief operations.
- These make shift arrangements shall be examined to ensure proper power, water and drainage facilities.

7.8.4.2 Water Resources Department

- The Executive Engineer (WRD) shall inspect the major irrigation tanks before the onset of monsoon.
- The channels shall be desilted / cleared for ensuring free flow of water. Silted up tanks may be desilted to ensure water storage upto FTL and maintenance of sluice gates, barrages and embankments may be taken up.

- Encroachments in any form may be removed with the help of Revenue Department.
- Enough protective measures shall be taken during the time of breach.
- Materials like sand bags shall be kept ready without wasting the time during emergency.

7.8.4.3 Highways Department:

- Vulnerable areas shall be identified and a restoration plan may be prepared well ahead of monsoon season.
- Weak points in the roads may inspected and strengthened besides cleaning and desiliting the culverts.
- All types of machineries like bulldozers. JCB, Power saw and other tree cutting equipments shall be kept ready to maneuver emergency situations.
- Inventory of private contractors who are involved in construction shall be prepared so as to rope in them in emergency operations.
- Surveillance teams may be constituted so as to visit the areas and initiate restoration activities.
- Alternative emergency routes may be prepared to evacuate people during emergency operations.

7.8.5 Civil Supplies Department

- Availability of essential commodities like Rice, Wheat, Sugar and Kerosene must be ensured in all storage points as well as PDS centres.
- Enough nos. of gunny bags shall be stocked.
- Petrol, Diesel and LPG outlets shall be advised to keep sufficient stocks.
- Essential commodities must be stocked in safer and elevated places near the vulnerable areas.
- The District Supply Officer and Joint Registrar of Co-operative Society shall coordinate effectively to provide the commodities on time.

7.8.6 Agriculture Department

- Crop damage must be intimated by the block Assistant Directors of Agriculture and the same may be submitted to the Government with the concurrence of the District Collector.
- While preparing the report the inundated area shall also be included. After receding of floods, actual damaged area shall be reported for seeking relief assistance.
- Sufficient stock of seeds, biofertilizers etc., shall be maintained in the Agricultural Extension Centres.

7.8.7 TANGEDCO

- Before the onset of monsoon, the electrical poles which are dilapidated weak shall be replaced with new ones.
- Enough stock of electrical poles and wires shall be stocked.
- Surveillance teams shall be formed so that they can initiate restoration measures immediately.
- Live wires fell due to rain /gale wind must be removed immediately to avoid casualities.
- Continuous power supply shall be ensured except for danger zones/conditions.
- Power stoppage may be informed to respective Tahsildhars so that alternative measures would be taken for relief camps.
- Sufficient numbers of stand by transformers shall be overhauled and maintained at respective sub-divisions to minimize power failures due to transformer bursting.

7.8.8 Public Health Department

- Chlorination of drinking water shall be taken up to provide safe and potable water to avoid water borne infections like Cholera, Typhoid, Dysentery etc.,

- Safe food shall be provided to the inmates in relief camp. Special health camp shall be organized for minor ailments.
- Temporary toilet arrangements shall be made in relief camps.
- Environmental sanitation and mosquito control by foging shall be taken up. The availability of essential and emergency drugs shall be ensured in all Primary Health Centres, Taluk and Non-taluk hospitals, District Headquarter Hospital and Government Medical College Hospital.

7.8.9 Animal husbandry department:

- During drought condition, the Animal Husbandry Department shall take initiatives to sustain fodder production.
- Wherever water availability is sufficient, fodder banks may be promoted. Community fodder banks a new approach shall be rolled out.
- If need arise, a plan to supply green fodder may be prepared and implemented.
- Essential veterinary medicines shall be stocked in veterinary hospitals to tide over emergency situations.

7.8.10 Transport Department

- The Regional Transport Officers shall chalk out a plan of alternative routes for low lying areas so as to maintain the vehicle movement at the time of flood.
- For evacuation of people during emergency, the Regional Transport Officers shall arrange special vehicles.

7.8.11 Fisheries Department

- Fisheries Department shall arrange for Motor boats and Ordinary boats for the places where it is required.
- For vulnerable areas an action plan may be developed to mobilize it, as required.

7.8.12 Education Department

- Periodically, the class rooms may be repaired and maintained properly so that the class room can be utilized for relief camps during emergency besides protecting the students during disasters.
- The authorities concerned shall form teams to visit the schools well in advance to take stock of the situation.

7.8.13 NCC AND Home Guards

- National Cadet Corps and Home guards may be given adequate training on Disaster Management.
- Mock drills shall be organized by the Fire Service Department on water evacuation, land slides etc.,
- Groups may be formed with NCC and Home guards and each group shall be assigned with an area to assist the rescue team.

7.8.14 Red Cross

The Indian Red Cross's programmes are grouped into four main core areas: Promoting humanitarian principles and values; Disaster response; Disaster preparedness; and Health and Care in the Community.

The Red Cross Society of Vellore has trained Volunteers to help in case of Emergency Situations.

8.0 Disaster Response Relief and Rehabilitation

8.1 Stake Holder Analysis

Vellore District has got various key stakeholders at different levels starting from community level to the districtlevel. Apart from the known stakeholder groups, there are other few key non-govt. stakeholders who have crucial role during disasters and peacetime. The following tables ananalysis of the stakeholders identifiedat different levels.

- Information and Public Relation Department
- Labour Resource Department
- Rural Development Department
- Public Health Department
- Police Department
- Post and Telegraph Department
- Statistics Department
- Transport Development
- Municipal Administration
- Water Resource Department
- Agriculture Department
- Animal and Fisheries Department
- BSNL Company
- PWD Department
- Education Department
- TNEB
- Fire Service Department
- Civil Supplies
- Health Department
- Industries Department
- Academic Institutions

- Business Groups (Private sector to include corporate, Industry, SMEs, Traders) and Markets and Market Associations.
- Ex Servicemen and Retired Professionals Association
- Health Association (Medical Association, Chemist and Druggist Association,
- News and Media
- Local NGOs, Red Cross,
- SHG, Women, Farmers
- Transporters
- Youth Group

8.2 Preparedness and Action Plan

The key actions in preparedness and Action plan for the various disasters are presented here

8.2.1 Flood

- The District Heads of Departments who are involved in the Disaster Management will familiarize themselves with the field level conditions and vulnerable flood prone areas.
- The District Level officers who are involved in the Disaster Management have conducted periodical meetings with their field level subordinates and arrived at how best the emergency can be tackled without much difficulty

8.2.1.1 Preparedness

- Rational plan of action for men and material mobilization during the emergency
- Government vehicles to be requisitioned in case of emergency is furnished in official website and handbook of important telephone nos.

8.2.1.2 Stake Holder Action Plan

R.T.O.	• Requirement of vehicles well in advance and it should be ensured that the vehicles are road worthy.

	• Motor Vehicle Inspectors to arrange for vehicle to evacuate the persons from the low lying areas and movement of essential commodities.
E.E.PW.D. / W.R.O.	• Sufficient number of sand bags and poles are kept ready near flood-prone areas. • A list of Public buildings to be used as shelters during the disaster • Essential articles such as Match boxes, candles, lights, Fuel and Essential food commodities and other materials for preparing food packets will be collected and stored in the elevated place of relevant village well in advance • The selection of the buildings in advance where the flood Victims have to be accommodated.
T.N.C.S.C.	• Ensure the storage of essential food commodities in all the storage points (Godowns).
Fire Service	• Availability of trained men and equipments for rescue operation.
Medical	• Certain medicines for first aid and to avoid any out-break of epidemic • Certain medicines for first aid and to avoid any out-break of epidemic • A list of Voluntary Organizations
Departmental Officers	• Above all, the communication of message among the Departments plays main role during monsoon period. • will establish a control room round the clock. • A list of Important Telephones Numbers - Control Room, Collectorate, Police Stations, Fire Stations, Hospitals & District Officers

8.2.1.3 Early Warning System

- Warning from Indian Meteorological department about prevalence of cyclone and heavy rain – http://www.imd.gov.in
- Warning from office of Relief Commissioner/Additional Chief Secretary/ Commissioner of Revenue Administration, Govt. of Tamil Nadu.
- O/o. The District Collector, Vellore

8.2.1.4 Flood Control Rooms

- Immediately conveyed to District Officers who are directly engaged in Flood and Cyclone Relief Measures

8.2.1.5 Collectorate/ R.D.O.Offices/Taluk Offices

- A Flood and Cyclone Control Room/Emergency Operation Centre
- Toll Free number 1077 to receive information and complaints from the public.

8.2.1.6 Raising the Alarm on Occurrence

- Spread of correct and timely warning is vital in mitigation of damages.
- Information about rainfall will be regularly received at the District Head Quarters from CRA/Relief Commissioner and IMD in time of monsoons and cyclones.
- The District EOC is fully equipped with STD Telephone, Fax, and Computer with internet access and static VHF facility, besides all Tahsildars, RDOs, DRO and Collector have both mobile and static VHF facilities.
- The Police Radio Network is also kept in good condition so that vital information can be exchanged.
- Dissemination of information can be achieved in the lightning speed.
- Satellite TV channels, Cable TV operators, News paper Media which are very vibrant and has vide area coverage in the district act as Mass disseminators of information to the public at large scale.

- The VAOs, village assistants and panchayat assistants at gross root level also act as reliable disseminator of disaster warning to the public.

8.2.1.7 Relief Camp Sites

- Government School Building
- Anganwadi Buildings
- Private Marriage Halls
- Community Halls

8.2.2 Rescue Teams

8.2.2.1 Fire Services

- The accidents caused by fire explosives are a challenge to the fire personnel of this District.
- Mock drills should be conducted periodically so that the personnel will always be in a state of efficient crisis management.
- A list of places where poles and bags have been stored.
- Essential rescue items like ladders, stretchers, ropes, wire ropes, spades sand bags, pulleys pick axes should be kept ready.
- The services of NCC, NSS Home guards are to be utilised as a supplementary measure.
- The volunteers from the NSS, NCC and Red Cross and all such organisations will be involved in rescue operations.
- Proper disposal of animal carcass should be made available with the Municipality workers.
- To ensure hygienic conditions, Human bodies should be carefully removed to the mortuary.

8.2.2.2 Medical Care - The Joint Director/Deputy Director Health Services

- First Aid is of prime importance in any situation that is life threatening.
- Medical team should reach the spot at the earliest.
- The nearest PHCs should be the first to come.
- Adequate supply of first-aid material should be maintained in flood areas

- The availability of proper medicines and first-aids has often made the difference between life and death onmany occasions.

8.2.3 Food requirements

District Supply Officer, Taluk Supply Officers and Joint Registrar of Co-operative Societies	• The flood victims should be provided with food. • necessary arrangements to provide necessary ration to community kitchens. • Adequate supply of food grains should be kept in stock especially during the monsoon seasons. A list of the Fair Price shops in each area has been furnished

8.2.4 Water Needs

Local bodies	• The affected victims should be provided with protected and potable water. Sufficient quantity of water has to be provided for drinking and cooking. • drinking water is safe and free from contamination. During rainy season the imminent threat of water borne disease cannot be ruled out, hence special care will be taken to provide safe chlorinated drinking water.

8.2.5 Sanitation

Rural and Urban local bodies and Health Department.	• Proper sanitary measures like provision of urinals and make shift latrines will be arranged • To maintain the camps in hygienic manner.

8.2.6 Rehabilitation of Victims

Tahsildars and Revenue Divisional Officers	• A quick assessment of damages to houses eligible for grant of remuneration of families who have lost their lives, properties, etc. should be done. • A separate staff for carrying out intensive enumeration of • People dead • Cattle dead • Damages to houses and crops etc. • The payment of cash doles, issue of free rice, distribution of sarees and dhoties, supply of kerosene will be done according to the standing instructions and orders of the Government. • Besides crop loss, the loss of other departmental properties will be estimated by respective staffs and claims on loss will be proposed to the government.

8.3 Drought

- Drought is a slow process, which can be anticipated without any haste and thus, proper planning would be possible.
- A perfect co-ordination among all the Departments in the district is absolutely essential to carry out an efficient plan.
- Firstly, we have to list out the essential areas of operation to design a holistic plan, which are

8.3.1 Water

- Before we start with the problem of tackling the water demand, we should just perceive the water availability from all sources in Vellore.
- The sad part of the issue is that Vellore is one of the 99 districts that come under the rain fed districts list in our country.

- The only source is the rainfall, which again is not consistent.
- All the tanks and the rivers (Palar & Ponnaiyar) receive water only during the North-East Monsoon season, which extends over a period of three months, namely, October, November and December.
- The water source, which can be dependable to a certain extent, is Palar, which can serve water from its natural sand bag.
- The Palar flows through the entire length of the district, which is the only relief for the administrative authorities.
- There are numerous wells and bore wells along the riverbed, constructed by the Government in the past.
- The severity of drought is likely to be more, the engineers of the TWAD Board should, on a wartime basis spot out the feasible regions, which should mostly be nearer to the drought hit region, so as to provide the minimum water, absolutely essential to sustain life.
- Right at this junction, there should be a co-ordination among the divisional officers and down to the Village Administrative Officer's in ensuring the success of the Scheme.
- On account of any drought, the basic and very important problem will be the availability of water.
- The normal water requirement of the drought-hit region should be calculated and with reference to the availability of water at the moment, the supply should be estimated, on a highly logical basis.
- The tankers in the district/ region should be pooled together and the feasibility of supply should be felt.
- If the government tankers are not adequate, the private tankers should be rendered for the service.
- As it is a costly affair of transportation, it should be executed at the lowest possible level.
- According to our administrative set up, the practical unit would be a block. This is because, a block as a whole will be very practical regarding local administration, men and resources.

Calculation of water demand in district/ region

|

Calculation of water availability during the drought and arriving at a solution of supply

|

Ensuring the availability of tankers/ tractors etc. in the district/calling on Aid from neighboring district

|

Disbursement of tankers to each block [Commensurate with population]

|

Calculation of water demand (Minimum needs only) in each village (and the Firka as whole) and submission to the Block

|

Concerned Block Development Officer to allocate vehicles to respective regions (Calculation to be made on a weekly basis).

|

Weekly report to the Collector regarding the work

|

Monitoring of water theft from government sources
(to be listed to the Superintendent of Police)

The above flow diagram gives the action that has to be taken while in time of such distress.

- Shortly, the scheme's success lies in the perfect estimation of demand right from the village level and utmost strictness in supply.
- The Disasters that are likely to occur in this district are varied and cover many areas.
- Some of them such as Drought happen over a period of time and as such it can be monitored and arrangements can be made systematically, time is not the criteria, nevertheless, unless proper monitoring is done, the problem can well develop into a crisis of great proportion.

8.3.2 Food Grains

- Immediately next to the problem of water, the availability of food grains is the most important one.
- This particular problem is even more formidable as the production side will keep declining on a steady trend.
- A feedback mechanism in this regard would help solving the problem in an efficient manner.
- Officers in the district shall be assigned special duty in this regard.
- VELLORE district has 8 warehouses of the State and two FCI warehouses.
- Totally, 10 warehouses are there to depend in times of distress.
- Plan should be done in such a way that each of these warehouses takes care in every region.
- A constant feedback regarding the stock on a fortnightly basis should be sent to the District Collector, which would be helpful in maintaining the minimum stock to tackle the demand.

