DISTRICT DISASTER MANAGEMENT PLAN 2024

TIRUNELVELI DISTRICT

மாவட்ட பேரிடர் மேலாண்மை ஆணையம்
திருநெல்வேலி மாவட்டம்

DISTRICT DISASTER MANAGEMENT AUTHORITY,
TIRUNELVELI DISTRICT

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List of Abbreviation

AERB	Atomic Energy Regulatory Board
AGSS	Aerial Gamma SpectrometrySystem
ALARA	As Low As Reasonably Achievable
ATI	Administrative Training Institute
BARC	Bhabha Atomic ResearchCentre
CBDM	Community Based Disaste r Management
CBO	Community BasedOrganization
CBRN	Chemical, Biological, Radiological andNuclear
CME	College of MilitaryEngineering
CMG	Crisis Management Group
CPMF	Central Para Military Force
DAE	Department of AtomicEnergy
DBA	Design BasisAccident
DDMA	District Disaster Management Authority
DM	DisasterManagement
DMA	Disaster Management Authority
DoS	Department ofSpace
DRDE	Defence Research and DevelopmentEstablishment
DRDO	Defence Research and Development Organization
DST	Department of Science and Technology
ECC	Emergency CommandCentre
EMP	Electro-MagneticPulse
EOC	Emergency OperationsCentre
ERC	Emergency ResponseCentre
ERMNA	Environmental Radiation Monitor with Navigational Aid
ERT	Emergency ResponseTeam
GIS	Geographic Information System
IAEA	International Atomic EnergyAgency
ICRP	International Commission on Radiological Protection
IERMON	Indian Environmental Radiation Monitoring Network
IMD	India MeteorologicalDepartment
IND	Improvised NuclearDevice
IRODOS	Indian Real-time On-line Decision SupportSystem
MFR	Medical FirstResponder
MGSS	Mobile Gamma Spectrometry System

MoD	Ministry ofDefence
MHA	Ministry of HomeAffairs
MHRD	Ministry of Human ResourceDevelopment
MoH&FW	Ministry of Health and Family Welfare
NCC	National Cadet Corps
NCMC	National Crisis Management Committee
NDCN	National Disaster Communication Network
NDMA	National Disaster ManagementAuthority
NDMG-NRE	National Disaster Management Guidelines: Management of Nuclear and Radiological Emergencies
NDRF	National Disaster Response Force +
NEC	National Executive Committee
NGO	Non-Governmental Organization
NIDM	National Institute of Disaster Management
NPCIL	Nuclear Power Corporation of India Ltd
NPP	Nuclear Power Plant
NREMP	National Radiation Emergency Management Plan
NRSA	National Remote Sensing Agency
NSS	National Service Scheme
NTRO	National Technical Research Organization
NYKS	Nehru Yuva Kendra Sangathan
OBE	Operating Basis Earthquake
POL	Petroleum, Oil and Lubricants
PPG	Personal Protective Gear
PPRRE	Planning Preparedness for Response to Radiological Emergencies
QRMT	Quick Reaction Medical Team
QRT	Quick Reaction Team
RAD	Radiation Absorbed Dose
R&D	Research and Development
RDD	Radiological Dispersal Device
RED	Radiation Exposure Device
REM	Roentgen Equivalent Man
RITC	Radiation Injuries Treatment Centre
RM	Risk Management
RSO	Radiological Safety Officer
SCBA	Self-Contained Breathing Apparatus
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force

SEC	State Executive Committee
SOP	Standard Operating Procedure
TOT	Training of the Trainers TREMCARD Transport Emergency Card UT Union Territory
WMD	Weapons of Mass Destruction

DISTRICT DISASTER MANAGEMENT PLAN TIRUNELVELI

CHAPTER-1

INTRODUCTION

Tirunelveli District is situated in the South of Tamil Nadu State. It is bounded on the north and east by Thoothukudi District on the west by Tenkasi District and south by Kanniyakumari District. Tirunelveli District was formed in the year 1790 by the East India Company, later came under the direct control of the British Crown. The name Tirunelveli has been composed from the three Tamil words i.e. "Thiru – Nel – Veli" meaning Sacred Paddy Hedge. With effect from 20.10.1986 the District was bifurcated and new Tuticorin District was formed.

Tirunelveli District is more prone to flood during the raining seasons. Some of the common disasters like Road accident and fire accident could be listed as regular and increased number of fire hazards, seasonal flood situation and explosion of LPG cylinders cause multi injury, death and loss of property, odd cases of riots and violence. Large number of migrations from villages, creating colonies in the city leads to drinking water problems. The ground water level sometimes goes very deep Theseare alarming issues, which calls attention of the district administration and disaster managers.

2.2 Geographical data:

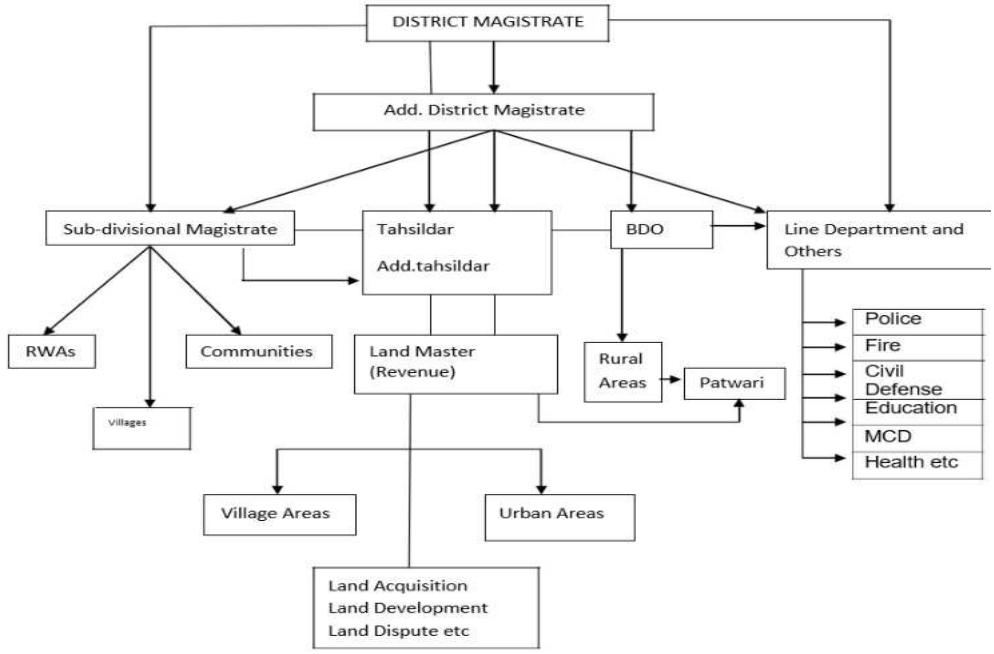
Tirunelveli District has geographical area of 3865.45sq.kms, in the Southeastern portion of Tamil Nadu and is triangular in shape. It lies between 8°.05" and 9°.30" of the Northern latitude and 77°.05" and 78°.25" of Eastern longitude.

2.3 Topography:

The district is located in the southern part of Tamil Nadu and surrounded by Tuticorin District on the north, Tenkasi District on the West, Kanniyakumari District on the south, Tuticorin District on the East. The lifeline of the district is Tamiraparani river which feeds the district and quenches the thirst of residents of Tuticorin.

2.4 Administrative Setup:

- There are 2 Revenue Divisions comprising of 8 Taluks, 30 Firkas 370 Revenue Villages.
- There are 9 rural Blocks and 204 Village Panchayats. There are 17 Town Panchayats, 3 Municipalities and one Municipal Corporation.
- There are 2 Police districts with 7 Police Divisions and 50 Police stations.