Calculation of availability in each of the 10 warehouses
Calculation of demand in every region (on a fortnightly basis)
Report to the Collector
Further requirements to be met either from aid or general purchase.

- It can be ensured that, at least the minimum requirement can be met and tackled effectively.
- Internal adjustments can be done regarding the time unit of two weeks as need arises.
- To ensure a normal life after the end of the drought, the required seeds should be supplied to the farmers through the A.E.O.

- A Special Officer can be given the duties to monitor the proper supply. The perfect execution of this duty will ensure a smooth transition from drought period to normal period.

8.3.3 Fodder

- Fodder bank concept, though very new to our Indian System, can also be tried out.
- In any drought period, mostly the livestock population will be affected in a serious manner.
- With the help of the officers of the animal husbandry department, the minimum requirement can be estimated and fodder banks can be set up.
- The setting up of fodder banks will only be practicable, if it is done in the villages, for reasons obvious, utmost co-operation should be ensured from the villagers so as to sustain the livestock population.
- In hill areas there will not be any availability of fodder as the hills of Vellore does not promise greenery because of the tract.
- Protect the livestock in such outlying areas, a separate fodder can be set up so as to provide the necessary stuff to sustain the cattle.

8.3.4 Medicine

Other natural calamities, drought does not demand a lot of medicines and medical care.

- Anyhow, the required medicines such as dehydration mixture, glucose etc. should be in adequate stock.
- The District Health Officer can be entrusted with the responsibility of organizing and execution, in regard with both manpower and medicines.
- From the experiences of previous droughts, it is very clear that the Medical aid, though not much needed, is nevertheless essential.

8.3.5 Temporary Shelter

- Again, this aspect is also not very important but some care should be paid for.
- Though many will not require such shelters, the basic arrangements can be done at the hour of need, because there is absolutely no risk involved in that.

8.3.6 Transport

- The transport is an aspect, which is very important in any disaster management plan.
- This is on account of two reasons.
- For the administration to tour around the affected areas.
- For transportation of the affected people, who stay in outlying areas, where the incidence of the drought is very high.
- E.g.: - Hills, isolated hamlets etc.
- For this purpose, all the vehicles with the administration are kept ready to serve the purpose.

8.3.7 Communication

- Though there will not be any damage absolutely to the communication and network systems because of the drought, a separate person can also be entrusted with the task of maintaining the best communication, within the district, outside the district etc.

8.3.8 Basic Clothing

- Least of all, this problem does not pose a threat at all. But the comprehensiveness of the disaster mitigation requires it. The basic unit of this can be the Taluk headquarters. Like temporary shelter, this problem can also be tackled at the last hour, absolutely without any risk.

8.4. Earthquakes

The whole district comes under Earthquake zone-II and is prone to Moderate intensity. There is no big earthquake in the district from History.

Assumption for Worst Case Scenario:

In the worst case assumption, it is possible that the district faces a high intensity earthquake (more than6.0 Richterscale) and approx.25% houses are partial damage. In this situation, a population of atleast 50 - 60% of the district gets affected directly or indirectly. This may vary depens on the epicentre location and Type and Condition of Buildings.

However a Key action plan for this situation is planned and responsibilities for the concern authorities as follows:

Sl.	Key Actions	Responsibilities
	TIME FRAME : 0 + 15 MINUTES	
16.	Report the occurrence of earthquake to DDMA, Heads of all line departments, ESF Nodal agencies, DDMC	Officer-in-charge of EOC
	TIME FRAME : 0 + 30 MINUTES	
17.	Establish communication links by activating alternate communication equipments i.e. satellite phone, HF/ VHF set, HAM radio, VSATetc.	Officer-in-charge of EOC
18.	Deploy mobile emergency communication units to affected areas for establishing communication link	BSNL
19.	Activate the DMTs, QRT, FRT, ESFs etc.	DDMAChair

20.	Ask all desk officers / team leaders and Incident CommandTeam members to immediately report to the EOC.	Officer-in-charge of EOC
21.	Verify the authentic of the incident from agencies like IMD, ISR, block level officers, police and fire department etc.	Officer-in-charge of EOC
22.	DDMAand EOC together analyze the information and take decision on the level of the disaster (viz. Village level, block level, sub-division level, district level etc.).	DDMAChair
23.	Organize first coordination meeting with the ESF team leaders, District IAG, and the officials from the affected areas. IAG member representative from the affected areas should also be invited to share updates and ground level information.This meeting can be organized in the affected areas (such as Block office) if required and feasible.	Officer-in-charge of EOC
	TIME FRAME : 0 + 1 HOUR	
24.	Establish onsite Emergency Operation Center	EOC

25.	Activate the emergency response as per the level of the disaster. • In case of disaster upto block level, the BDO takes charge of the emergency response coordination along with the DMTs, QRTs, FRTs and ESFs. • The BDO shall stay in regular communication with the DDMAand EOC for information updates and response actions. • In case of disaster upto district level, a senior officer ofADM rank shall be given responsibility of emergency	DDMAChair
26.	Activate the search and rescue teams in the affected areas with immediate effect.	EOC
27.	If required, ask for external support from armed forces, other technical institutions for reach, rescue and evacuation operations.	DDMA
28.	Collateandanalysetheavailableinitialinformationondamagean dneeds.	EOC
29.	Ask District-IAG to share their assessment information with EOC.	EOC

9.0 Disaster Prevention and Mitigation

9.1 Mitigation Plan

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

Structural Measures	Non – Structural Measures
Housing • Disaster Resistant Housing, • Multi-Purpose Evacuation Shelters	**Economic measures** • Diversification of Economic Activity • Subsides, • Credit Waiver
Water resources • Restoration of River drainage systems • River Grading/Stream Training, Flood Routing • Clearing inflow channels	**Risk Transfer** Insurance, Credit & Tax Policies
Infrastructures • Roads, • Bridges • Drinking water, • Power, • Communication, • Education, • Heritage, • Tourism	**Societal Measures** • Public Information Campaigns, • Non formal Education • Community Involvement

9.1.1 Multi Hazard Mitigation Actions

The following structural and non-structural measures may also be considered in addition to above hazard specific actions.

9.1.1.1 Structural Mitigation Measures

- All public buildings like schools, hospitals, health centres should be multi hazard resilient being built on raised grounds and platforms with retrofitting and having adequate exit gates and fire extinguishers in place.
- Construct multipurpose community shelters in all vulnerable areas
- Houses built in the area should have multi hazard resilient features keeping in tune with cultural housing practices

• Watershed management:

- A study may be conducted by the District Administration to assess the existing structures and system in place for watershed management and recommend best options for effective watershed management.
- Periodically cleaning, de-silting and deepening of natural water reservoir and drainage channels
- Construction of irrigation channels. Sluice gates may be linked with ponds which could be used as a water resource for enhancing livelihood.

9.1.1.2 Structural Mitigation Measures

- Risk transfer mechanisms: Establishment and strengthening of insurance schemes and policies which would transfer losses the risk due to hazard to a third party. Insurance schemes for crop, cattle, small businesses and life should be strengthened and promoted to minimize economic losses.
- Formation of groups of architects, engineers and masons and trainings for them on building safe infrastructure.
- Alternate safe housing technology along with rainwater harvesting structures is constantly encouraged & main streamed for long-term vulnerability reduction. Policies and bye laws could be developed for the same.

- Continuous Awareness campaign & encouragement for Disaster proof Habitat planning at community level including shifting/relocating from low lying areas and villages within embankments to safe raised grounds.(with some incentives if feasible).
- Disaster management may include first-aid &rescue & evacuation as a part of school, college, educational institutions (both techno-tech) curriculum starting from primary level.
- The DDMA may suggest conducting Research on alternative cropping to reduce adverse effect due to flood, water logging or drought.

9.1.2 Specific Hazard Mitigation Action

In addition to the multi-hazard mitigation actions, the following hazard specific mitigation actions should be taken depending on the vulnerability of the village/block:

HazardType	Structural Mitigation	Non-structural Mitigation
Drought	• Construction of Dam and Check Dams in water courses. • Construction of irrigation channels. • Existing ponds to be cleaned and more ponds to be dug as part of MNREGA activities in village • Sluice gates to be linked with ponds • Tubewells and Borewells to be built in villages • Construction and maintenance of grain banks on safer locations	• Promotion and support for rainwater harvesting • Awareness on government subsidy on borewells and tubewells for irrigation purposes
Flood	• Construction, maintenance and protection of flood control structures like embankments, ring bunds, etc. • Dams and levees can also be	• Well maintained boats available at all times at GP level • Crops that can be harvested before

	constructed which can be used as temporarily storing space which reduced the chances of lower plains getting flooded. • Critical buildings as well as private houses in flood prone areas should be constructed on an elevated area and if necessary on stilts and platform. • Construction of tube wells on raised platforms • Construction of seed bank on higher ground	the onset of monsoon/flood season and crops that are flood friendly should be grown in the region. • Awareness on flood proof habitat planning with long term goal of flood plain zoning and rehabilitating all to safer zones.
Earthquake	• All buildings especially public building must have earthquake resilient features • Building bye laws applicable for Zone III region should be followed	• Awareness on Building bye laws applicable for Zone III region should be followed
Fire	• Establishment of fire stations as per Fire Safety Bye laws	• Promotion of usage of fuel blocks during summers to minimize cases of fire during summer • Awareness campaign on fire hazard and strategies to prevent fire incidents

9.1.3 Water Resource Management

Table 9.1 Storage Position of Reservoir/Tank in Vellore District as on December 2023

Upper Palar Basin Division,Vellore.6				Upper Palar Basin Circle, Vellore.6
WATER REPORT (DATE:15.12.2023)				
VELLORE DISTRICT				
S.No.	**Name of District**	**Name of Taluk**	**Rainfall station**	**Rainfall in MM**
2	Vellore	Gudiyattam	Gudiyattam	Nil
3			Melalathur	Nil
4			Mordhana	Nil
5		Katpadi	Ponnai Anicut	Nil
6		K.V.Kuppam	Rajathoppu Kanar	Nil

STORAGE POSITION OF DAM

Sl. No.	Taluk	Name of Reservoir	Full Level in Feet	Full Storage in Mcft	Present level in Metre	Present level in Feet	Present storage in Mcft	Inflow in cusecs	Dis-charge in cusecs	Rainfall in mm
1	**Gudiyattam**	**Mordhana**	37.72	261.36	11.40	37.39	258.36	0.00	0.00	Nil
2	**K.V.Kuppam**	**Rajathoppu**	24.57		3.45	11.32	2.99	Nil	Nil	Nil
		Total		261.36			261.35			
DAMS Total Capacity		**261.36**	**Present Capacity**		261.35		**% of Present Capacity**		100.00%	

Sl. No	District	No. of Tanks	Tank Storage position in Nos.					
			100%	76% to 99%	51% to 75%	26% to 50%	Less than 25 %	Less than 25%
1	Vellore	101	17	1	4	21	30	28
Total Capacity in Mcft.		2311.32	241.70	0.00	97.83	231.86	90.89	0.00
			Present Capacity in Mcft.				662.27	
Total Capacity in TMC		2.31	**Present Capacity in TMC**				**0.66**	

9.2.1 Mitigation Work to Minimise Rain damages

Department of Water Resources

- In the central area of the Gudiyatham town of the Gudiyatham taluk of the Vellore district, the encroachments on both sides of the Kaundinya Mahanadi river bearing Survey Nos. 1272/1 and 1273/1- 1282 approximately were removed following due procedure. Form 1 was obtained from the Gudiyatham Taluk Office, Form II was published in government offices, and Form III was directly delivered to the encroachers on the Kaundinya Mahanadi River, and a receipt was obtained. The encroachments were completely removed following the due procedures of the government.
- Thereafter, administrative approval for Rs.30.19 crore under the state fund was granted for the construction of a road from Thaazhayathu to Sembianli Road on the right bank of the Kaundinya Maha Nadhi in the Gudiyatham town vide Government Order No. 41/Niv (ES1) Department / Date.20.06.2023. To prevent further encroachments on the right bank of the Kaundinya Mahanadi, a flood protection wall with a length of about 2150 meters and a height of 4.50 meters is being constructed, and a tar road with a width of about 7 meters is also being laid. This work will also avoid traffic congestion in Gudiyatham town, contribute to the development of the Gudiyatham town, and prevent any damage to the town people even if there is excessive flooding in the river. Further, about 91000 people of the Gudiyattam town and the surrounding villages will benefit.
- Due to heavy rains last year 2021 in Palar river Vellore district, KV Kuppam Circle, due to excessive flooding. About 250 meters on the left bank of the dam near Kamarajapuram village 15 houses and plots of land were damaged along the way was swept away.
- On 29.06.2022 Hon'ble Tamil Nadu Chief Minister Vellore When he visited the welfare program assistance ceremony in the district 4.25 Crores in the affected area It was announced that the wall will be built.
- Ordinance No.254/ Department of Revenue and Disaster and Management/
- Date:17.10.2023 Administrative Approval for Rs.425.00 Lakhs provided.

- 175 meters long and 5 meters high flood embankment on the left bank of the river.
- The work of wall construction was started on 06.02.2024, and at present, 100 cents have been completed.
- Near Kamarajapuram village, through the construction of this barrier wall Patta lands and houses on the left bank of the river were flooded again. Avoid damage to the livelihood of the public has been recovered.

9.2.2 Fodder Management

In Vellore District, there are 5,48,100 cattle heads are available. It is assumed that atleast 3 Kg of dry fodder like paddy straw, maize, sorghum, stovar, groundnut haulms could be fed per animal per day. Thus about 16,44,300 Kgs of dry fodder would be required per day to feed these livestock heads. In converting in to metric tonnes this works out 1644 MT / per day. Therefore the fodder requirement to meet out till June 2017 would require about 1.47960 LMT. But the availability is only 0.64375 LMT. Hence there has been a wide gap of 0.83585 LMT. To meet out this presently 9 fodder depots out of 17 are being operationalized to cater to the dire needs of the farmers to overcome the drought situation. Each fodder depot is expected to sell out atleast 200 MT of paddy straw at subsidized rate. Steps are being taken to operationalize the remaining 8 fodder depots once the re-tender process is approved. It is proposed to create awareness among the public and the livestock rearers to feed their animals with tree loppings (tree foliage) and other non conventional livestock feeds at the time of fodder scarcity. Each fodder depot is expected to cover about 2,000 farmers who can on an average rear 6,000 to 10,000 cattle heads. Thus 17 fodder depots could cater about 34,000 farmers and could provide dry fodder to atleast 1,00,000 to 1,70,000 cattle heads at the time fodder crisis.

Table 9.2 Fodder Management:

S.No.	Agricultural Crop	Total area South in Ha	Total anticipated availability of Dry Fodder (MT)	Due to drought prevailing in the district, total availability of dry fodder, that would be harvested in LMT
1.	Paddy	29,850	3 T/Ha	0.44775
2.	Groundnut	35,513	1 T/Ha	0.35513
3.	Sugarcane	12,085	1 T/Ha	0.12085
4.	HorseGram	4,748	0.5 T/Ha	0.02374
5.	Cholam (sorghum) SFDS	4,179 1,012	1.25 T/Ha 1.25 T/Ha	0.06489
6.	Ragi	3,931	1.25 T/Ha	0.04914
7.	Pulses	4,000	0.75 T/Ha	0.03000
	Total	95,318	-	0.64375

9.2.6.1 Green Fodder:

It is estimated that more than 11,000 hectares of private lands are being utilized for the cultivation of high yielding perennial hybrid varieties of Co4/Co5. Under drought mitigation scheme, 600 acres of irrigated land is being taken up to cultivate fodder sorghum under irrigated conditions. Thus 16.24 lakh metric tonnes of Biomass could be obtained which could cater to about 82,000 milk cows in the district assuming that 20 Kgs of green fodder per day per animal could be fed at the time of drought, so that milk production could be sustained without any hurdle. The Agricultural produce obtained through this farm can also contribute to the dire need of the district.

9.3 Mitigation Plan for Explosives

9.3.1 Preservative Activities

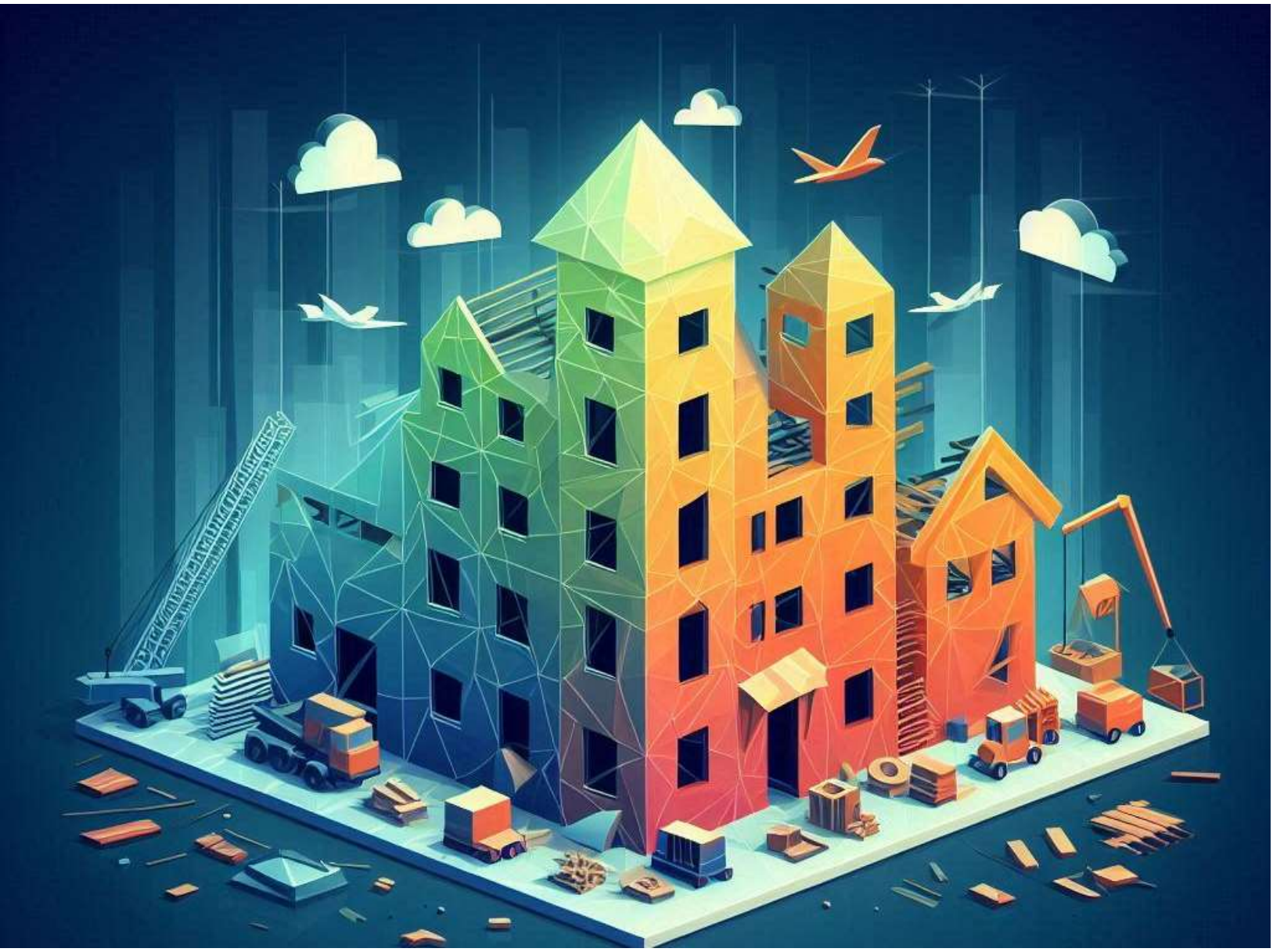
- Periodical inspection of all explosives, units and match industries are being done by tahsildar and divisional officers.
- All these industrialists have been sensitized to take all precautionary steps
- Police, Fire & Rescue Service personals and Revenue Officials have been instructed to make frequesnt visit to industries
- Sources of Fire Mitigation machineries and equipments have been identified.

9. 4 Mitigation Plan for Road Accidents

9.4.1 Steps taken by various departments to reduce Road Accidents

- Traffic Police : Road Safety Week, Barricades', Flickers etc.,
- High ways Department : Speed Breaker, Centre Median, Flickers, Reflecters Etc.,
- Volunteering Organisations Viz., Red Cross etc, Awareness creations
- RTO's : Vehicle Over Speed Checking, Drunken Drive Checking, Strict Fitness Certificate procedures etc.,

10.0 Build Back Better



10.1 Mitigation work after 2015 Flood

During North east Monsoon 461 numbers of Irrigation sources in respect of Water Resources Department were damaged due to heavy floods and temporary restoration works carried out on War footing basis to the total value of Rs. 561.55 Lakhs to avoid further damages to Irrigation sources and to avoid the wastage of water. The following permanent restoration measures are taken with a focus to mitigate heavy flood damages for the next 20 Years in Vellore District

Construction of check dam across Naganadhi River near Kathalampattu village in Vellore taluk of Vellore district.

The Government have accorded administrative sanction for Construction of check dam across Naganathi River near Kathalampattu Village in Vellore District for the value of Rs.260.00 Lakhs vide Go.Ms.No.284PW(W1) Dept. dated.18.12.2015. The work was commenced on 24.02.2016 and completed on 23.03.2017. This schemes aims the Ground Water will be recharged in 50 Bore well situated in and around 3000 feet radius of this check dam.In addition 106.59 Hec Ayacut lands of Kathalampattu Tank will also be stabilized. Due to this check dam water storage of about 3.00 Mcft has been newly created.

The Repair, Renovation and Restoration of Tanks (RRR) Scheme Works funded by The Government of India (Phase-I)

The Government of India has introduced a scheme to identify the tanks in the drought affected blocks of the states and to carryout repair, renovation and restoration in the particular tank. Based on that, the blocks in Vellore District (viz) Kaniyambadi, Vellore and Katpadi were found as drought affected one. The Government of Tamilnadu in G.O.No.96/Public Works(W2) Dept./dt. 30.04.2015 have accorded administrative and financial sanction for Rs.734.73 lakhs for the Renovation of 16 tanks in Vellore District n First Phase.

In the scheme, the following works are taken up for execution.

1) Desilting of tank and strengthening of bund.
2) Reconstruction / Repair of sluices.
3) Reconstruction / Repair of weirs.
4) Renovation of supply channels.
5) Desilting and lining of Irrigation channels.
6) Providing water measurement instrument.
7) Fixing of boundary stones.

Benefit of the scheme:-

By the implementation of the scheme, an ayacut of 1885.52 ha.irrigated by the 16 tanks will be benefited and will lead improvement in cultivation and the water level of the surrounding areas will be raised. Due to Desilting of the above 16 tanks the storage capacity of the tanks have been increased. Due to lining of channel the irrigation efficiency is increased. Due to desilting of supply channel the inflow of water into the tank is ensured.

The Repair, Renovation and Restoration of Tanks (RRR) Scheme Works funded by The Government of India (Phase-II)

The Government of Tamilnadu in G.O.No.186/Public Works(W2) Dept./dt. 25.09.2015 have accorded administrative and financial sanction for Rs.731.60 lakhs for the Renovation of 20 tanks in Vellore District as Second Phase.

Benefit of the scheme:-

By the implementation of the scheme, an ayacut of 1341.11 ha.irrigated by the 20 tanks will be benefited and will lead improvement in cultivation and the water level of the surrounding areas will be raised.Due to Desilting the above 20 tanks the storage capacity of the tanks have been increased. Due to lining of channel the irrigation efficiency is increased. Due to desilting of of supply channel the inflow of water into the tank ensured.

Kudimaramathu Scheme Works of Tamilnadu Government

The Announcement of Kudimaramathu scheme has been made on the floor of Tamilnadu legislative assembly during the year 2016-2017 in the view of conservation and improvements of water bodies in Tamil Nadu. This scheme is proposed to implement with the participation of Farmer's organization of the locality in order to enhance their life.

The Government have accorded administrative sanction for the above works in G.O.(Ms)No.12/ Public Works(W1) Dept./ dt. 21.01.2017 for Rs.100.00 crores for the year 2016-2017 as first phase.

In the above Govt.order an amount of Rs.300.00 Lakhs have been sanctioned for the Restoration of 34 tanks in Vellore District and all the works are taken up for execution. The following works are proposed in the scheme.

1) Removal of scrub jungle in the tanks and supply channels.
2) Filling up gullies caused by the rain and strengthening the bund.
3) Clearing out the deposits in the supply channel and removal of scrub jungle.
4) Fixing of boundary stones.

Benefit of the scheme:

By the implementation of the Kudimaramathu schemes (for 2016-2017) an ayacut of 2248 Ha Irrigated by the 34 tanks will be benefited and will lead improvement in the cultivation and the water level of the surrounding areas will be raised.

For the Kudimaramathu scheme for the year 2017-2018 55 tanks in Vellore District have been proposed for Rs.1000.00 Lakhs. The proposal has been submitted to the Chief Engineer, WRD., Chennai Region, Chennai for according administrative sanction from the Government.

l) Construction of diaphragm wall across Malattar river near Masigam village in Gudiyattam Taluk of Vellore District.

The Government have accorded administrative sanction for Construction of Diaphragm Wall across Malattar River near Masigam Village in GudiyattamTaluk of Vellore District for the value of Rs.300.00 Lakhs vide Go.Ms.No.107 Agriculture(AP1) Dept. dated.19.04.2017.

10.2 Ongoing Drought Mitigation through various Government Schemes

As per the instructions of the Principal Secretary / Commissioner of Revenue Administration in his ordered to form District Drought Monitoring Centre headed by the District Collector with the following Structure :-

1) District Collector, Vellore - Chairman
2) District Revenue Officer, Vellore – Vice Chairman
3) Joint Director, Agriculture Department, Vellore – Convener
4) Project Director, District Rural Development Agency, Vellore - Member
5) Superintending Engineer, Water Resources Department, Vellore- Member
6) Joint Director, Animal Husbandry Department, Vellore - Member
7) Joint Registrar of Co-operative Society, Vellore - Member
8) Deputy Director, Horticulture, Vellore - Member
9) Sub Collector, Tirupattur – Member
10) Commissioner, Vellore Corporation – Member
11) Regional Director, Municipal Administration, Vellore – Member
12) Assistant Director (Panchayat), Vellore – Member
13) Assistant Director (Panchayat), Tirupattur – Member
14) Assistant Director (Town Panchayat), Vellore - Member
15) Revenue Divisional Officer, Vellore – Member
16) Revenue Divisional Officer, Ranipet - Member
17) Junior Scientist, I.M.D Vellore.- Member

18) Dr.G.P.Ganapathy, Professor, Department of Disaster Management and Mitigation, V.I.T University, Katpadi.- Member

The objectives and functions of the above center are described as follows:

Objectives of the district drought monitoring Centre:

1) To develop a database on various drought related indices and indicators ; precipitation, evapotranspiration, ground water levels, surface water bodies, land use, soils and forest cover;

2) To develop a network of various resources and user agencies so that the information and database management could be strengthened through collective inputs of these agencies; and

3) To assist the state by providing scientific analysis and early warning information on Floods and other related Disasters.

Functions of the district drought monitoring Centre :

i). Crop yield estimation in collaboration with Space Applications Centre (SAC), Ahmadabad and other agriculture-related institutions.

ii). Water balance studies and preparation of Moisture Adequacy Index (MAI)

iii) Crop water budgeting studies for the districts and Talukas/Tehsils/blocks, crop wise.

iv). Impact assessment of watershed development programs.

v). Standardization of average rainfall for all the Talukas/ Tehsils/ blocks and districts.

vi). Assist the Government in the processes leading to the declaration of drought.

vii). Assist the Government in preparation of loss estimates due to drought and preparation of Memorandum for submission to the Government of India.

viii). Advice to Government on different aspects of Land and Water Management.

ix). Documentation of drought management efforts.

11.0 Mainstreaming DRR in to Developmental Planning

11.1 Drought Management - Special Package for Pulses Cultivation

Objective:

To encourage pulses cultivation in water available areas using water saving techniques

Mission on Sustainable Dry Land Farming

Preliminary Activities : 2020-24

1. Base line survey :

   Preparation of Detailed Project Report

2. Formation of Dry Land Cluster:

   - One / more contiguous Village Panchayats (1000 Ha) with nodal PACCS
   - 10 Nos. of Dry Land Clusters for 2020-24
   - 20 Nos. of Dry Land Clusters for 2020-24

3. Formation of Cluster Development Team (CDT)

   Cluster Coordinator: Agricultural Officer

4. Formation of Block Level Team

   Block Coordinator: Assistant Director of Agriculture

5. Formation of Farmers Club

   Village Panchayat wise Farmers Clubs:

   “Maanavari Grama Vivasayigal Membattu Kuzhu”

6. Capacity Building :

   - Trainings,
   - Exposure visits
   - Demonstrations for Pulses, Millets, Oilseeds

7. Entry Point Activities:

Water Conservation Structures:

   - Farm ponds,
   - Percolation ponds

11.2 Fodder Management during Drought - Popularizing Hydroponics

- Hydroponics – Growing of plants without soil by using nutrient water at desired temperature and humidity.
    - Requires 480 sq. ft area to produce 1000 kg every day against 5 - 30 acres land under conventional system.
    - Saving of water to the extent of 95%
    - Can be grown throughout the year .
    - Harvesting period is just 8 days.
    - Saves labour, energy and time.

11.3 District Irrigation Plan – Under PMKSY Scheme

The Scheme proposed for the period of Seven Years (2017 -18 to 2023-24). By various departments under PMKSY Scheme.