2.5 Demographic Details:

The population of this District is 17,93,715 as per 2021 census. The Density of Population per sq.km is 455 persons as per 2021 census. Tirunelveli and Ambasamudram in the most densely populated Taluks in the District as per 2021 census. The Sex ratio is 1024 females for every 1000 males in the District as per 2021 census. The Literacy rate is 85.90% in the District as per 2021 census.

Population	As per 1991 Census	As per 2001 Census	As per 2011 Census	Projected As per 2021 (after Tenkasi bifurcation)
Total	**24,93,189**	**28,01,194**	**30,72,880**	**17,93,715**
Male	**12,24,319**	**13,72,082**	**15,18,595**	**8,78,920**
Female	**12,68,870**	**14,29,112**	**15,54,285**	**9,14,795**

2.6 Occupation:

Agriculture plays a vital role in the District's economy. The total cropped area was 1,80,925 hectares, which worked out 26.77% of the total area of 6,75,850 hectares. The important food crops are Paddy, Cholam, Ragi, Cumbu, Maize and other minor millets. The commercial crops are Cotton, Chillies, Sugarcane and Groundnut. Of the total cultivated area of 1,55,658 hectares in the district, 25,207 hectares were sown more than once.

2.7 Climate:

The rainfall occurs mostly in the months of October, November and December. During the period from October to January the climate remains

relatively cooler. From February, the early summer sets in and the months of April, May, June, July and August are hot months.

2.8 Irrigation:

The District is blessed with the western ghats from which all the perennial rivers flow and drain towards the east. The surface water of the District is drained into major river basin viz Thamiraparani, Nambiar and Thamiraparani is the major river basin in the District. The other Streams which are seasonal in nature are Servallar, Manimuthar, Ramanathi, Pachayar and Uppodai rivers which drain into the Tamiraparani basin. The source of irrigation is Canal, Tank and Well, which covers 1,41,152 hectares. Among the total area irrigated, well irrigation covers 54,989 hectares, Tanks 57,731 hectares and Canal 28,432 hectares.

2.9 Industries:

There are 16 medium and major industries such as Cement, Cotton yarn, Sugar, Cotton seed oil, Printing papers and flour Mill etc. Among the other industries in the District Pin, Clip, Matches, Beedi, Vessels making and Engineering industries are important. The important Village industries functioning in the district are Handloom, Poultry farming, Brick making, Jaggary production. The Handloom products Lungi, Sarees etc are marketed in north India. Also, the fine Korai mats from Pathamadi have world fame. KallidaikurichiPappads, Karukurichi mud pots, and Tirunelveli "Halva" are specialities which have earned many laurels to the District.

1. India cements Ltd
2. TP Solar Ltd
3. Bosch Ltd
4. Sundaram Textiles Ltd
5. Syed cotton Mills
6. ATC Tires Pvt Ltd
7. Nova Carbons Pvt Ltd
8. Ramco Industries Ltd
9. South India Bottling Co Pvt Ltd
10. Varun Beverages Ltd
11. Renaatus Procon Pvt Ltd
12. Indian Oil Corporation - Bottling Plant
13. Britannia Industries Ltd
14. Madura Coats Ltd
15. Subam papers Pvt Ltd
16. Seshasayee papers and Boards Ltd

2.10 Rivers in Tirunelveli District:

1. Tamiraparani 2. Nambiaru 3. Vadakkupachayaru 4 Kodumudiyaru

2.11 Dams in Tirunelveli District:

1. Papanasam	2. Servalar	3.Manimuthar
4. Vadakkupachayar	3. Nambiaru	4. Kodumudiyaru

2.12 Religious Significance:

The Nellaiappar Ganthimathiammal temple at Tirunelveli, Papanasam Sivan Temple at Papanasam and Vanamamalai Temple at Nanguneri are the land marks of the District signifying the Hindu Culture. Palayamkottai has many

Christian missions and Athankaraipallivasal has been considered to be important sacred places for Muslims.

1. Tirunelveli Arulmigu Gandhimathi Nellaiappar Temple
2. Krishnapuram Ancient Sculpture
3. Thirukurunkudi Arulmigu Nambi Temple
4. Nanguneri Arulmigu Vanumanalai Temple
5. Parathar Uvari Kappal Matha Temple
6. Nadar Uvari Arulmigu Syambulingasamy Temple
7. Athankarai Pallivasal Dharga
8. Papanasam Arulmigu Sivan Temple
9. Cathedral Church
10. Sorimuthu Iyanar Temple, Karaiyar

2.13 Health Infrastructure:

There is one Medical College Hospital at Tirunelveli, 12 Government Hospitals, 69 Primary Health Centres, 383 Health Sub Centres and 22 P.U. Dispensaries.

Private tertiary care hospitals and private secondary care hospitals

The qualities of Health Centres are reasonably good in this district and the general health awareness has improved a lot.

2.14 Transport:

The District is adequately served by a well laid network of roads and railways. All the taluks are connected with State Highways. The village roads are maintained by Panchayat Unions.

2.14.1 Railways:

Tirunelveli Railway Junction is the major railway junction in the District.

The railway lines of Tirunelveli fall under Madurai Division and Trivandrum Division of Southern Railways.

2.14.2 Helipad Locations in Tirunelveli District

Helipads are available at 8 locations in Tirunelveli District						
Sl. No.	**Name of Taluk**	**Name of the Revenue Village**	**Name of the Location**	**Details of the contact person & contact no of the helipad promise**	**Latitude of the helipad**	**Longitude of the helipad**
1	Tirunelveli	RAMAYANPATTI	M S UNIVERSITY	REGISTER , MANNONMANIYAM SUNDARANAR UNIVERSITY, TIRUNELVELI-12 - 9487901000	8.76516	77.65131
2	Palayamkottai	Palayamkottai I	FX Engineering College	Principal, FX Engineering College, 105/G2, Bypass Road, Vannarpettai,-627003 Ph-0462 2501007	8.732307	77.724532
3	Palayamkottai	Palayamchettikulam	St.John's Higher Secondary School	Head Master, No 5, St Mark Street, Palayamkottai, Ph-0462 2580744	8.723482	77.747115
4	Palayamkottai	Kulavanigarpuram	AR Lines	Commissioner, Plot No.23, Ar Line, Palayamkottai, Ph-0462 2583169	8.713606	77.739563
5	Ambasamudram	Adaiyakarunkulam	Cambridge Matriculation School Play Ground	Headmaster, Cambridge Matriculation School, Contact No: 9944875252	8.708247	77.422127
6	Nanguneri	Ervadi - II	Ervadi TVS Farm S.No:401	Thiru.S.Baskar, TVS Farm Manager 944566752	8.415608	77.60198
7	Radhapuram	Kudankulam	Kudankulam Nuclear Power Plant	Site Director-PA, Nuclear Power Corporation Of India Koodankulam. Cell No. 9442583110	8.17861	77.70354
8	Tisaiyanvilai	Vijayanarayanam part-4	INS kattabomman	Lt cdr S Azim	8.24414	77.44254