Component – Har Khet Ko Pani

Public Works Department - PWD (WRO)

- Rehabilitation and Modernisation of Tank
- Rehabilitation and Modernisation of Channels
- Check Dams/ Kondams/ Surface Dykes/Reservoirs
- Formation of Bund and Isnpection
- Inter Linking Rivers
- Construction of Small Reservoir

Agricultural Engineering Department (AED)

- Creation of Community Ponds
- RRR of Water Bodies
- Rejuvenation of Well Irrigation Potential through Artificial Recharge Structures
- Lined Field Channels
- Infrastructure for Micro Irrigation
- Incentivization Scheme for Bridging Irrigation Gap

- Promotion of scientific moisture conservation and agronomic measures in Dryland agriculture adopting ICRISAT Technology in Cluster Villages
- Water lifting devised including water carriage pipes
- River Valley Project

Agricultural Department

- Drip and Sprinkler Irrigation
- Others (Demo, Training)

Horticulture Department

- Drip and Sprinkler Irrigation
- Others (Demo, Training)

Forest Department

- Construction of Percolation Pond
- Construction of Check Dam
- Repairing of Percolation Dam
- Nursery of Afforestation

District Watershed Development Agency (DWDA)

- Farm Ponds
- Formation of Village Pond
- Check Dams
- Renovation of Village Pond
- Rejuvenation of Abanded Wells
- Others

District Rural Development Agency (DRDA)

- Creation of Water Sources to Individual land holders and Renovations of Water bodies including desilting works

12.0. Financial Arrangements

12.1 State Government Funding

As Stated in the section (48) of the DM Act2005, the State Government shall establish for thepurposes of the Act the following funds:

1. State Disaster Response Fund: This fund willbe constituted and made available to theSEC formeeting the expenses for emergency response,relief and rehabilitation.

2. District Disaster Response fund: This fund willbe constituted and made available to theDistrictDisaster Management Authority for meetingthe expenses for emergency response, relief andrehabilitation.

3. State Disaster Mitigation Fund: This fund willbe constituted and made available to theSEC formeeting the expenses on mitigation activities.

4. District Disaster Mitigation Fund: This fundwill be constituted and made available to the District Disaster Management Authority formeeting the expenses on mitigation activities.

13.0 Way Forward

13.1 Goals (2020 – 2030)

The present goal on Disaster Risk Reduction framed and aligned with the Sendai Frame Work to prevent new disasters and reduce existing disaster risk through the implementation of integrated and inclusive developmental planning, reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience. **The objectives and main goals are.**

a) To identify the areas vulnerable to major types of the hazards in the district.
b) To adopt proactive measures at district level by all the govt. departments to prevent disaster and mitigate its effects.
c) To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post - disaster phases of the disaster.
d) To enhance disaster resilience of the people in the district by way of capacity building.
e) Promote public awareness; thereby reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
f) Manage future development to mitigate the effect of natural hazards in the district.
g) Emergency Operations Centre at the District level to function effectively in search, rescue, response.
h) To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.

13.1.1 Understanding and Prioritise the Risk

The preliminary hazard Risk Assessment of Vellore District is carried out to identify the areas vulnerable to major types of the hazards in the district based on the probability of occurrence and the severity. The details are presented in Table 1. As a first step, a list of Major and Minor disasters based on the severity is identified and presented in Table 2.

Table 13.1 .Hazard/ RiskAssessment of Vellore District

Hazard	Characteristics	Who/ What at risk	Probability of occurrence (Rating)	Vulnerability (Rating)	Rank-ing (probability x vulnerability)
Flood	• Palar River is the major river draining the district, flowing towards east for a distance of about 295 km. It has a vast flood plain in the lower reaches, but is dry for major part of the year. • The houses build in the villages next to the embankments are vulnerable to Floods	Agriculture crops, Transport, Houses, Constructions, Drinking Water, Cattle, Irrigation Equipments, Educational Institutes, Vulnerable Groups	Occasional(2)	Moderate(2)	4
Drought	•Deficit in rainfall and depletion of ground water	Crops, Drinking Water, Livelihood Options	Frequently(3)	High(3)	9
Earthquake	• The Vellore district falls under Earthquake zone lll. • The buildings and houses built in the district are not earthquake resilient therefore the damages will be moderate to high in case of an earthquake event.	Human Life, Cattle Life, Kutcha and Pucca Houses, Community infrastructure	Occasional(2)	High(3)	6

Fire	• Fire incidents are more frequent in the rural areas of District due to electrical short circuits. In rural areas, people use fire friendly resources like wood, cow-dung cakes, straws etc. and lack of knowledge about fire preventives.	Human Life, Cattle Life, Houses and property	Frequently(3)	High(3)	9
Cyclone	• Cyclone is a seasonal hazard largely affecting the poor. • The poor and marginal people are vulnerable to cyclone hazard in Vellore District.	Human Life, Cattle life, Crops	Occasional (2)	Moderate (2)	4
CBRN	Though the occurrence of Chemical, Biological, Radiological and Nuclear disaster is very low in the district but the probability of damages is very high in case of such disasters as the district is highly populated.	Human Life, Cattle Life, Environment &Eco-System, Economy	Rare (1)	High (3)	3
Cold Wave/ Heat Wave/ Storm/ Hail Storm	• These are seasonal hazards largely affecting the poor. • The poor and marginal people are highly vulnerable to such seasonal hazards.	Human Life, Cattle life, Crops	Occasional (2)	Low (1)	2

Vulnerability Score Low : 1 Medium : 2 High : 3

Probability Score Rare : 1 Occasional : 2 Frequently : 3

Table 13.2.List of Disasters and its Severity in Vellore District

Sl.No	Event	Status Major/Minor/Nil	Severity
	Earthquake	Major	Moderate
2.	Flood / Flash flood	Major	Moderate
3.	Drought	Major	High
4.	Fire	Major	Moderate
5.	Cyclone	Major	Moderate
6.	Heat wave	Minor	Moderate
7.	Landslide/Rock Fall	Minor	Moderate
8.	Hailstorm	Minor	Low
9.	Explosion	Minor	Moderate
10.	Structural/Building Collapse	Minor	Moderate
11.	Lighting	Minor	Low
12.	Accident (Road/Chemical/Industrial)	Minor	Moderate
13.	Forest fire	Minor	Low

13.2 Plan of action to implement the revised goals for the above disasters:

Based on the severity, Earthquake, Flood/Flash Flood, Drought, Cyclone, Fire disasters were identified as major disasters in Vellore District. Other Disasters were identified as minor disasters. The present goals aim to adopt proactive measures at district level by all the govt. departments to prevent disaster and mitigate its effects.

Following are the Major Disasters identified :

1) Earthquake
2) Flood / flash flood
3) Cyclone
4) Drought
5) Fire

13.2.1 Earthquakes

Vellore is prone to Seismic Zone III (moderate Seismic Hazard – Expected Magnitude upto 6.9) as per Bureau of Indian Standard. The details of past earthquake epicenters from 1817 to 2017 were collected and analysed. The magnitude ranges from 2.2 to 5.0. The maximum magnitude 5.0 recorded in the year 02.08.1865 is the highest recorded in the district so far from the history. However the district is classified under Zone III and we may expect a magnitude upto 6.9.

Since the district is under Zone III further to understand the seismic risk, the following are recommended for the district, as revised goals for earthquake risk reduction – 2018-2030.

i) Preparation of Seismic hazard micro zonation mapping for the Vellore City and other major cities/towns in the Vellore District using geotechnical and geophysical data base in 1 : 25000 Scale
ii) Details of Vulnerability analysis for Vellore City should be carried out
iii) Critical facility analysis, Transportation and Utility lifeline structures.

a) The critical facilities are classified into two categories viz, essential facilities (hospitals, medical clinics, schools/educational institutions, fire stations, police stations and emergency operations facilities) and high potential loss facilities (dams, levees, military installations, hazardous material sites)

b) The transportation systems include highways, railways, bus, ports, ferry and airports and utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications.

c) Individual Building Vulnerability analysis for earthquake resistance and it should include

The buildings identified on moderate zone need to be retrofitted to withstand against the magnitude of 8.0 (highest), accordingly all the Government buildings schools, infrastructures, facilities, etc need to be assessed and strengthened by including appropriate multi disaster codes suggested by various BIS and other byelaws.

d) All the stakeholders including Engineers, Architect, Contractors, Masons etc., need to be trained to build multi hazard resistant building, infrastructures, facilities etc as per the code developed by the Bureau of Indian Standard (BIS).

e) General Awareness should be given to the community about the Earthquake hazard with the help of NDRF personel.

f) Convergence of Multi Disaster Resistant feature need to be included in Development plans.

g) Existing building laws and guidelines should be modified in accordance with the zone.

h) New buildings, infrastructure, facilities etc to be built to withstand the Heavy Damage Zone (i.e., Maximum Magnitude of 8.0)

By achieving all the above goals, if the earthquake happens, the damage can be reduced.

13.2.2. Flood / Flash Flood

Vellore is moderately prone to floods and flash floods. Based upon the details of past flood and flash flood details collected and the instructions of Principal Secretary / Commissioner of Revenue Administration, the criteria for the classification of Vulnerable areas have been applied to the already indentified Vulnerable areas. After applying the new nomenclature in Vellore District the below mentioned Vulnerable areas have been grouped. The details of 76 Vulnerable Villages for Flood in Vellore District have been collected and Firka level Vulnerability map (Rural and Urban) also prepared to make disaster management work easier.

13.2.2.1 Short Term Goals – Flood Risk Reduction – 2019 -2030

As a part of Flood Risk reduction, the list of vulnerable villages have been identified and the vulnerable maps at firka level prepared. Based on these data and maps the following can be regularized within 3 years period.

1) Encroachments in the water courses way will be removed and taken necessary actions
2) Prohibition of any fillings in Channel and flood way that would restrict flow
3) Specification of minimum elevation of sub division roads that they are above selected flood level.
4) Development of a community level flood warning sytem to aware the people in the flood prone areas.

13.2.2.2 Steps To Mitigate the effect of Flood / Flash Flood :

The work undertaken by various departments and their schemes are detailed below.

a) Removal of encroachments in waterbodies is being done as per G.O.Ms.No.540,Revenue (LD6(2) Department, dated 4.12.14.

b) Desilting of tanks as per G.O.Ms.No.50, Industries (MMC-I) Department, dated 27.04.2017 is being done in PWD as well as Minor Irrigation Tanks in order to avoid flooding.
c) Construction of check dam across Naganadhi River near Kathalampattu village in Vellore Taluk so that flooding will be prevented and water table will be raised
d) Repair, Renovation and Restoration of Tanks (RRR) Scheme works funded by the Government of India is undertaken to strengthen the bunds
e) Kudimaramathu Scheme work deepen the waterbodies thereby the severity of flood incidence will be reduced.
f) Construction of diaphragm wall across Malattar river near Masigam village in Pernambut Taluk.
g) Construction and maintenance of flood control structures like embankments, ring bunds, checkdams by PWD and Agricultural Engineering Department.

By the implementation of above schemes the severity of flood will be reduced considerabily over a period of 10 years.

13.2.3 Cyclone

Vellore is under low to moderate damage risk zone for wind and Cyclone Hazards. The details of past Cyclone impact and damages are presented below.

13.2.3.2 Steps to mitigate the effect of Cyclone (2018-2030)

Provisions for suitable communication facilities for exchange of information between the agencies responsible for disaster preparedness activities must be well planned consistent with disaster risk involved and the resources available in the district. The followings steps are proposed :

- Survey the existing communication facilities and consider to what extent these facilities could be used for disaster preparedness purposes
- Provide additional facilities such as direct telephone lines or radio circuits linking

- Assign responsibility for proper maintenance of these important communication systems and provide for adequate spare parts for this purpose.
- The operation centers would also have means for alerting the public when necessary. Sirens, radio and television announcements are some examples of systems that may be used to gain the attention of the public.
- Electric Transformers, Pillars, Towers and High Tension / Low Tension lines will be properly repaired and maintained in order to withstand the cyclonic effect. Preferably, the electric lines may be provided as underground cables to avoid damaged in future.
- The following are the plans of Agriculture Department to mitigate the effect of cyclone.
    a) Provision of live wind barriers around the fields.
    b) Adopting staking of vegetable crops *Viz.,* Tomato.
    c) Propping with wooden poles in Banana.
    d) Planting the crops along the windward direction.

By adopting the above measures, we will be able to withstand the cyclonic effect.

13.2.4 Drought

Vellore District is arid and dry as the rainfall is scanty and erratic in its nature. The drought condition during summer generally affects people for their need of water. Agriculturists suffer a lot by drought. Sometimes it may affect wild life survival. The animal behavior and movement is mainly influenced by the availability of water inside the forest. Vellore is under moderate to high risk zone for Drought Hazard. Drought affected throughout the District in the year 2016 and12818 farmers were affected. Drought is a slow process which can be anticipated without any haste and thus proper planning would be possible.

13.2.5 Steps to Mitigate the Effect Of Drought (2020-2030):

The work undertaken by various departments and their schemes are detailed below.

Works done and to be done by the Agriculture Department

1. Conversion of conventional Paddy area into 100% SRI where water use efficiency is more.
2. Popularizing less water requiring crops like Maize.
3. Advocating short duration varieties.
4. Improving Water Use Efficiency by advocating usage of Micro Irrigation, *Viz.*, Drip irrigation, Sprinkler irrigation and Rain gun.
5. Promoting seed treatment and seed hardening procedures using Mycorhiza at village level.
6. Use of Methylo Bacterium during water stress situation.
7. Use of NAA, KCL and CYCLOCEL to mitigate water stress.
8. Use of Kaoline spray to minimize the damage of crops due to water stress.
9. Popularising the use of Pusa Hydrogel especially for crops like Red gram and other pulses to retain soil moisture by preventing evaporation from soil and by releasing water in slow phase based on the need of the crop
10. Adopting mulching for moisture conservation in soil.
11. Improving the water holding capacity by applying coir pith before sowing.

Intervention of Government Schemes in mitigating the Adverse Weather Condition

Due to deficit rainfall during North East Monsoon 2016, a dry spell has been experienced in the District. Apart from providing relief fund to farmers whose crop has been affected by water stress, Government has also taken steps to mitigate the effect of drought on crop production of the District, by announcing schemes for cultivation of water saving food crops using water saving equipments.

(I) Mission on Sustainable Dry land Agriculture

To support the dry land farmers and to bring maximum dry land area under cultivation in phased manner Government had issued Administrative orders and Financial sanction for the year 2016-17 for implementation of **Mission on Sustainable Dry land Agriculture (MSDA)** in Vellore District adopting Cluster Based Activities in **10 blocks** covering 1000 Ha each (totally 10000 Ha).

Focus of MSDA:

- The Scheme focuses on improving the production and productivity of millets, pulses and oilseeds cultivated as dry land crops.
- The scheme also aims at Mixed Farming by supporting mini-dairy and poultry units to supplement farm income.
- Water Conservation Measures will be taken up as an integral part of the scheme

Integrated Programme:

As such, Departments like Agricultural Engineering, Agriculture Marketing, Animal Husbandry and Cooperative Societies with Department of Agriculture as Co-ordinator will be integrating their activities in cluster basis under MSDA.

Steps in Mission mode implementation of MSDA:

- Formation of Dry land Cluster of 1000 Ha each in one or more contiguous Village PanchayatsBaseline survey for each Revenue village
- **Formation and Functioning of Farmers Clubs**
- **Capacity Building through** Trainings, Exposure visits and Demonstrations to sensitize farmers on advanced technologies for rainfed agriculture
- **Entry Point Activities** for establishingwater harvesting structures like Check Dams, Farm Ponds etc.

- Financial assistance as back ended subsidy under **comprehensive Land Development Activities** to beneficiary farmers for summer ploughing.
- Under **Water Harvesting Structures** Check Dams, Community ponds/ Percolation ponds and Farm ponds are to be taken up in the dry land areas of the selected villages.
- **Agronomic** Interventions in promotion of dry land crops through appropriate cropping system. Seeds and other necessary inputs are to be mobilized in addition to provision of appropriate crop management technologies suitable for the location.
- **Institutional Strengthening and support for Value Addition** to Farmers Producer Organisation / Farmers Clubs in the Clusters by providing financial assistance for

  a. Dhal Mill/ Oil expeller/ Millet Processing Unit (Total Cost of Rs. 12.00 Lakhs, 50% Subsidy of Rs. 6.00 Lakhs)
  b. Packaging / Branding of Agricultural Produce (Total Cost of Rs. 6.00 Lakhs, 100% Subsidy)
- **Creation of Custom Hiring Centres/ Agro Service Centres** for unemployed Rural Youth in Dry land Clusters for Rs. 10 Lakhs of which 80% subsidy would be dovetailed from SMAM.

- All the loanee & non-loaneefarmers in the Dry land Cluster Area should be enrolled under **Pradhan Manthri Fasal Bima Yojana(PMFBY).**

- Unde**r Animal Husbandry works,** the following works are taken up
  1. Optimizing the Nutrient Profile of Cattle
  2. Optimizing the Reproductive Health
  3. Optimizing Udder Health of Cattle

Convergence with other programmes

1. This programme should take advantage of other programmes such as solar power pump programme, Micro Irrigation Programme etc. and utilize the benefits to the advantage of rain fed area development.
2. Other improved technologies such as Integrated Nutrient Management (INM), Integrated Pest Management (IPM), Resource Conservation tools and Water application tools sanctioned in Centrally Sponsored schemes will also be dovetailed in the selected dry land Clusters to increase the crop productivity.

Works done And To Be Done By The Horticulture Department

- Drip and sprinkler irrigation
- Introducing improved technologies, imparting training

Works done and to be done by the Agricultural Engineering Department

- Creation of Community Ponds
- RRR of Water bodies
- Rejuvenation of Well irrigation, Potential through Artificial Recharge Structures.
- Lined Field channels
- Infrastructure for Micro Irrigation
- Incentivization Scheme for Bridging IrrigationGap
- Promotion of scientific AT Technolomoisture conservation and agronomic measures in Dry land agriculture adopting ICRISAT in Cluster villages.
- Water lifting devised including water carriage pipes.
- River Valley Project

Works done and to be done by the Forest Department

- Nursery of Afforestation
- Construction of check dams and percolation ponds for water conservation and ground water recharge by Forest Department
- Contour trenches were also dug under various schemes by Forest Department in managing the surface run off. The maintenance of vegetative barrier is also resorted.

13.2.6 Fire

Fire accidents are more frequent in the rural areas of District due to electrical short circuits. In rural areas, people use fire friendly resources like wood, cow-dung cakes, straws etc. and lack of fire preventive measures.

Steps to mitigate the effect of Fire

Wherever fire accident happens, fire service and rescue department personnel go to the place immediately and attend. Immediate relief measures are being issued by the Revenue Department. Further, Voluntary Organisations such as Red Cross also do needful to the affected people.

Since the main reason for fire accidents is carelessness, awareness is being created by Fire Service and Rescue Department by conducting Mock Drills and Trainings in schools, colleges, public places like bus stand, offices etc.

Mostly huts are damaged by fire accidents. Hence, more awareness about using of fire and electrical equipments carefully may be created among those. Also, they are being provided pucca houses by the Tamilnadu Slum Clearance Board and Government lands have been identified and transferred to TNSCB for the above purpose.

Developing knowledge about the maintaining of proper electric lines and handling of electric equipments among the community will avoid fire accidents.

13.3 Other disasters

The following disasters are identified as minor disasters in the vellore district

- Heat Waves
- Hailstorm
- Structural/ Building Collapse
- Lightning
- Accident (Road / Chemical/Industrial)
- Landslide / Rockfall
- Forest Fire

13.3.1 Heatwave

In Vellore District there is no death due to heat waves so far. However, a meeting regarding “Heat Wave warning” was conducted by the Collector on 20.03.2017 and 10.04.2017. People in Vellore District were communicated by various means like Press Release and T.V. Scrolls in local media to avoid going out during the day time especially between 12.00 Noon to 3.00 P.M., since temperature in the months of March, April, May and June is more than or equal to 40º C.

Press release also given by the Collector to keep the Public informed about the precautions to be taken during heat wave conditions and advised the public not to be panic and do’s and don’ts at the time of heat wave.

The Collector has also attended National Work Shop on “Heat Wave Forecasts for State Level Preparedness” at Indian Meteorological Department, New Delhi on 28th to 29th March 2017. After attending the above meeting again coordination meeting was conducted by the Collector on 10.04.2017 and given suggestions to the officials regarding the preparedness of heat wave in Vellore District.

13.3.2 Hailstorm

Hailstorm may occur during conventional Rainfall during summer in the months of April and May in Vellore District, we are having adequate facilities to manage with the co-operation of stakeholders and will handle the situation. Awareness is being created among Department.

13.3.3 Structural/ Building Collapse

A school building in Katpadi Taluk of Vellore District was collapsed in May 2017. The reason told is over weight on the ceiling and faulty construction. Apart from this incident, no major occurrences happen in Vellore District.

Steps taken to avoid this :

The District Collector has convened meeting to all Government Department officials and other private public building owners to compulsorily get licence for which press releases were given in all dailies to sensitise the public building owners.

13.3.4 Lightning

During the rainy season, lightning affects houses, cattle and sometimes human beings. Disaster relief is immediately sanctioned for such loss. In Vellore district, few incidents happened in the past. In the last year 2022, there were no casualities due to lightning.

The following instructions are being given to the people through village level officials and press releases:

- When a thunderstorm threatens, get inside a home or large building,
- Inside a home, avoid using the telephone, except for emergencies
- Not to keep their cattle in open places
- If outside, with no time to reach a safe building or an automobile, follow these rules
  i) Do not stand underneath a natural lighting rod such as a tall, isolated tree

ii) Avoid projecting above the surrounding landscape as you would do if you were standing on a hilltop, in an open field, on the beach, or fishing from a small boat

iii) Get out of and away from open water

iv) Get away from tractors and other metal farm equipment

v) Get off of and away from motorcycles, scooters, golf carts and bicycles.

vi) Stay away from wire fences, clotheslines, metal pipes, rails and other metallic paths which could carry lightning to you from some distance away.

vii) Avoid standing in small isolated sheds or other small structures in open areas.

viii) In a forest, seek shelter in a low area under a thick growth of small trees.

ix) If you're hopelessly isolated and you feel your hair stand on end - indicating that lightning is about to strike - drop to your knees and bend forward putting your hands on your knees. Do not lie flat on the ground.

13.3.5 Mitigation plan for explosives

a) Periodical inspection of all explosive units and match industries are being done by Tahsildars and Divisional Officers.
b) All these industrialists have been sensitized to take all precautionary steps.
c) Police, Fire and Rescue Service Personnel and Revenue Officials have been instructed to make frequent visits to industries.
d) Sources of Fire Mitigation Machineries and equipments have been identified.

13.3.6 Road Accident

Since most part of Vellore District is situated adjoining to National Highways, occurrence of road accident is high in number.

Mitigation plan for road accident

To reduce number of accidents, steps are being taken by the District Administration with the help of Police (Traffic) Department, Highways Department, etc. as detailed below.

1) Traffic police : Road Safety week, Barricades, Flickers etc.
2) Highways Department : Speed Breaker, Centre Median, Flickers, Reflectors etc.
3) Volunteering Organisation viz Red Cross etc. : Awareness Creations
4) Regional Transport Officer : Vehicle Over speed checking, Drunken Drive Checking, Strict Fitness Certification procedures etc.

13.3.7 Landslide / Rockfall

Landslides are noticed mainly in the hilly tract of eastern ghat passing through the District during monsoon season of the year. The hills on the Javadhis and in yelagiri hills are considered to be vulnerable in this regard. Frequent landslides disturb animal movement and behavior which in turn induces man animal conflicts. The land slide also increasing the possibility of soil erosion and destruction of habitat. Most of the roads connecting hill villages are liable to washout and land slides in addition to falling of big trees on the roads during heavy rains and they have to be removed immediately in addition to repairing the damaged roads if any during heavy rains for the benefits of the hill tribes.

Fortunately, no major land slide happen in Vellore District so far. However, there is a possibility of rock fall in Vellore District as the hills and hillocks of this District are full of rocks. A famous byword about Vellore is “Hills without trees”. To make this a false one, planting of 5000 seedlings in Vellore hill area was planned in the year 2012-13 and this scheme was named as “Greening Kottamalai” and this made somewhat successful and now they have grown into trees. Planting of more trees will surely reduce rock fall. Moreover, these trees will bring more rain to Vellore District.

Forest Department officials have been instructed to do more afforestation in hilly areas to take steps to reduce soil erosion, to prevent quarrying in hill areas, to prevent deforestation etc.

13.3.9 Forest Fire

Forest Fire, mostly man made is responsible for large scale degradation of ecosystem; adversely affecting innumerable living species including human being.

- Pallikonda Hillock & Kottamalai hills of Vellore Division is prone to annual fires, especially in the months of January to March.
- About 837 Number of Social Forestry Plantations is there, of which, many are prone to fire every year.

Therefore forest fire is to be considered as one of the major disaster in Vellore District.

Steps to reduce forest fire :

The fire lines are being cleared inside forest area to prevent outbreak in large scale. Fire watchers are being engaged and local community involvement through joint forest management in the early detection and prevention is being followed. Fire vulnerability maps and alert system are also in place. The fire watch towers are erected at convenient place for early detections. The CCTV cameras are to be installed in all vulnerable points for continuous and effective monitoring; the adequate number of fire extinguishers and firefighting equipment are in place. All fire hazardous substances are being removed and patrolling teams have been deployed throughout the day and night. Awareness should be created among the people that forests are nature's gift; they should not be destroyed for any reason.By implementing the above works, forest will be protected.

To manage all the above disasters, both in pre event disaster and post disaster, Vellore District has got various key stake holders at different levels starting from community level to district level. Apart from the known stakeholder groups, there

are other few key non-Govt. Stakeholders who have crucial role during disasters and peace time. The following table shows an analysis of the stakeholders identified at different levels.

- Information and public Relation Department
- Labour Resource Department
- Rural Development Department
- Public Health Department
- Police Department
- Post and Telegraph Department
- Statistics Department
- Transport Development
- Municipal Administration
- Water Resource Department
- Agriculture Department
- Animal and Fisheries Department
- BSNL Company
- PWD Department
- Education Department
- TNEB
- Fire Service Department
- Civil Supplies
- Health Department
- Industries Department
- Academic Institutions
- Business Groups (Private sector to include corporate, industry, SMEs, Traders) and Markets and Market Associations.
- Ex Servicemen and Retired Professionals Association
- Health Association (Medical Association, Chemist and Druggist Association
- News and Media
- Local NGOs, Red Cross,
- SHG, Women, Farmers
- Transporters
- Youth Group.

Further Emergency Operation Centre at the District level is functioning effectively in Vellore District.

To create awareness among the people and to enhance disaster resilience of the people, it is planned to impart training at various level with the help of Dr. G.P. Ganapathy, Professor and Director of Disaster Mitigation and Management in VIT University, Fire and Rescue Services Department, Emergency Operation and First Aid Department of CMC Hospital, Vellore and NDRF, Arakkonam.

The schemes discussed above are only indicative and not exhaustive. Only some of the major schemes are being described. The schemes that are being implemented currently and in the next few years as well as schemes that are likely to be implemented in the next few years alone are discussed. The schemes that will be implemented subsequently will be detailed in the Action Plans that will be prepared periodically. The current plan lays down the road map up to the year 2030. The systems approach, Integrated development of vulnerable areas mainstreaming of disaster risk concerns into developmental plans will be the corner stones of Vellore District Disaster Management Plan. All future plans will be conceived with the above three concepts providing the backbone for the disaster risk reduction efforts.

The above mentioned are the revised goals of Disaster Management in respect of Vellore District. Our District will definitely achieve these goals with the help of stake holders listed above and steps taken above and will be a disaster free district after 2030.

Abbreviations

AF	-	Armed Forces
BBB	-	Building Back Better
BDO		Block Development Officer
CBDM	-	Community Based Disaster Management
CBO	-	Community Based Organisation
CBRN	-	Chemical, Biological, Radiological and Nuclear
CMP	-	Crisis Management Plan
CRA		Commissioner of Revenue Administration
DCG	-	District Crisis Group
DDMA	-	District Disaster Management Authority
DDMP	-	District Disaster Management Plan
DEOC	-	District Emergency Operation Centre
DM	-	Disaster Management
DRO	-	District Revenue Officer
DRR	-	Disaster Risk Reduction
EAP	-	Emergency Action Plan
ECS	-	Electronic Clearance System
GOI	-	Government of India
HQ	-	Head Quarters
IAS	-	Indian Administrative Service
IMD	-	Indian Meteorological Department
MAH	-	Major Accident Hazard

MGNREGS	-	Mahatma Gandhi National Rural Employment Guarantee Scheme
NDRF	-	National Disaster Response Force
PWD	-	Public Works Department
PWD (WRD)	-	Public Works Department (Water Resources Department)
RD & PR	-	Rural Development & Panchayat Raj Department
RMC	-	Regional Meteorological Centre
RTO	-	Regional Transport Officer
SDMA	-	State Disaster Management Authority
SDMP	-	State Disaster Management Plan
SHG	-	Self Help Groups
SOP	-	Standard Operating Procedure
SP	-	Superintendent of Police
TANGEDCO	-	Tamil Nadu Generation and Distribution Corporation
TEL	-	Tamil Nadu Explosives Limited
TN	-	Tamil Nadu
TNEB	-	Tamil Nadu Electricity Board
TNPCB	-	Tamil Nadu Pollution Control Board
TNSDMA	-	Tamil Nadu State Disaster Management Agency
TNWRD	-	Tamil Nadu Water Resources Department
TWAD	-	Tamil Nadu Water Supply and Drainage Board
VAO	-	Village Administrative Officer