Helipads - Photos

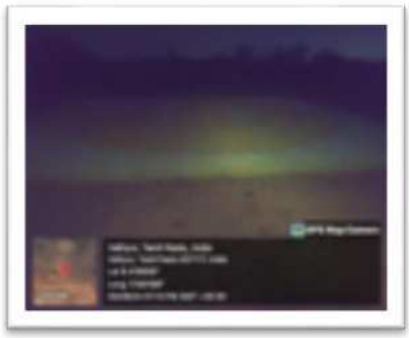
1. M.S University, Abishegapatti

2. FX Engg College, Vannarpettai

3. St. John’s Hr Sec School, Palaymkottai

4. A.R Line, Palayamkottai

5. Cambridge Mat School, Agasthiyarpatti



6. TVS Farm, Ervadi

7. KKNPP, Koodankulam

8. INS Kattabomman, Vijayanarayanam

Objectives of the District Disaster Management Plan:

As per section 31 of DM ACT, 2005, it is mandatory for every district to prepare District Disaster Management Plan. The objectives of Disaster Management Plan as per the act are as under: -

1. To identify areas vulnerable to different forms of disasters in the district.
2. Measures to be taken, for prevention and mitigation of disaster, by the Departments of the Government at the district level and local authorities in the district;
3. The capacity-building and preparedness measures required to be taken by the Departments of the Government at the district level and the local authorities in the district to respond to any threatening disaster situation or disaster;
4. The response plans and procedures, in the event of a disaster, providing for –
   (a) Allocation of responsibilities to the Departments of the Government at the district level and the local authorities in the district
   (b) Prompt response to disaster and relief there of
   (c) Procurement of essential resources
   (d) Establishment of communication links and
   (e) The dissemination of information to the public.

The district authority shall review and update the district plan annually. Apart form the above mentioned objectives the district plan has the following sectoral objectives as well: -

1. Institutionalization of disaster management in district administration.
2. Encouraging a culture of disaster preparedness in the district.
3. Vulnerability reduction and disaster mitigation through better planning process.
4. Creation of the best Government mechanism to handle any unprecedented events.
5. Instant response and effective decision making in disasters.
6. Better coordination of relief and rehabilitation aftermath of a disaster.
7. Better coordination of all line departments in disaster management.
8. Encouraging and empowering the local community to own disaster management.
9. Regular update of resources available in and around the district.

CHAPTER-3
RISK GOVERNANCE – INSTITUTIONAL FRAMEWORK FOR DISASTER MANAGEMENT

3.1 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. 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.

3.2 Ministry of Home Affairs – Govt of India

The overall coordination of disaster management vests with the Ministry of Home Affairs (MHA). The Cabinet Committee on Security (CCS) and the National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with regard to disaster management.

3.3 National Disaster Management Authority (NDMA)

The Government of India established the NDMA in 2005, headed by the Hon'ble Prime Minister. Under the DM Act 2005, the NDMA, an apex body for disaster management, is having the responsibility for laying down the policies, plans, and guidelines for disaster management for ensuring timely and effective response to disaster.

3.4 State Level

The DM Act, 2005 envisages specific roles to be played by the State in disaster management.

The Institutional Mechanism at the State and District level is furnished below: -

3.5 Tamil Nadu State Disaster Management Authority

Tamil Nadu State Disaster Management Authority, has been constituted under the chairmanship of the Hon'ble Chief Minister with the following members:

1. Hon'ble Minister for Revenue and Disaster Management
2. Chief Secretary to Government, Ex-Officio
3. Secretary, Revenue and Disaster Management Department
4. Secretary, Finance Department
5. Secretary, Home Department
6. Secretary, Higher Education

7. Secretary, School Education
8. Additional Chief Secretary / Commissioner of Revenue Administration and State Relief Commissioner.
9. Director, Centre for Disaster Management & Mitigation, Anna University, Chennai.
10. Head of Department of Civil Engineering, Indian Institute of Technology, Madras.

Tamil Nadu State Disaster Management Authority provides guidance for policy formulation, approval of state disaster management plan and monitoring implementation of disaster risk reduction measures.

3.6 State Relief Commissioner

The Commissioner of Revenue Administration is the State Relief Commissioner and implements the tasks assigned by the TNSDM Authority and State Executive Committee relating to the different phases of Disaster Management. The CRA / State Relief Commissioner plays a pivotal role and is responsible for preparedness, capacity building, relief and rehabilitation measures, formulation of policies relating to disaster management in the State. To assist the Commissioner for Revenue Administration, a special purpose vehicle "Tamil Nadu Disaster Risk Reduction Agency (TNDRRA)" has been created and registered under Tamil Nadu Societies Registration Act.

3.7 Incident Response System

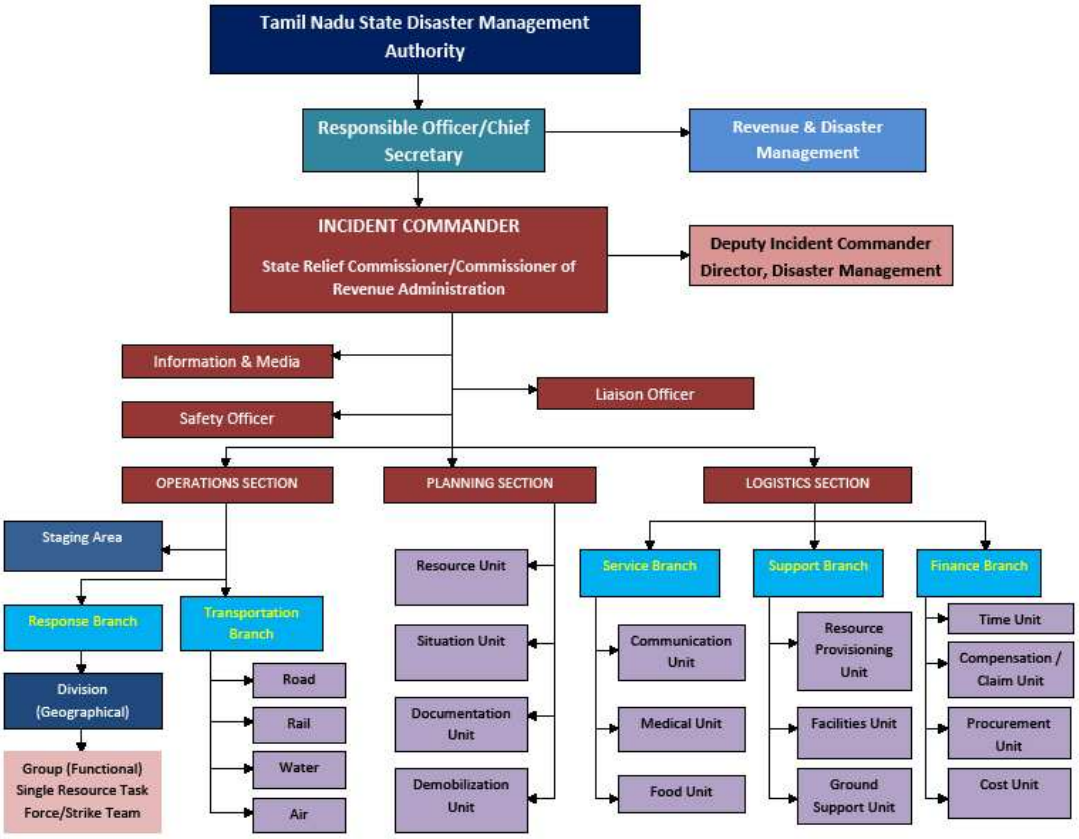
The Government of Tamil Nadu is adopting Incident Response System (IRS) in the State to ensure the unification of efforts of all the stakeholders to ensure immediate response during disasters to protect people & their properties. The Incident Response System provides a systematic, proactive approach guiding the concerned departments and agencies at all levels of Government, the private sector and non- governmental organizations to work seamlessly in disaster situations.

Incident Response Systems (IRS) teams have been formed in all districts of Tamil Nadu. The National Institute of Disaster Management (NIDM) is training the team of officers on the various modules of IRS. They will be used as Master Trainers to train the other officials in the State and District.

The Incident Response System functions under the overall supervision of the Tamil Nadu State Disaster Management Authority. The Chief Secretary to Government is the Responsible Officer and the Additional Chief Secretary / Commissioner of Revenue Administration and State Relief Commissioner is the Incident Commander. The District Collector is the Incident Commander at District level. The Incident Commander is assisted by the Commissioner of Disaster Management who is the Deputy Incident Commander at

State level. The Operations, Planning and Logistic section assist the Incident Commander in carrying out various measures during disaster.

Incident Response System Organization Chart



3.8 Tamil Nadu Disaster Risk Reduction Agency (TNDRRA)

Tamil Nadu Disaster Risk Reduction Agency registered under Societies Act (1975) is the Executive Agency of the Tamil Nadu State Disaster Management Authority. Hon'ble Minister for Revenue and Disaster Management is the chairman of the Governing Council. The Commissioner of Revenue Administration/ State Relief Commissioner is the Chairman of the Executive Council of the Agency and the Director, Disaster Management acts as the Chief Executive Officer / Member Secretary. All the State / Centrally Sponsored / Externally aided projects implemented by the State for Disaster Risk Reduction such as Mitigation, Restoration, Reconstruction and Rehabilitation are coordinated by the Tamil Nadu Disaster Risk Reduction Agency.

3.9 District Disaster Management Authority (DDMA)

The District Disaster Management Authorities have been constituted as per the provisions of the Disaster Management Act, 2005 under the Chairmanship of District Collectors. The District Disaster Management Authority acts as the District Planning, coordinating and implementing body for disaster risk reduction and takes all measures in accordance with the guidelines laid down by the National and the State Disaster Management Authority. The District Revenue Officer is the CED of DDMA.

3.10 District Emergency Operation Centre (DEOC)

DEOC is functioning under the supervision of the District Collector. DEOC acts as a communication centre at the district level for carrying out all operations during disaster such as evacuation, search and rescue, relief and restoration operations at Taluk and Village level based on the forecast / alerts received from SEOC and disseminates the information to the General Public. 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 search, rescue, relief and rehabilitation operations from various quarters and updates the same to Commissioner of Revenue Administration and State Relief Commissioner. This centre is accessed by the public by calling tollfree No.1077.

3.11 Inter Departmental Zonal Teams for Group of Vulnerable Areas

Inter departmental Zonal Teams are formed under the leadership of Revenue Officials at Taluk Level. The team members are drawn from Police, Fire services, Rural Development, Forest, Agriculture Departments etc. Interdepartmental zonal teams are formed to monitor the 71 vulnerable areas during both the Monsoon season.

3.12 Community First Responders

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, firefighting) 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, life jackets, lifebuoys, rope etc.)

3.13 Departments and Functions

The various departments of Government and the local bodies associated with the disaster management functions are presented below:

Sl.No.	Departments / Agencies	Functions
1	DDMA	Activation of Trigger mechanism
2	RADM, DEOC, DIPR, Media and Telecommunication networks	Risk Communication
3	RADM, Urban and local bodies, Police, Home Guards, Fire and Rescue services, SDRF, NDRF, Armed Forces, Volunteers, "108" ambulance, community and others.	Evacuation, Search and Rescue of People.
4	RADM, Urban and Rural Local bodies.	Shelter arrangement for rescued people and Creating Temporary Shelters on need basis.
5	Traffic Police, Home Guards, Volunteers.	Traffic control and diversions
6	SDRF, NDRF, Police, Home Guards and Volunteers.	Cordoning off the disaster affected areas, apart from Evacuation, Search and Rescue of People.
7	Police and Home Guards	Law and Order Maintenance during Evacuation, Search and Rescue Operations
8	Health Department, Local bodies and RED Cross	Provision of First Aid / Triage, Trauma Care / Prevent Spread of Epidemic and Endemic Diseases.
9	RADM, Health Department & Local bodies	Relief camps and basic amenities in shelters.
10	RADM, Police, Health Department and Local bodies	Identification of dead and injured
11	Health Department	Arrangement of medical support for causalities
12	RADM, Urban and local bodies, Experts	Impact & Assessment of Loss and Damage
13	RD, PWD, Highways & Urban Local bodies	Clearance of disaster affected areas
14	Health Department and local bodies	Preventive health camps
15	RADM, Civil supplies and Consumer Protection Dept., RD&PR and Urban Local bodies.	Mobilizing Resources for relief & restoration Food Arrangements. Provision of Relief supplies
16	SDRF, F&RS, PWD, Highways Department and Local bodies.	Clearance of debris / Solid waste.
17	PWD, Highways, Urban / Rural Local	Restoration of Communication &

	bodies, RD&PR, TANGEDCO	Road networks
18	TWAD, CMWSSB and Local bodies	Provision of Water
19	TANGEDCO	Restoration of Electricity
20	Road Transport and Highways	Resumption of Transportation
21	Health, RADM and Local bodies	Temporary mortuary / Dead body disposal
22	Animal Husbandry Department, Blue Cross, Local bodies and Volunteers	Evacuation and shelter arrangement for cattle / Livestock Carcass disposal
23	RADM, all Line Departments	Restoring normalcy.

3.14 Fire & Rescue Services Department

Fire and Rescue Services Department of the Government of Tamil Nadu is entrusted with the task of fire fighting and rescue operations in times of emergency. The Fire and Rescue Services Directorate plays a very vital role in the area of firefighting and fire prevention. Apart from fire fighting, this department also undertakes rescue activities and helps people, marooned in floods, and caught in the debris of fallen buildings, road and rail accidents and other natural and man-made disasters.

3.15 Non-Governmental Organisation Co-ordination

NGOs play a key role in Disaster situations and go a long way in plugging the gaps during emergencies as they often have a good relationship with the local community. NGOs play a very important role in mobilizing communities and in initiating Disaster Risk Reduction activities. The strong linkages which NGOs have with grassroot communities will be effectively harnessed for creating greater public awareness on disaster risk and vulnerability, initiating appropriate strategies for strengthening the capacity of stakeholder groups to improve disaster preparedness, mitigation and improving the emergency response capacities of the stakeholders.

A NGO-Government-Civil Supply Organisation Co-ordination centre has been established at the State and District level. The Director, Disaster Management has been designated as the State Nodal Officer. In respect of districts, the District Revenue Officer has been designated as the Nodal Officer. This co-ordination centre will map the services of the partnering NGOs and their service area. A Donor's and Seekers platform is being established to support the supply chain management. The database will be made available at the district and state levels and can be used for all emergencies

3.16 Armed Forces (AF)

The role of armed forces in disaster management is very important. The armed forces have historically played a major role in emergency support functions and this includes search and rescue operations, health and medical facilities and transportation - especially in the immediate aftermath of a disaster. Armed Forces are deployed often when

the crisis situation is far beyond the State Government to manage and agencies need help due to the magnitude of the disaster.

3.17 National Disaster Response Force (NDRF)

For the purpose of a specialized response to a threatening disaster situation or a disaster that's happening, the Disaster Management Act 2005 has mandated the constitution of a National Disaster Response Force (NDRF). These battalions are positioned at different needy locations across the Country. In Tamil Nadu, the NDRF is located at Arakonam, Ranipet District and Chennai, which maintains a close liaison with the designated State Governments and are available in the event of any disaster situation. The services of NDRF can be requested by the District Collector/ Commissioner of Revenue Administration in the event of any disaster situation.