Annexures

Annexure 1

Important Contact Telephone Numbers

Emergency Operation Centre **1077 / 0416 2258016**

Fax to Collector **0416 – 2253034**

Sl.No.	Officers	Mobile	Office Code 0416	Residence
1.	DISTRICT COLLECTOR	9444135000	2252345	2222000
2.	District Revenue Officer	9445000904	2253502	2232517
3.	Project Officer (DRDA)	7373704205	2253334	2254321
4.	Personal Assistant (G)	9445008159	2253034	2256248
5.	Huzur Sarishtadar (G)	9486529228	2252501	--
6.	Personal Assistant (P.D.)	7402606575	2253265	2252318
7.	Dist. Supply Officer	9445000184	2252586	--
8.	A.D.(Town Panchayats)	8925809214	2253647	--
9.	A.D. (Panchayats), Vellore	7402606606	2253153	--
10.	D.D Health services	9444424790	--	--
11.	J.D.Health, Vellore	8248600195	2220220	-
12.	Chief Educational Officer	9385202007	2252690	-
13.	Public Relation Officer	9498042453	2252633	2258889
14.	Exe. Engineer/PWD/ UPPAR PALAR/Vellore	9940729186	2247375	--
15.	Divisional Engineer (NH), Vellore	9442149234	2210700	--
16.	Divisional Engineer (H) NABARD & Rural Roads	9443616300	2262333	--
17.	Divisional Engineer (C&M), Highways	9486059808	2252503	--
18.	Superintending Engineer VEDC/Vellore TANGEDCO	9445855222	2243121	--
19.	Regional Manger, TNCSC,Vellore	9080416256	0416-2264590	--
20.	Joint Registrar (Co-op), Vellore	7338749600	0416-2253086	--

Annexure 2

List of Fire Stations in Vellore Division

Divisional Fire Officer, Vellore: Office : 0416 - 2221502

Resi : 0416 - 2226188

Mobile : +91 9445086106

Assistant Divisional Fire Officers Mobile : +91 9445086107

Station Officers Mobile : +91 9445086109/ 9445086110

Sl.No	Fire Stations	Code No.	Phone No.	Cell Nos.
1.	Vellore	0416	2220600	9445086112
2.	Katpadi	0416	2295130	9445086118
3.	Alangayam	04174	265580	9445086113
4.	Odugathur	04171	253646	9445086120
5.	Pernambut	04171	233101	9445086121

Annexure 3

Fire and Rescue Department – List of Equipments

Sl.No	Type of the Instrument	Total No.in the inventory
1	BoltCutters(shears)	1
2	ElectricDrill	1
3	CircularsawwithDiamondBlade(Electric)	1
4	ChippingHammer	1
5	Chainsaw–Diamond	1
6	Cutters(Hydraulic)	1
7	Spreaders	1
8	AirliftingBags	1
9	Bus	1
10	Spreader's(hydraulic)	1
11	Jackwith5Tonlift	2
12	SmokeblowerandExhauster	2
13	Strecher'sharnessset	4
14	Blankets	16
15	Suit–Fireentry	9
16	Suit- Fireapproach	106
17	Clothing–Chemicalprotective(A,B,C)	1
18	ExtensionLadder	14
19	Co2Type	16
20	dcptype	32

Sl.No	Type of the Instrument	Total No.in the inventory
1	Fire fighting foam	250
2	Shawl	40
3	Spade	40
4	Crow bar	16
5	Helmet	106
6	Thick Axe	16
7	Axe	18
8	Door breaker	1
9	Hacksaw	1
10	Knife	16
11	Ceiling Hook	16
12	Pump	14
13	Public Address System	1
14	Hand toolset	16
15	B.A.Set	18
16	Rope	72
17	Bucket	16
18	Hose fitting	394

Annexure 4

Available Special Equipments details in Vellore

S.No	Description	Total
1	Electric Drill	1
2	Circular Saw with Diamond Blade(Electric)	1
3	Chipping Hammer	1
4	Chain Saw-Diamond	1
5	Cutters- Hydraulic	1
6	Spreaders-Hydraulic	1
7	Air Lifting bags (Different capacity)/Tools	1
8	Jack with ton lift	2
9	Sledge hammer	10
10	Heavy Axe	2
11	Smoke Blower and Exhauster	2
12	Set of rope tackle (sheave - sheave)	1
13	Gloves-Rubber, Tested up to , volt	7
14	Crescent/adjustable wrenches	2
15	Slotted Screwdrivers	13
16	Traps X meters	1
17	Blankets	12
18	Shovel	28
19	Spade	14
20	Crow bar	23
21	Helmet	197
22	Basket	18
23	Pick axe	17
24	Axe	35
25	Hacksaw	5
26	Knife Salvage	2

27	Ceiling hook	18
28	Pump	11
29	Public Address System	1
30	Hand Tool Set	6
31	B.A.Set	27
32	Rope	83
33	Bucket	21
34	Hose/hose fitting	376
35	Inflatable Light Tower	3
36	Search light	13
37	Electric Generator	2
38	Electric Torch	10
39	Lifebuoy	16
40	Life Jackets	11
41	Basket Stretcher	2
42	Inflatable boat (persons)	1
43	Divers Teams	1
44	Search and Rescue Teams for Flood	1
45	Suit - fire entry	15
46	Clothing - Chemical protective (A, B, C)	3
47	Breathing apparatus - self contained	11
48	Breathing Apparatus – Compressor	1
49	Pump - high pressure, portable	7
50	Pump – floating	1
51	Extension Ladder	16
52	Aluminum ladder	9
53	ABC Type	6
54	CO Type	16
55	Foam Type	12

56	DCP Type	32
57	Fire Proximate Suits	95
58	Fire Tender	17
59	Rescue Tender	1
60	Fire Fighting Foam	7
61	Dry Chemical Powder	8
62	Stretcher normal	5
63	First aid kits	45
64	Tarpaulin	13
65	Office building	1
66	Motor Cycle	1
67	Light Ambulance Van	5
68	Mobile Phone GSM	16
69	Camera Digital	1
70	Body bags	87
71	Combi tool	2
72	telescopic ladder	1
73	snake catcher	16
74	bore well set	1
75	Concrete cutter	2

Annexure 5

VELLORE DISTRICT

POLICE OFFICERS CONTACT NUMBERS

S.NO	RANK	OFFICER'S NAME	CELL NUMBER
1.	SP	Tr.N.Manivannan IPS	9498111133
2.	ADSP HQR – 11	Tr.S.Baskaran	9498168485, 9361693088
3.	ADSP CCW – 12	Tr.N.Kotteeswaran	9444132756
4.	ADSP CWC – 13	Tr.K.Gowthaman	9840063275 9498131110
5.	DSP-VLR-20	Tr.E.Thirunavukarasu	9498105161
6.	DSP-KPD-21	Tr.N.Saravanan	9498153760
7.	DSP-GDM-22	Tr.R.Ravichandran	9443467557
8.	DSP – DCRB-24	Tr.B.Chandrasekar	9840932256
9.	DSP – DCB-25	Tr.N.C.Sarathy	9498147034
10.	DSP – SJHR-28	Tr.M.T.Irudayaraj	9498145336 9443365888
11.	DSP – IUCAW-29	Tr.K.Manoharan	9442218937 9498104038
12.	DSP- AR – 32	Tr.N.Sakthivel	9498171498 8778495120

S.NO	STATION	RANK	OFFICER'S NAME	CELL NUMBER
1.	North	Inspector	Tr.R.Srinivasan	9498149544
2.	South	Inspector	Tr.N.Vishwanathan	9498149300 8838456345
3.	South Crime	Inspector	Tmt.P.Tamizharasi	9498150605
4.	Vellore TK	Inspector	Tmt.A.Subha	9488642477
5.	Sathuvachari	Inspector	Tr.K.S.Raja	9498130540

6.	Bagayam	Inspector	Tr.K.Kandeepan	9498109944, 9443072203
7.	Veppankuppam	Inspector	Tr.K.Nagarajan	9498109959
8.	Pallikonda PS	Inspector	Tr.C.Subramani	9498146020, 9597506277
9.	Vellore AWPS	Inspector	Tmt.A.D.Vasuki	9498160655, 8903192967
10.	Vellore Traffic	RI.	Vacant I/C Tr.S.Kanniyappan	9498150181
11.	S.Chari Traffic	RI.	Vacant	-
12.	Katpadi	Inspector	Tr.S.Tamilselvan	9498164499
13.	Latheri	Inspector	Tr.N.Suresh Babu	9498189254
14.	Ponnai	Inspector	Tmt.A.Anbarasi	9080473029
15.	KPD AWPS	Inspector	Tmt.N.Komalavalli	9498191124
16.	KPD Traffic	RI.	Vacant I/C Tr.G.Ramesh	9498149105
17.			I/C.Addl.RI.Tr.Ravi	9498149533
18.	GDM TN	Inspector	Tr.T.Parthasarathy	9498110799
19.	GDM TK	Inspector	Tmt.K.Santhi	9442020547
20.	Pernambut	Inspector	Tr.R.Rukmangathan	9444007749
21.	K.V.Kuppam	Inspector	Tmt.N.Nirmala	9498145277
22.	GDM AWPS	Inspector	Tmt.M.Allirani	9498150843
23.	GDM Traffic	RI.	Tr.T.Mukesh Kumar	9655577373, 9498140761
24.	VLR PEW	Inspector	Tr.M.Muralidharan	9498217001, 9500240907
25.	GDM PEW	Inspector	Tr.M.Chinnadurai	8825500348
26.	SCS - 1	Inspector	Tmt.C.Ganthimathi	9498102763
27.	DCB II	Inspector	Tr.Babu Ravichandiran	9150306285
28.	CWC	Inspector	Tmt.K.Bharathi	9498145357, 9566896300
		Inspector	Tmt.R.Kavitha	9600274717

29.	VLR Cyber Crime	Inspector	Tmt.K.Punitha	94981 50456
30.	DCRB	Inspector	Tmt.M.Nirmala	9445491028
31.	ACTU	Inspector	Inspr. Tmt.D.Bharathi	9498148124
32.	NSD Wing	Inspector	Tmt.C.Raja Sulochana	9486576448
33.	AR VLR	Company - RI	Vacant	-
34.	VR	RI	Tr.Ravi	9498149533
35.	VR	RI	Tr.S.Kanniyappan	9498150181
36.	VR	RI	Tr.G.Ramesh	9498149105
37.	VR	RI	Tr.A.Shanmugam	9442601078
38.	VR	RI	Tr.J.S.Ramesh	9486565333
39.	VR	RI	Tr.T.Palaniselvam	9498150485
40.	VR	RI	Tr.R.Govindasami	9498155329

Annexure 6

List of Medical Teams

Joint Director of Medical Services

Vellore- Office 0416 2220220 (R) 0416-2220500 Cell: 8248600195

Sl.No.	Hospitals	Code	Phone Number	Cell Number
1.	Govt. Pentland Hospital Vellore	0416	2221973	7358130628
2.	Govt.Hospital, Gudiyatham	04171	224111	7358130598
3.	Govt.Hospital, Pernambut	04171	233388	7358130604
4.	Govt.Hospital, Anaicut	--	--	7358130553

Annexure 7

Details of Health Services

DEPUTY DIRECTOR OF HEALTH SERVICES, VELLORE

2ND FLOOR "B" BLOCK, Collector's Office, VELLORE

Office: 0416 – 2252025 | RES: 0416 – 2256793

Sl.No	PRIMARY HEALTH CENTRES	CODE NUMBER	TELEPHONE No.
1.	USSOOR	95416	2271407
2	KANIYAMBADI	95416	2230079
3.	PONNAI	954172	257371
4.	ODUGATHUR	954171	253501
5.	KALLAPADI	954171	251275
6.	MELPATTI	954171	243699

Annexure 8

Ambulance Services

No. of 108-EMRI Ambulance Service in Vellore District = 9 Vehicles

Sl.No.	Name of Hospital/Ambulance Service	Contact Numbers
1.	Kumaran Hospital, Pillaiyar Koil Street, Gandhi Nagar, Vellore	0416-2243630
2.	K.G.S. Ambulance Service, Virudhampattu	
3.	Babu Ambulance, Funeral Service (P) Ltd., 23/4, Arcot Road, Vellore	0416-2212378
4.	Bass & Co., Ambulance of Freezer Service, Mangalam Ganesh Nagar,	9884755590
5.	Ramakrishna Hospital Ambulance Service, Mandi Street, Vellore	0416-2225226
6.	Lakshmanan Freezer Box, 1/16, Pongalur Road, Vellore	9345301403 9345304451
7.	James & Co., Ambulance Service, 81, Arcot Road, Vellore	9843122961
8.	Perunambut Ambulance,	04171-233388
9.	Gudiyatham Ambulance,	04171-221111

Annexure 9

List of Private Hospitals and Nursing Homes in Vellore District

Sl.No	Hospital Name	Name of Taluk
1.	Babu Hospital,	Gudiyatham
2.	Bhuvan Hospital	Gudiyatham
3.	Doss Hospital	Gudiyatham
4.	J.S.Hospital	Gudiyatham
5.	Jawhar Hospital	Gudiyatham
6.	Jayam Clinic	Gudiyatham
7.	Palar Hospital	Gudiyatham
8.	Rajeshkumar Hospital	Gudiyatham
9.	Sivam Hospital	Gudiyatham
10.	Sri Hari Medical clinic	Gudiyatham
11.	Sukumar Hospital	Gudiyatham
12.	Thirunavakarasu Hospital	Gudiyatham
13.	Anand Cardiac Care Centre	Vellore
14.	Baba Hospital	Vellore
15.	CHAD Hospital	Vellore
16.	Chandran Hospital	Vellore
17.	CMC Hospital	Vellore
18.	Guru Hospitals	Vellore
19.	Indira Nursing Home	Vellore
20.	JJ Ravi Hospital	Vellore
21.	JPKM Hospital	Vellore
22.	Kumaran Hospital	Vellore
23.	Lakshmi Hospital	Vellore
24.	Low cost Effective treatment centre - IDA scudder Hospital	Vellore
25.	Mumme Hospital	Vellore
26.	Nalam Hospital	Vellore

27.	Sakthi Amma Hospital	Vellore
28.	Sandhiya Babu Hospital	Vellore
29.	Saradha Nursing Home	Vellore
30.	Shankari Hospital	Vellore
31.	ShanthiNursing Home	Vellore
32.	Shree Maternity Hospital	Vellore
33.	Sivakumar Hospital	Vellore
34.	Sree Narayni Hospital and Research Centre	Vellore
35.	Usha Nursing Home	Vellore
36.	Varshini Hospital	Vellore

Annexure 10

Health Department – List of Equipments

Sl.No	Type of the Instrument	Total No.in the inventory
1	Stretcher–Normal	35
2	Stretcher–Medical Evacuation	30
3	Incubators for children	9
4	First–aid–kits	47
5	Portable oxygen cylinders	66
6	Portable X-rays	3
7	Portable Ultrasound	23
8	Portable ECG	42
9	Portablesuction Unit	46
10	Mobil Lab service	10
11	Mobil Hospital	10
12	Mobil Medical Van	10
13	Water Filter	48

Annexure 11

List of Drugs and Disinfectants available for the management of Communicable Epidemic Diseases

1. BLEACHING POWDER
2. TAB. CHLORINE / HALOZEN
3. PHENYLE
4. O.R.S.
5. RINGER LACTATE SOLUTION (R.L.)
6. NORMAL SALINE (N.S.)
7. 5% DEXTROSE NORMAL SALINE
8. TAB. CIPROFLAXACIN 250 MG
9. CAP. DOXYCYCLINE 100 & 300 MG
10. TAB. PARACETAMOL 500 MG
11. EYE OINTMENT 1 DROPS
12. ANTISEPTIC OINTMENT / LOTION
13. CAP. TETRACYCLINE
14. TRANSFUSION SET
15. TAB. PERINORM

Director of Public Health and Preventive Medicine, Chennai

PHONE NOs : 044 – 24335075 & 044 – 24323942

Fax Nos : 044 – 24335075 , 044 – 24321569 & 044 – 24336674

E-Mail : directorph@hotmail.com&jdepidemic@hotmail.com

Annexure 12

List of Selected N.G.O's

1.	Women Organisation for Rural Development (WORD)	No.566, Phase–2, Sathuvachari, Vellore–632009 Ph:0416–2253954
2.	Organisationfor Rural Development	Murukeri Village, Ariyur Post, Vellore–55. Mobile:9443627238
3.	Anna Social Welfare Trust	2/164. Thiruvalluvar Nagar Ariyur Post, Vellore–55 0416–2210433/9095618351
4.	Matha Educational Trust	No.5, 2nd East Main Road, Gandhi Nagar, Vellore-6. Ph:0416–2241800
5.	M.K.S.Rural Educational and Community Health Economic Dev.Trust	238.Phase-1,T.N.H.B., Sathuvachari,Vellore-9 Mobile–8098224490

Annexure 13

Food Articles Storage Points

Sl.No	Agency	Location
1.	N.A.Dt.Central Co-op.Wholesale Stores Ltd., Vellore.	Vellore Gudiyattam
2.	Tamil Nadu Civil Supplies Corporation (Godowns)	Vellore Gudiyattam Tiruvalam
3.	Food Corporation of India Katpadi	Katpadi

Annexure 14

VHF Mobile units and the VHF Base Stations

Status of VHF Sets

Department	No.of Base Station	No.of Mobile Station	Status
Revenue	11	10	All VHF / HF Sets are in good condition.