3.18 India Disaster Resource Network (IDRN)

India Disaster Resource Network (IDRN) is a web-based information system for managing the inventory of the equipment, skilled human resources and critical supplies for emergency response in the entire country. This database is to enable assessment of the level of preparedness for specific disaster related vulnerabilities. It is a nationwide district level resource database. The designated user of each district of the state has been given a unique username and password through which they can perform data entry, data updating on IDRN for resources available in our district. The IDRN network will enable quick access to resources to minimize response time in emergencies.

3.19 Indian National Centre for Ocean Information Services (INCOIS), Hyderabad

Indian National Centre for Ocean Information Services (INCOIS) is a national agency of the Government of India, under Ministry of Earth Sciences. It provides the coastal and ocean information services and supports coastal zone management in the country. The ocean parameters envisaged for dissemination include the wind, wave, current, mixed layer depth, heat budget and maps on the coral reef, mangroves, shore line change and land use pattern. INCOIS has already put in place an early warning system for Tsunami through which it alerts the coastal States whenever an undersea earthquake of a higher magnitude capable of triggering a Tsunami is reported.

CHAPTER-4

HAZARD, RISK AND VULNERABILITY ANALYSIS

4.1 Introduction:

An analysis has been done to identify the disaster, which the district is prone to. While climatic and water related disasters prevail throughout the district, the accident related disasters are limited to wherever road and rail network is there. For district the Water and Climate related disaster, geologically related disasters are localized.

S. No	Category	Disaster	Vulnerable areas	Level of Vulnerability
1	Geologically related disaster	Earthquake	Moderate risk zone – Kanyakumari and Western Ghats Low damage risk zone [MSK VI] – Other areas of the District.	Low
		Land slides	Western Ghats	Moderate
2	Water and Climate related disaster	Flood	1. Tamiraparani basin – Ambasamudram, Cheranmahadevi, parts of Tirunelveli and Palayamkottai Taluks. 2. Chittaru Basin – parts of Manur, Gangaikondan firkas, Nambiyaru and Anuman Nathi river areas. 3. Kothayaru Basin – parts of Radhapuram and Tysiyanvilai taluks.	High
		Cyclone	Entire District	Moderate
		Tsunami	Coastal villages of Radhapuram and Tysiyanvilai taluks.	Moderate
		Sea erosion	Coastal villages of Radhapuram and Tysiyanvilai taluks.	High
		Heat wave	Entire District except Western Ghats	High

		Drought	Entire District	High
3	Chemical, Industrial and Nuclear disasters	Chemical and Industrial	SIPCOT, Gangaikondan Nanguneri SEZ ISRO, Mahendragiri Paper mills and other industries in the district. NH – 44 (Vehicles carrying industrial chemicals)	Moderate
		Nuclear	Nuclear Power Plant Corporation Ltd, Koodankulam	Low
4	Accident related disaster	Urban, Rural and Forest fires	Entire District.	Low
		Buildings	Entire District	Low
		Roads	NH – 44, ECR and other major highways	Moderate
		Railways	Railway lines and river bridges belonging to Madurai and Thiruvananthapuram divisions of Southern Railways.	Low
		Mines	Major and Minor Mineral Mines across the district.	Moderate
5	Biologically related disaster	.	Entire District.	Low

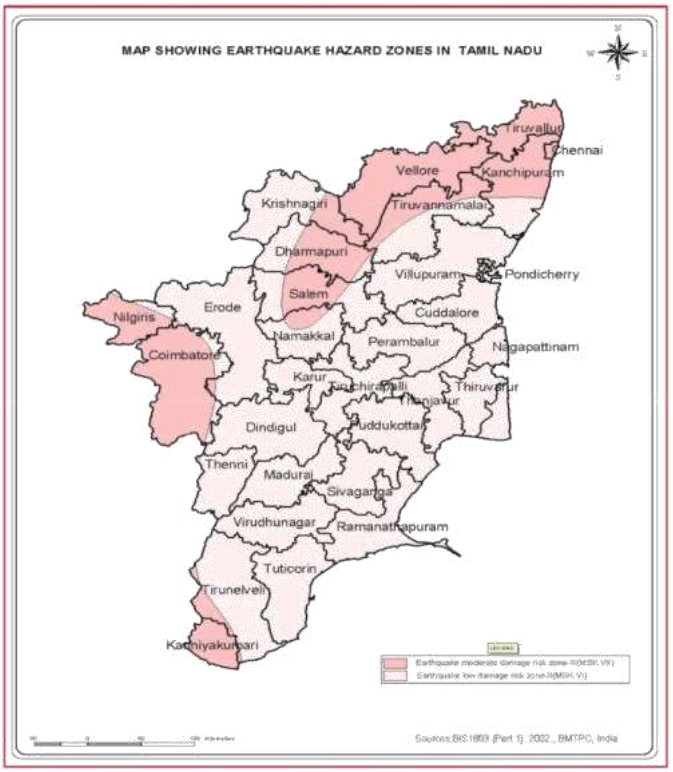
CHAPTER-5

GEOLOGICALLY RELATED DISASTER

5.1 Earthquake:

Earthquake is one of the worst natural disasters which cause instantaneous and tremendous destruction of property and loss of life. The earthquake strikes suddenly, similar to that of lightning, tornadoes or nuclear explosion.

Tirunelveli District is under low damage risk zone [MSK VI], however, the nearby moderate risk zone impact will occur in case of a major and heavy magnitude earthquake strikes at the nearby district.



5.2 Vulnerability:

i. Western Ghats areas of Ambasamudram, Cheranmahadevi, Nanguneri taluks are moderately vulnerable.

ii. Other areas of the district have low vulnerability.

5.3 SOP:

i. Report of tremors / earthquake – As soon as any incident of tremors / earthquake is reported by the public the field officials shall activate the field response machinery, ie, Revenue, Police, Fire and Rescue and Local Bodies to address and manage the panic and the situation and at the same time inform the DEOC.

ii. To examine if the claims of the incident are true and to assess damages, injuries or loss of life, if any and send an immediate report to DEOC.

iii. To verify immediately with DEOC, NIS (National Institute of Seismology, New Delhi- www.seismo.gov.in), INCOIS (Indian National Centre for Ocean Information Services. Hyderabad- www.incois.gov.in) about the nature and magnitude of the tremors / earthquake.

iv. If the damages are found to be large and wide, immediate rescue and relief measures to be undertaken by the Block, Zonal and District Level Teams and first responders.

v. To assess and confirm if there is any Tsunami warning. If there is any Tsunami warning, the entire coastal area shall be evacuated and moved away from the coastal areas. All SOPs mentioned for Tsunami shall be followed.

vi. If the tremors reported are too minor and are not recorded in the Richter Scale, then immediate report shall be sent through email to the NIS and INCOIS by the Tahsildar Disaster Management.

5.4 **SOP for Rescue and Relief**

SOP FOR EARTHQUAKE IN TIRUNELVELI DISTRICT

0 + 15 Minutes	Report the occurrence of earthquake to CRA, ACS (RD), CEO - TNSDMA, , Chief Secretary.	
0 + 30 Minutes	Verify the authenticity of the incident from agencies like IMD, INCOIS, ISRO, Police and Fire Brigade control rooms and find magnitude of disaster and immediate impacts Deploy Emergency Rescue Vehicles to affected areas for establishing communication link Activate ERCs for prompt mobilization teams and resources to affected areas Hold planning meeting of HODs (all line depts.) in DEOC Instruct duty officers of line departments to report in DEOC and hold meeting for further plan of action/ instruction. Request for the services of NDRF and Armed forces, if required If required, inform IC-IRT to ensure that all State Govt. employees report for emergency duties within half an hour Establish alternate communication link through Satellite Phones, HF/ VHF set, HAM Radio, VSAT, etc. in DEOC and Taluk level	

0 + 1 hr	Mobilize Search & Rescue teams and equipment of Fire Emergency Services, police and other departments to affected areas Deploy medical teams and paramedics to the affected areas Deploy rapid assessment team to affected areas Make arrangements for aerial survey of the affected areas Contact NRSC, ISRO and Ministry of Defence for aerial / satellite imageries of the affected areas. Instruct local ground level staff to evacuate population at risk to safer sites. Instruct concerned authorities or agencies to shut down critical operations Enforce evacuation from unsafe structures to pre-decided safe evacuation sites With help of local authorities, local agencies, volunteers, Aapda mitrans, First Responders ensure that people do not go back to unsafe structures unless instructed as safe Provide security in affected areas and maintain law and order situation to prevent incidents of thefts and stampede Issue alert for secondary shocks/ disseminate critical information by SMS through service providers Restore essential services like power, water supply, telecommunication of critical infrastructure like hospitals, DEOC, Control Rooms, AIR, Doordarshan, relief camps and temporary shelters, etc. on priority basis.	

0 + 2 hrs	Delegate responsibilities for organizing rescue and relief operations as per outcomes of planning meet Depute senior Level officers to the affected areas If required, seek assistance from neighbouring districts, State Govt. or external agencies Set up separate desks for each operation task force and NGO coordination desk in the DEOC for coordinating emergency operations Contact private / public sector agencies in the district and State to assist in emergency rescue and relief operations	
0+3 hrs	Make suitable transport arrangement for mobilization of quick response teams to the affected areas Maintain constant touch with the control room of SDMA and Taluk level Arrange for press / media release for rumour control and public information and guidance Make necessary arrangement for treatment of injured and mass casualty management Restore & ensure serviceability of communication towers in affected area through respective service providers	
0+6 hrs	Establish relief coordination centre at nearby airport, railway station, etc. for arrival of Search & Rescue and Medical Teams coming for humanitarian aid Arrange for a logistic plan and warehouse for receipt & management of relief material Instruct to cordon off affected areas and setting up of check posts to control entry and exit Ensure mechanism to prevent human trafficking Open access routes and manage traffic for mobilization of equipment, machinery and volunteers to the affected areas	

	If required, establish temporary access routes & disseminate route maps Conduct aerial survey to understand scale of damage and impacts Establish information centers at the arrival and departure points especially at the airports, railway stations and interstate bus terminus	
0+12 hrs	Hold review meetings with duty officers in every 12 hours Prepare rapid need assessment report for planning of relief operation and mobilization of resources to the affected areas Mobilize relief materials i.e. tents, food materials, water, essential medicines, blankets, etc. to the affected taluks Establish relief centres, temporary shelters and godowns near affected areas & ensure provision of basic facilities like food, water, medical aid, toilets, etc. Provide food and other relief material to relief camps, community kitchens, etc. Provide water tankers to affected areas, relief camps, temporary shelters, community kitchens, etc. Arrange to shift people from evacuated sites to temporary shelters Set up field hospitals near the affected areas Arrange to shift injured persons to field hospitals Ensure medical aid to injured cattle	

0+24 hrs	Prepare and circulate the situation report Coordinate with Operation Task Forces mobilized to the affected areas Organize media briefing twice a day at pre-determined intervals Depute additional officers and supporting staff to affected areas from non-affected areas Identify and declare unsafe structures in earthquake affected areas	
0+48 hrs	Ensure safety and security of personnel deputed in affected areas for emergency response operation Arrange for identification, photograph, post mortem and maintenance of records for disposal of dead bodies Earmark storage points for medical supplies at affected sites Ensure following procedures before disposal/ handing over of dead bodies: - Photographs of dead bodies are taken - Identification of dead bodies is done - Post mortem wherever necessary and possible is carried out - Handing over dead bodies of persons known/ identified to their relatives - Disposal of unclaimed and unidentified dead bodies	
	Ensure mechanism for complaints regarding missing persons and initiate search in shelters, hospitals and police records Arrange for transportation of dead bodies to their native places if so required Arrange for transportation of injured animal	

Short-Term Relief Measures

a. Provide temporary shelter to affected people

b. Evacuation site should be safe and easily accessible

c. Continue to provide essential services to the affected people i.e. food, water, clothing, sanitation and medical assistance

d. The DDMA to ensure relief measures are provided in the relief camp are as per the Minimum standard of relief defined by the state government which includes -

- Special emphasis on Hygiene and sanitation aspects should be given in relief camp sites.

- Separate area should be earmarked within the relief camp for storage of relief materials

- Adequate manpower and transport facilities for the camp site

- Arrangements to be made for trauma management

- Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured

- Information Centre should be established by the administration

Interim Relief Measures

a. Arrangements to be made for identification and maintenance of the records of dignified disposal of dead bodies in the affected areas.

b. Arrangements to be made to record the complaints of all persons reported missing.

Follow up action in terms of verification of the report also needs to be made.

c. Sub-divisional magistrates to be empowered to exempt the requirement of post-mortem in case of mass casualties. Revenue Dept. may depute additional SDMs to expedite disposal of the dead bodies in dignified manner.

d. Unclaimed/unidentified dead bodies to be disposed of at the earliest after keeping their records.

e. Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration.

f. Separate Cell to be established at District/taluks level to coordinate with the NGOs and outside donor/aid agencies.

g. Regular meetings of the different stakeholders/departments should be organized at District level for sharing of information, developing strategies for relief operations.

h. Public relation officer (PRO) to coordinate with the media to play a positive role in disseminating appropriate information to public and the government in order to facilitate the speedy recovery.

Assessment of Damage / Loss and Relief Needs

a. The District collector to issue instructions to the concerned agency for the damage and loss assessment

b. Adequate manpower, vehicles, stationery etc should be provided to supplement the efforts for need/damage and loss assessment

c. Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries

d. Arrangements for debris removal and its appropriate disposal

e. Arrangements for distribution of gratuitous relief and cash doles

f. Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons

g. Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property assessment

h. As reconstruction of houses will take a long period, arrangements to be made to provide interim shelters to the affected

i. Identification of the site for interim shelter

j. Allocation of areas to the affected families

k. Providing essential services at the interim shelter sites such as water, power, drainage / sanitation, PDS shops, etc.

l. Distribution of shelter materials to individual families

4.2 STANDARD OPERATING PROCEDURE FOR LANDSLIDE IN TIRUNELVELI DISTRICT

A **Landslide Crisis Management Plan** is essential for mitigating risks, protecting lives, and managing the aftermath of landslides, especially in areas like Tirunelveli District, with its unique topography comprising the Western Ghats and low-lying plains, faces increasing vulnerability to landslides, particularly in hilly regions such as the Ambasamudram and Papanasam areas. which are prone to such natural disasters. A comprehensive plan involves preparedness, response, and recovery strategies that are coordinated among various stakeholders, including localauthorities, communities, and emergency services.

Through this comprehensive framework, the district aims to minimize the impact of landslides while promoting long-term resilience. By enhancing preparedness, response, and recovery mechanisms, Tirunelveli seeks to safeguard both its human and natural resources against the growing threatsposed by landslides

Level	Vulnerability magnitude	Observation	ACTION	RESPONSE
I	Normal	Risk Assessment by conductingdetailed geological survey	**RISK ZONING:** develop landslide hazard map of landslide-prone areas based on topography, soil composition, and historical landslide data to identify the high risk zones and restrict the construction and development in that area it is also important to take quick and safe mitigation measures and make strategic planning for the future	GSI, DDMA, DEOC, nic, DD Ambai, Sub collector ,Tahsildar
		Assess the population atrisk	Map and survey communities living in high-risk areas.	