Sl.No	Name of the Office	Base Unit	Mobile Unit
1.	District Collector	1	1
2.	District Revenue Officer,Vellore	---	1
3.	P.A. (General)	1	---
4.	Revenue Divisional Officer, Vellore	1	1
5.	Revenue Divisional Officer, Gudiyatham	1	1
6.	Tahsildar, Vellore.	1	1
7.	Tahsildar, Anaicut	1	1
8.	Tahsildar, Katpadi	1	1
9.	Tahsildar, K.V.Kuppam	1	1
10.	Tahsildar, Gudiyatham	1	1
11.	Tahsildar, Pernambut	1	1
12.	Mordhana Dam	1	0
Total		**11**	**10**

Annexure 15

List of Rain Guage Stations

Sl.No	Taluk	Area	Location
1.	Vellore	Vellore	Meteorological Department, Vellore Collectorate.
2.	Vellore	Vellore South (Velapadi)	Taluk Office, Vellore.
3.	Gudiyatham	Gudiyatham	Taluk Office, Gudiyatham
4.	Gudiyatham	Mordhana	Mordhana Check Dam, Mordhana
5.	Gudiyatham	Melalathur	Agriculture Office, Melalathur
6.	Katpadi	Ammundi	Vellore Co-op Sugar Mill, Ammundi
7.	Katpadi	Keeraisathu	Ponnai Anaicut Dam Keeraisathu
8.	Katpadi	Dharapadavedu	Railway Station Katpadi
9.	Anaicut	Odugathur	Forest Office, Odugathur
10.	K.V.Kuppam	Vadavirinjipuram	Agriculture Research Center, Vadavirinjipuram
11.	K.V.Kuppam	Senji	Rajathoppu Check Dam, Senji
12.	Pernambut	Sathkar	B.D.O Office, Pernambut

Annexure 16

Earthquakes – Simplified Guidelines

EARTHQUAKE SAFE CONSTRUCTION OF MASONRY BUILDINGS

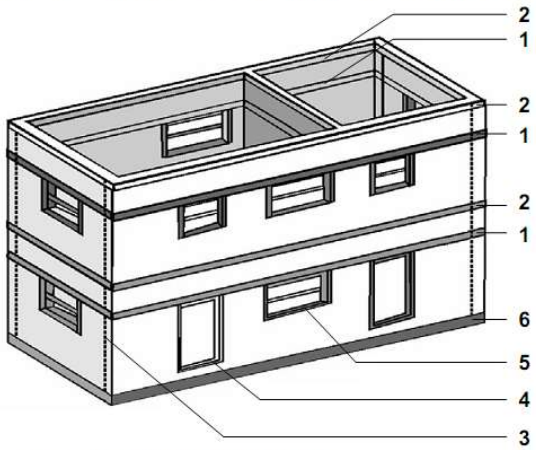
Simplified Guideline for ***All New Buildings*** in the ***Seismic Zone III*** *of India* **Zone III**

Introduction:

As usual new construction of buildings under IAY, Prime Minister Rojgar Yojana and buildings under various other National and State schemes get started in the month of May. The Ministry of Home Affairs is keen that **All New Buildings** should be made earthquake resistant in the first instant so that we do not add to the stock of existing unsafe buildings. Since most of the buildings are constructed using brickwork or, solid hollow concrete blocks with flat roofs, very simple illustrated guidance is provided in the attached brochure for incorporating the earthquake resistant features suitable for seismic zone III.

Essential Elements for Earthquake Safety[1]:

The essential elements required to make a building earthquake safe are as given in ***Figure 1.*** Some additional requirements are detailed in the following paragraphs.



1. Lintel Band
2. Roof/ Floor Band
3. Vertical reinforcing bar at corner
4. Door
5. Window
6. Plinth Band

Figure – 1: *Essential Internal Elements in Buildings for Earthquake Safety*

1. GOOD CEMENT MORTAR:

The cement mortar should be used in the ratio of 1 part of cement with 6 parts of sand (1 sack of cement mixed with 6 equal sacks of sand).

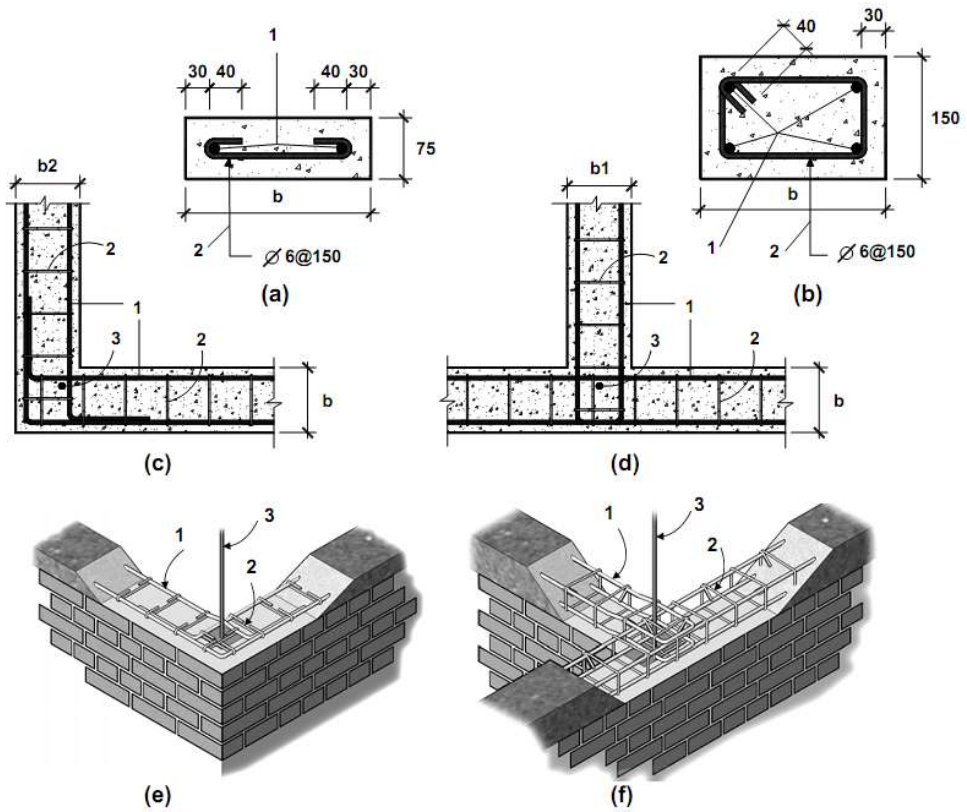
2. HORIZONTAL SEISMIC BANDS:

A seismic band consists of reinforced concrete flat runner through **all external and internal masonry walls** at the following levels in the building.

a. at the plinth level of the building
b. at the levels of lintels of doors and windows
c. at the ceiling level of roofs consisting of wooden joists or, prefabricated reinforced concrete beams or, planks. *(Such band will not be necessary if the roof consists of Reinforced Concrete or, Reinforced Brick slabs cast on the walls covering a minimum of 2/3 of the thickness of the wall.)*

The dimensions of the band and the reinforcement inside depend upon the length of the walls between the perpendicular cross walls. The table below ***(Table-1)*** shows the dimensions to be adopted for the seismic bands and the internal reinforcement details to be provided. The reinforcement and bending details of seismic bands are given in the ***Figure-2.*** Reinforcing bars will be of Fe 415 type [TOR or, High Yield Strength Deformed, i.e. HYSD bars]

[1] The details given here are extracted from **IS: 4326-1993 Code of Practice** as applicable to buildings with Brick/ Concrete block walls and R.C. flat slab roofs. Details not given here may be seen in the Code.



(a) Section of the Band with 2 longitudinal steel bars
(b) Section of the Band with 4 longitudinal steel bars
(c) Structural Plan at L- type wall junction
(d) Structural Plan at T- type wall junction
(e) 3 Dimensional view of the L - type wall junction
(f) 3 Dimensional view of the T - type wall junction

1. Longitudinal reinforcements
2. Lateral Ties
3. Vertical reinforcement at corners
b, b1, b2 Wall thickness

Figure-2: Reinforcement and Bending Details of Seismic Bands

Table-1: Recommended size and longitudinal steel in Seismic Bands (Zone III)

Internal length of wall	**Residential buildings**			**Important Public Buildings** (Schools, Hospitals, Meeting Halls, Anganwadis, etc.)		
	Size of the band	No. of Bars	Dia *(mm)*	Size of the band	No. of Bars	Dia *(mm)*
5 m or, less	10 cm x wall width	2	8	10 cm x wall width	2	8
6 m	10 cm x wall width	2	8	10 cm x wall width	2	10
7 m	15 cm x wall width	2	10	15 cm x wall width	2	12
8 m	15 cm x wall width	2	12	15 cm x wall width	4	10

3. VERTICAL REINFORCEMENT IN THE BRICK WALLS:

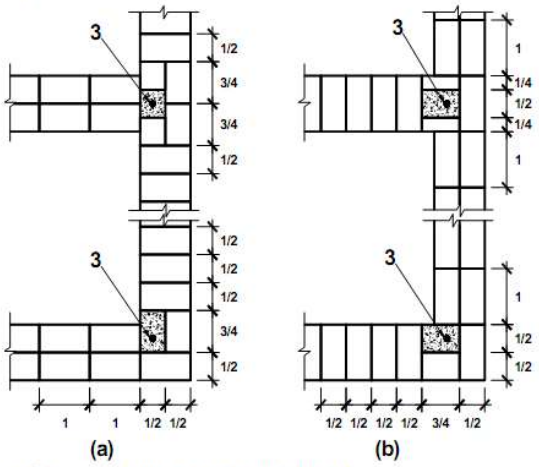
For earthquake safety in seismic zone III reinforcing bars have to be embedded in brick masonry at the corners of all the rooms and the side of the door openings. Window openings larger than 60 cm in width will also need such reinforcing bars (***Figure – 4***). The diameter of the bar depends upon the number of storeys in the building. The recommendations are given in ***Table-2***.

Providing the vertical bars in the brickwork and concrete blocks requires special techniques which could be easily learnt by the supervising engineers and masons will need to be trained.

These vertical bars have to be started from the foundation concrete, will pass through all seismic bands where they will be tied to the band reinforcements using binding wire and embedded to the ceiling band/roof slab as the case may be using a 300 mm 90° bend. Sometimes the vertical bars will not be made in one full length. In that case the extension of the vertical reinforcement bars are required, an overlap of minimum of ***50 times*** *the bar diameter* should be provided. The two overlapped reinforcement bars should be tied together by using the binding wires.

Table-2: Recommended size of vertical steel in Seismic Bands (Zone III)

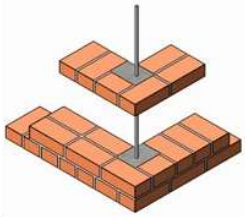
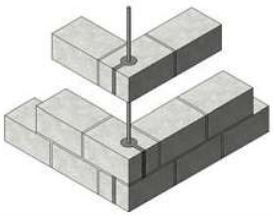
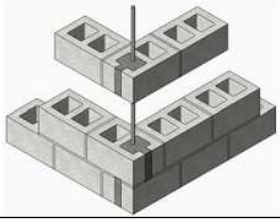
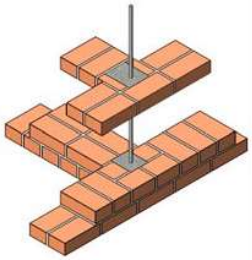
No. of storeys	Floor	**Residential buildings ***	**Important Public Buildings *** (Schools, Hospitals, Meeting Halls, Anganwadis, etc.)
		Dia of Single HYSD (TOR) Bar at corners of room (mm)	Dia of Single HYSD(TOR) Bar at corners of room (mm)
One	-	-	10
Two	Top	-	10
	Bottom	-	12
Three	Top	10	10
	Middle	12	12
	Bottom	12	12
Four	Top	10	10
	Third	10	12
	Second	12	16
	Bottom	12	20



a & b : Alternate courses in one brick wall
1 : One brick length
½ : Half brick length
¼ : Quarter of a brick length
¾ : Three quarters of a brick length
3 : Vertical reinforcement bars with Concrete/ mortar filling in pocket of M20 grade (1:1½:3 nominal mix)

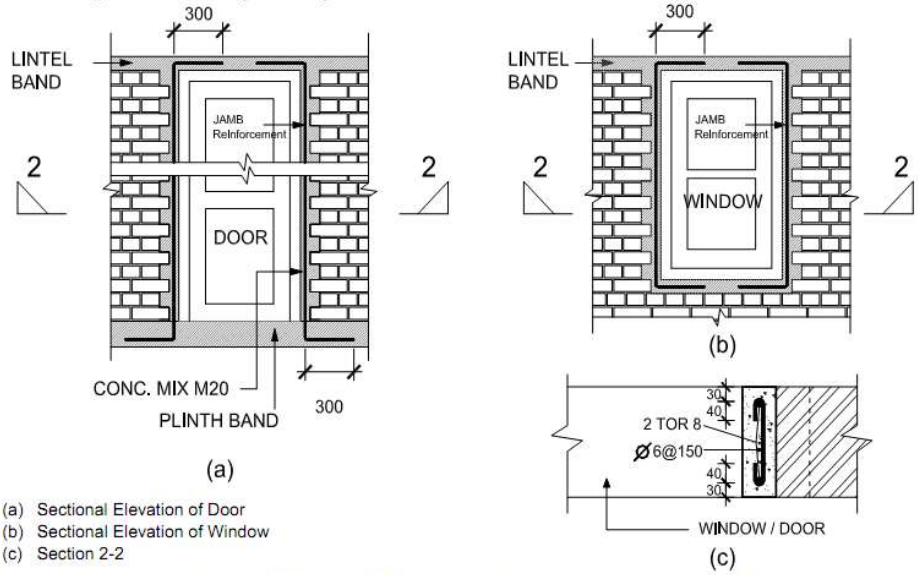
Figure-3: Typical Details of Providing Vertical Steel Bars in Brick Masonry

Table-3: Recommended joint details with the vertical reinforcement at corner for masonry walls using different kind of materials

Type of *Joint*	Corner reinforcement in case of *Brick Masonry*	Corner reinforcement in case of *Solid Concrete Block Masonry*	Corner reinforcement in case of *Hollow Concrete Block Masonry* (see the hole and slit made)
L- Joint			
T- Joint			

4. VERTICAL REINFORCEMENT AT JAMBS OF OPENINGS:

All door and window openings wider than 600 mm will have vertical reinforcement in jambs as shown in ***Figure-4*** where required as per Table-2.