		Preparednessby conductingPublic Awareness Campaign And Develop information material regarding landslide Sustainable Infrastructure Planning	Educate the local population about landslide risks, warning signs, and safety measures. Conduct drills in high-risk areas to ensure people know what to do during an emergency. Distribute brochures, infographics, and guidelines on how to respond during a landslideevent Ensure that roads, buildings, and other structures in landslide- prone areas are built with **landslide-resistant designs**. Reinforce existing structures to minimize damage during a landslide	

II	warnings	**Cracks in the ground:** Sudden formation of cracks in slopes, roads, house foundation walls or floors in hilly areas could suggest underlying ground movement **Unusual sounds**: Creaking, cracking, or rumbling sounds from the earth, indicating shifting ground **Sudden changes in water flow**: Streams, rivers, or drainage systems may suddenly change course, indicating that soil is shifting. **Heavy rainfall** Intense rainfall over short periods /prolonged	**Evacuation Plans and evacuate** : Once the warning is issused evacuate the people to safer places /Develop clear evacuation routes and procedures for at-risk communities. These should be well-communicated and rehearsed through drills **Identify safe zones**: Establish safe areas where people can evacuate during a landslide threat. **Emergency shelters**: Set up temporary shelters in safe zones and ensure they are stocked with essential supplies (food, water, medical kits). To give **immediate information** through wireless is excess inflow of water in river and channel is noticed To keep sufficient number of sand bags, along with **transport facility** for instant	1. IMD INCOIS DEOC,nic,,DDMA, 2. Inform All line department/agency revenue,pwd,police armed forces,health,information,education BSNL (Inform Community likely to be impacted) 3. Requisition of NDRF and paramilitary 4. Hospital . Evacuation Center

		rainfall can gradually weaken soil cohesion, increasing the likelihood of slope failure. **Movement of anchored things** Leaning or fallen poles fences or trees may indicate gradual land movement /could signal soil shifting **rock and debris movement**: observation of rockfalls or debris moving downhill can indicate an imminent landslide **Changes after earthquakes**: Earthquakes often trigger landslides, especially if the soil or rock is already unstable.	mobilization to the vulnerable places. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown Develop To **keep ready, the rescue teams** with the tree cutting materials preferably power saws for removing the flood and fallen trees. Detect minor earth tremors, which can help predict landslides triggered by earthquakes.	

level	Vulnerabilit ymagnitude	observation	ACTION	RESPONSE
III	Emergency	1. Rapid or slow ground movement of soil, rocks, and debris. 2. Sounds of rumbling, cracking, or rushing water. 3. Falling rocks, trees, and damagedbuildings. 4. Dust clouds, blocked roads, and power outages. 5. Potential for secondary hazards like flash floods or mudflows.	**Deploy Rescue Teams**: Specialized rescue teams such as the National Disaster Response Force (NDRF) or local search and rescue units are deployed to rescue the risk community . **Use of Technology**: Drones, thermal imaging, and radar equipment may be used to locate trapped individuals. **Medical Aid**: Establishment of temporary medical camps for injured survivors and quick transportation of critically injured people to hospitals. **Clearing Roads and Pathways**: Bulldozers and excavators are used to clear debris to allow rescue teams and supplies to access affected areas. **Stabilization of the Area**: Immediate measures like building temporary retaining walls or drainage systems to prevent further landslides. **Emergency Communication** Setting up communication channels	NDRF,SDRF,DEOC, NIC All the line department - revenue (RADM) police, health, information, food and civil supplies, animal husbandry, TNEB, incident response team, community first responder (mobile team, snake catcher) rural and urban local bodies, voulnteers, NGO, armed forces, road transport highways, pwd, RD&PR, BSNL

			between local authorities, rescue teams, and the public. **Supply Managemen**t Delivery of essential supplies such as food, water, medicines, and clothing to displaced people. **Shelter and Temporary Housing**: Establishing emergency shelters or makeshift housing for those affected. **Coordination mechanisms**: Set up coordination systems between local governments, disaster response agencies, NGOs, and other stakeholders To arrange for timely care and treatment of animals in distress; Removal of dead animals to avoid outbreak of epidemics. **To maintain law and order** To take measure against looting and rioting To ensure the safety and security of relief workers and material To take specific measure for the protection of weaker and vulnerable sections of the society To provide safety and security at relief camps and temporary	

			Make emergency food and clothing supplies available to population Ensure the provision of specific nutrients and supplementary diet for the lactating, pregnant women and infants. Make available police wireless network at theaffected locations; To provide alternative means of power supply for emergency Make an inventory of vechicle available for various purposes	

IV	Recovery (post disaster)	1. The short-term impact accounts for loss of life and property at the site 2. The long-term impact includes changes in the landscape that can be permanent, including the loss of cultivable land 3. The environmental impact in terms of erosion and soil loss, population shift and relocation of Populations and establishments. 4. Buildings/infrastr ucture are broken up, buried, filled with landslide deposit/rubble, deformed, becomeunstable or collapse	**Damage Assessment**: After the landslide, conduct rapid damage assessments to determine the impact on infrastructure, homes, and the environment Clean-up operations, removal & disposal of debris **Creation/ Retrofitting of structures** – including roads, bridges that mayhave been destroyed/ damaged due to the disaster Efforts should also focus on restoringbasic services like electricity and water supply. **Environmental Restoration**: Stabilize the land in the affected areas through afforestation, building retaining walls, and improving drainage systems to prevent further landslides. **Rehabilitation of affected communities**: Offer financial and material support to rebuild homes, livelihoods, and infrastructure.	DDMA,DEO,PWD , Environment and Forest , Revenue, Health, TANGEDCO, Urbanand Rural Local bodies RD & PR, TWAD

Chapter 6

WATER AND CLIMATE RELATED DISASTER

6.1 Cyclone:

Tirunelveli district falls under coastal district. Cyclones are part of North East Monsoon Season. Therefore, whenever there is depression, there are cyclonic formations in Bay of Bengal and its effect on Tirunelveli District may range from heavy rains in the coastal areas to wide spread heavy rain throughout the district and devastating effects of major cyclonic storms. Tirunelveli district falls under the moderate damage Risk Zone.

6.2 Classification of Tropical Disturbances over the Indian Seas:

Tropical cyclones do not form all on a sudden. They have a life history of their own. They pass through different stages like low pressure area, depression, deep depression, cyclone, severe cyclone, very severe cyclone to eventually become a super cyclone. The criterion followed by the India Metrological Department (IMD) to classify the tropical disturbance is on the basis of maximum sustained winds. Though systems are found to rapidly intensify the tropical disturbance is on the basis of maximum sustained winds. Though systems are found to rapidly intensify the tropical disturbance is on the basis of maximum sustained winds. Though systems are found to rapidly intensify they never change their intensity by more than two stages at any point of time. The following table summarizes the classification scheme adopted by the IMD.

6.3 Recent Flood-2023

Tirunelveli district has received extremely heavy rainfall with an average of 56 mm on 17.12.2023 and an average of 391 mm on 18.12.2023. Caused heavy floods in the Thamiraparani river. Out of the total 370 villages in the district, 218 villages have been severely affected and 152 villages have been moderately affected by extremely heavy rainfall and flooding.