(a) Sectional Elevation of Door
(b) Sectional Elevation of Window
(c) Section 2-2

Figure-4: ***Typical Details of Providing Vertical Steel Bars around doors/windows***

5. FOUNDATION

Foundation width 'B' should be decided by the load coming on the foundation and the bearing capacity. Masonry width may be reduced by ½ times T in every step of 150 mm height.

NOTE:
In sandy soils with high water table within 5 m depth below ground level, which may get liquefied during earthquake of MSK intensity VII, pile foundation need to be used in consultation with the Structural/ Geotechnical Engineer.

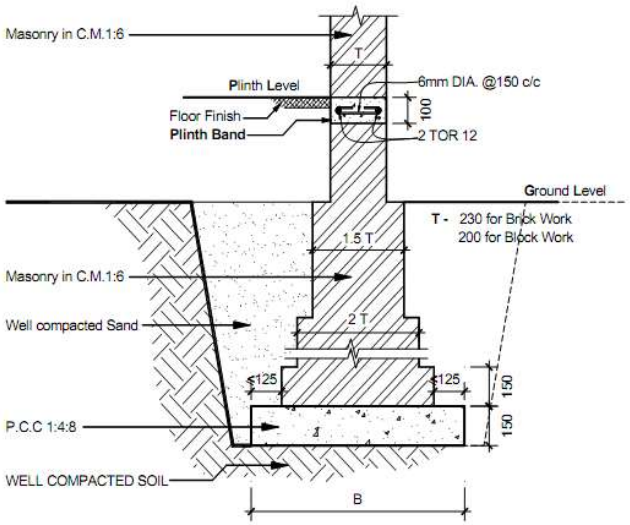


Figure-5: ***Foundation Detail with Plinth Band in Brick or, Concrete Block Masonry***

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Prepared under the **GoI – UNDP Disaster Risk Management Programme**

Annexure 17
Earthquakes – Dos and Don'ts

What to Do Before an Earthquake

- Repair deep plaster cracks in ceilings and foundations. Get expert advice if there are signs of structural defects.
- Anchor overhead lighting fixtures to the ceiling.
- Follow BIS codes relevant to your area for building standards
- Fasten shelves securely to walls.
- Place large or heavy objects on lower shelves.
- Store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches.
- Hang heavy items such as pictures and mirrors away from beds, settees, and anywhere that people sit.
- Brace overhead light and fan fixtures.
- Repair defective electrical wiring and leaky gas connections. These are potential fire risks.
- Secure water heaters, LPG cylinders etc., by strapping them to the walls or bolting to the floor.
- Store weed killers, pesticides, and flammable products securely in closed cabinets with latches and on bottom shelves.
- Identify safe places indoors and outdoors.
    - Under strong dining table, bed
    - Against an inside wall
    - Away from where glass could shatter around windows, mirrors, pictures, or where heavy bookcases or other heavy furniture could fall over
    - In the open, away from buildings, trees, telephone and electrical lines, flyovers and bridges

- Know emergency telephone numbers (such as those of doctors, hospitals, the police, etc)

- Educate yourself and family members
- Awareness Generation Resources for Earthquake Disaster Management
- Disaster(Earthquake) Resistant Construction Practice
- Techno Legal Regime for Safe Construction Practice (Model Amendment in Town & Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety)
- Past Programmes/Projects, Resource Materials on Earthquake Risk Management.

Have a disaster emergency kit ready

- Battery operated torch with extra batteries
- Battery operated radio
- First aid kit and manual
- Emergency food (dry items) and water (packed and sealed)
- Candles and matches in a waterproof container
- Knife
- Chlorine tablets or powdered water purifiers
- Can opener.
- Essential medicines
- Cash and credit cards
- Thick ropes and cords
- Sturdy shoes

Develop an emergency communication plan

- In case family members are separated from one another during an earthquake (a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

- Ask an out-of-state relative or friend to serve as the 'family contact' after the disaster; it is often easier to call long distance. Make sure everyone in the family knows the name, address, and phone number of the contact person.

Help your community get ready

- Publish a special section in your local newspaper with emergency information on earthquakes. Localize the information by printing the phone numbers of local emergency services offices and hospitals.
- Conduct week-long series on locating hazards in the home.
- Work with local emergency services and officials to prepare special reports for people with mobility impairment on what to do during an earthquake.
- Provide tips on conducting earthquake drills in the home.
- Interview representatives of the gas, electric, and water companies about shutting off utilities.
- Work together in your community to apply your knowledge to building codes, retrofitting programmes, hazard hunts, and neighborhood and family emergency plans.

What to Do During an Earthquake

Stay as safe as possible during an earthquake. Be aware that some earthquakes are actually foreshocks and a larger earthquake might occur. Minimize your movements to a few steps that reach a nearby safe place and stay indoors until the shaking has stopped and you are sure exiting is safe.

If indoors

- DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture; and HOLD ON until the shaking stops. If there is no a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
- Protect yourself by staying under the lintel of an inner door, in the corner of a room, under a table or even under a bed.
- Stay away from glass, windows, outside doors and walls, and anything that could fall, (such as lighting fixtures or furniture).

- Stay in bed if you are there when the earthquake strikes. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.
- Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load bearing doorway.
- Stay inside until the shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.
- Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.

If outdoors

- Do not move from where you are. However, move away from buildings, trees, streetlights, and utility wires.
- If you are in open space, stay there until the shaking stops. The greatest danger exists directly outside buildings; at exits; and alongside exterior walls. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects

If in a moving vehicle

- Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

If trapped under debris

- Do not light a match.
- Do not move about or kick up dust.
- Cover your mouth with a handkerchief or clothing.
- Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

Annexure 18
Floods – Dos and Don'ts

What to do before a flood

To prepare for a flood, you should:

- Avoid building in flood prone areas unless you elevate and reinforce your home.
- Elevate the furnace, water heater, and electric panel if susceptible to flooding.
- Install "Check Valves" in sewer traps to prevent floodwater from backing up into the drains of your home.
- Contact community officials to find out if they are planning to construct barriers (levees, beams and floodwalls) to stop floodwater from entering the homes in your area.
- Seal the walls in your basement with waterproofing compounds to avoid seepage.

If a flood is likely to hit your area, you should:

- Listen to the radio or television for information.
- Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.
- Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.

If you must prepare to evacuate, you should:

- Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.

- Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.

If you have to leave your home, remember these evacuation tips:

- Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
- Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and the vehicle can be quickly swept away.

Annexure 19

Cyclones – Dos and Don'ts

Before the Cyclone season:

- Check the house; secure loose tiles and carry out repairs of doors and windows
- Remove dead branches or dying trees close to the house; anchor removable objects such as lumber piles, loose tin sheets, loose bricks, garbage cans, sign-boards etc. which can fly in strong winds
- Keep some wooden boards ready so that glass windows can be boarded if needed
- Keep a hurricane lantern filled with kerosene, battery operated torches and enough dry cells
- Demolish condemned buildings
- Keep some extra batteries for transistors
- Keep some dry non-perishable food always ready for use in emergency

Necessary actions

The actions that need to be taken in the event of a cyclone threat can broadly be divided into:

- Immediately before the cyclone season
- When cyclone alerts and warnings are communicated
- When evacuations are advised
- When the cyclone has crossed the coast

When the Cyclone starts

- Listen to the radio (All India Radio stations give weather warnings).
- Keep monitoring the warnings. This will help you prepare for a cyclone emergency.

- Pass the information to others.
- Ignore rumours and do not spread them; this will help to avoid panic situations.
- Believe in the official information
- When a cyclone alert is on for your area continue normal working but stay alert to the radio warnings.
- Stay alert for the next 24 hours as a cyclone alert means that the danger is within 24 hours.

When your area is under cyclone warning get away from low-lying beaches or other low-lying areas close to the coast

- Leave early before your way to high ground or shelter gets flooded
- Do not delay and run the risk of being marooned
- If your house is securely built on high ground take shelter in the safe part of the house. However, if asked to evacuate do not hesitate to leave the place.
- Board up glass windows or put storm shutters in place.
- Provide strong suitable support for outside doors.
- If you do not have wooden boards handy, paste paper strips on glasses to prevent splinters. However, this may not avoid breaking windows.
- Get extra food, which can be eaten without cooking. Store extra drinking water in suitably covered vessels.
- If you have to evacuate the house move your valuable articles to upper floors to minimize flood damage.
- Ensure that your hurricane lantern, torches or other emergency lights are in working condition and keep them handy.
- Small and loose things, which can fly in strong winds, should be stored safely in a room.
- Be sure that a window and door can be opened only on the side opposite to the one facing the wind.
- Make provision for children and adults requiring special diet.

- If the centre of the cyclone is passing directly over your house there will be a lull in the wind and rain lasting for half an hour or so. During this time do not go out; because immediately after that, very strong winds will blow from the opposite direction.
- Switch off the electrical mains in your house.
- Remain calm.

When Evacuation is instructed

- Pack essentials for yourself and your family to last a few days. These should include medicines, special food for babies and children or elders.
- Head for the proper shelter or evacuation points indicated for your area.
- Do not worry about your property
- At the shelter follow instructions of the person in charge.
- Remain in the shelter until you are informed to leave

Post-cyclone measures

- You should remain in the shelter until informed that you can return to your home.
- You must get inoculated against diseases immediately.
- Strictly avoid any loose and dangling wires from lamp posts.
- If you have to drive, do drive carefully.
- Clear debris from your premises immediately.
- Report the correct losses to appropriate authorities.

Annexure 20

Heat Waves – Dos and Don'ts

Heat Wave conditions can result in physiological strain, which could even result in death.

To minimise the impact during the heat wave and to prevent serious ailment or death because of heat stroke, you can take the following measures:

- Avoid going out in the sun, especially between 12.00 noon and 3.00 p.m.
- Drink sufficient water and as often as possible, even if not thirsty
- Wear lightweight, light-coloured, loose, and porous cotton clothes. Use protective goggles, umbrella/hat, shoes or chappals while going out in sun.
- Avoid strenuous activities when the outside temperature is high. Avoid working outside between 12 noon and 3 p.m.
- While travelling, carry water with you.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.
- Avoid high-protein food and do not eat stale food.
- If you work outside, use a hat or an umbrella and also use a damp cloth on your head, neck, face and limbs
- Do not leave children or pets in parked vehicles
- If you feel faint or ill, see a doctor immediately.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. which helps to re-hydrate the body.
- Keep animals in shade and give them plenty of water to drink.
- Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- Use fans, damp clothing and take bath in cold water frequently.

Tips for treatment of a person affected by sunstroke:

- Lay the person in a cool place, under a shade. Wipe her/him with a wet cloth/wash the body frequently. Pour normal temperature water on the head. The main thing is to bring down the body temperature.
- Give the person ORS to drink or lemon sarbat/torani or whatever is useful to rehydrate the body.
- Take the person immediately to the nearest health centre. The patient needs immediate hospitalisation, as heat strokes could be fatal.

Acclimatisation

People at risk are those who have come from a cooler climate to a hot climate. You may have such a person(s) visiting your family during the heat wave season. They should not move about in open field for a period of one week till the body is acclimatized to heat and should drink plenty of water. Acclimatization is achieved by gradual exposure to the hot environment during heat wave.

Annexure 21

Forest Fires - Do's and Don'ts

Code of Conduct

- Take strict precautions to guard against forest fires caused through carelessness.
- Avoid any form of pollution within the sanctuary whether of air, soil or water including the flora and fauna.
- Keep a reasonable distance from all animals. Stay at a safe distance especially from an elephant. Disturbed animals may be provoked to attack.
- Do not go near a nest. An alarmed bird can damage the eggs to be hatched
- Do not get out of the vehicle while watching wildlife.
- Treat the sanctuary with respect. It is the sanctum sanctorum of nature. If you are in a vehicle, bear in mind that the wild animals have the right of way in the sanctuary. Transistors, tape-recorders and loud conversations are taboo in the sanctuary.
- Dress in colors that blend with the forest. Khaki, brown or olive green will be just right.
- Make full use of local guides and tribals. They are likely to be illiterate, but, that only means they have had more time for learning about the jungle and the creatures and plants therein.
- Although shooting with a rifle is prohibited, "shooting" with a camera is fully encouraged
- Make checklists of creatures observed on a trip. Make your own simple notes which you can easily compare from trip.
- Make the most of your trip. Learn a little more of the world you are part of.
- Use of horns, fast driving, smoking in summer, campfires, harassing of animals and consumption of alcohol is prohibited.
- Firearms and pets are strictly forbidden.

Do's

- Check timings of entries with local staff and stick to schedule. Any entry otherwise timings is treated as trespass in protected areas and may invite action.
- Keep various important related literatures and other articles, like information booklet of the area, identification book(s) of birds and animals, camera and binoculars etc. with you.
- Drive vehicles at slow speed.
- Use dustbins.
- Observe the instructions of Forest Officials and those contained in the information booklet supplied to you.
- The prior briefing and interaction with local staff makes your visit and stay more enjoyable and informative.
- When out to observe wild life, as a rule Khaki or olive-green or brown clothing would be suitable. White or bright colors are too conspicuous and tend to scare animals. Long trousers are usually worn.
- Comfortable walking shoes such as sport shoes are advisable.
- Always carry back your left-over.
- Move with registered guide
- Use biodegradable material
- Book in advance for accommodation in forest rest houses to avoid disappointment

Don'ts

- Smoking and igniting fire is prohibited in National Parks and sanctuaries and not desirable in other forest area.
- Use of poly-bags are not desirable in forest area.
- Blowing of horns and playing transistors, without ear phones and excessive noises disturb and scare away wildlife.
- Getting out of the vehicle will endanger your life as well as disturb animals.
- Do not spoil the serene and environmentally sacred National Parks, sanctuaries and other forests by throwing and littering the area with garbage.
- Avoid littering on forest floor
- Avoid teasing of wild animals
- Avoid use of perfumes or strong smelling chemical
- Do not carry arms
- Do not indulge in immoral activities
- Do not wear clothes with vibrant colors

Plan developed on	: July 2024
Next review and updation due in	: March 2025
Database updation schedule (every six month)	: Every April and October month
Mock drill schedule	: May month of every year (pre-monsoon)