The district was divided into 5 zones. Inter-departmental management teams headed by the senior officials were formed and sent to the respective zones with all the required supplies and resources. Separate teams were sent to the hilly areas. Alert given to Koodankulam Nuclear Power plant, Southern railways - Madurai and Thiruvananthapuram division and ISRO Mahendragiri by the Tirunelveli District Collector on 17.12.2023 9am and continued to exchange information.

Information was disseminated in WhatsApp groups of 543 volunteers, All Panchayat Presidents, Media people. People were evacuated from low-lying areas and whoever refused to evacuate were displaced to safer locations with the help of police department. Noon meals centres and Chief Minister's Breakfast centres were restocked and fully equipped. 245 relief centres were set up and food supplies required for 2 months were sent in advance to the hilly areas.

All overhead water storage tanks were filled in advance. Hospitals, Medical Teams, Fire Services and Rescue Teams were given heads up and were put on standby. 696 pregnant mothers who were due to deliver within 30 days were identified through PIC-ME data and were advised to reach to the nearest health facility. 24 pregnant mothers were admitted to hospitals on the first day and 118 on the 2nd day.

Special officers were appointed to contact destitute homes, old age homes, differently abled homes for close monitoring. When the Observation home was about to be flooded, the inhabitants were evacuated and accommodated in alternative places. A team consisting of Deputy Collector, Executive Engineer from Water Resources Department and Police Officials was formed for the management of water release from dams and they camped near dam area to take prompt action.

Higher officials and Hon'ble Ministers immediately headed towards Tirunelveli to evaluate and expedite precautionary measures. The National Disaster Response Force and the State Disaster Response Force were called in to rescue the people living in low-lying areas and flood-affected areas

Thiruvananthapuram unit of Indian Army, INS Parundhu, INS Kattabomman and Sulur Air Force Base were also contacted. Moreover 87 boats were brought from fishermen villages.

A 24-hour control room was set up in the District Collectorate to monitor flood and provide assistance. The public were intimated through media, social media and newspapers to contact the numbers 2501012, 2501070, 9786566111, 1077, 1070 to inform about the rain and flood. Also, another control room was set up in Tirunelveli Corporation. The police control room was also working in full swing. Volunteers coordination – Startup Tirunelveli.

6.4 Rescue Operations

Due to the extremely heavy rainfall in the Western Ghats, the inflow to the dams surged up. The simultaneous inflow in all three dams was increased to 80,000 cubic feet Yet the average outflow was kept at only 30,000 cubic feet

and at maximum 45,000 cubic feet with exceptional flood water management. An average of 35 cm of rainfall in the area of about 2500 sq. km and the flood water from the Kadana, Pachaiyar and flash floods drained into the Thamiraparani river. The flood water from Chittar also reached Thamiraparani in Seevalaperi area.

While thousands of people had already been evacuated as a precaution, 7849 people were rescued with the help of police, fire service, NDRF, air force and volunteers. Thiruvananthapuram unit of Indian Army, INS Parundhu, INS Kattabomman were involved in the rescue operations. Sulur Air Force Base provided excellent assistance. Many were rescued by helicopter

Food was provided in all the relief centres through boats. Nodal officers were appointed in the relief centres, with the help of whom food and milk was provided to people. Now that the flood has receded, people are returning home from the relief centres. Flood water accumulated in low lying areas is removed using motors and JCB machines.

6.5 Relief works

The rescue work was completed on 19.12.2023 by 11 am and the relief work has been carried out in full swing. Volunteer Coordination Centre, Relief Materials Coordination Centre have been set up and are functioning efficiently. Till 21.12.2023 6 am, relief materials in 112 trucks have reached Tirunelveli District from the other districts and relief materials in 93 trucks have been distributed. Later, Relief materials in 19 trucks were sent to Thoothukudi district.

Actions are being taken to ensure that all people who are affected in flood get timely assistance as per government rules. Rs 139.75 lakh compensation to 1449 damaged houses is being provided as per disaster management rules through Tahsildars. Steps are taken to ensure that essential commodities are readily available throughout the district. Relief materials are being distributed to the affected areas.

6.6 Damages

Cheranmahadevi, Tirunelveli, Palayamkottai and Ambasamudram Taluks have been severely affected, some villages in other taluks have been severely affected and all other villages have been moderately affected. Totally 16 persons, including 2 women, died due to accidents like wall collapsing, rainwater entrapment, electrocution etc.

So far, 1553 houses have been damaged due to rains. Work is going on to enumerate people eligible under the Chief Minister’s new house announcement 9,914 livestock including 7625 chickens in poultry farms died due to floods.

A total 1,211 km stretch of Roads are damaged due to the extremely heavy rainfall. 348 tanks, 158 channels and 3 river bunds are destroyed. Around 7,872 hectares of agriculture and horticulture crops are damaged.

Special camps were held to repair vehicles damaged due to rain. All vehicle dealers were instructed to conduct insurance camps. Government Vehicles were also damaged.

The repair works in the damaged water supply tanks were carried out promptly. In the Tirunelveli Corporation areas, drinking water was supplied to 70 percent of the households immediately after the floods, through joint water supply programs with a capacity of 50 million litres. In other areas, steps were taken to distribute water through local fresh water sources and tanker trucks. 25 tanker trucks were brought in from other districts. At present, affected areas are already reconstructed and normalcy is brought.

Out of 840 Ration shops in the district, 72 have been damaged by rain. The essential commodities wasted due to the rains, were replaced and continuous supply of essential commodities in all the ration shops has been ensured. Cheranmahadevi, Palayamkottai, Tirunelveli and Ambasamudram Taluks– for all cards 5kg Rice was given and the same was provided to severely affected villages of other taluks also.

6.7 Mock Drills

18.09.2023 to 30.09.2023 NDRF Team from Arakonam, Chennai there are 16 members came and give disaster awareness program and Perform mock drill to various Places in Tirunelveli District. Fire and Rescue department perform Mock Drill On 20.09.2023 Saral Tucker girls arts and science college, Palayamkottai, 20.10.2023 Tiruvalluvar College, Papanasam and 02.11.2023 Ervadi Vadamalaiyan canal.

6.8 VULNERABLE LOCATIONS ABSTRACT- TIRUNELVELI DISTRICT

Sl. No.	Taluk Name	Very Highly Vulnerable	Highly Vulnerable	Moderately Vulnerable	Low Vulnerable	Total
1	Tirunelveli	2	3	-	3	8
2	Palayamkottai	5	-	-	9	14
3	Manur	-	-	-	2	2
4	Cheranmahadevi	-	2	1	1	4

5	Ambasamudram	-	2	2	5	9
6	Nanguneri	-	-	-	8	8
7	Radhapuram	-	10	-	9	19
8	Thisaiyanvilai	-	7	-	1	8
Grand Total		**7**	**24**	**3**	**38**	**72**

6.8.1 VULNERABLE LOCATIONS DETAILS - TIRUNELVELI DISTRICT

Sl.No	Vulnerable Type	Taluk Name	Locations
1	Very High	Tirunelveli	Sankanthiradu
2	Very High	Tirunelveli	Melaveeraragavapuram (Tirunelveli Junction) Ward J Block 23
3	Very High	Palayamkottai	Karupanthurai Hamlet
4	Very High	Palayamkottai	Kurunthudiyarpuram Hamlet (Keelaveeraragavapuram)
5	Very High	Palayamkottai	Vellakoil (Salai Street, Vannarpettai)
6	Very High	Palayamkottai	Puthugramam Hamlet (Muneerpallam)
7	Very High	Palayamkottai	Kokkirakulam Hamlet (Keelaveeraragavapuram)
8	High	Tirunelveli	Kandiyapperi- II Ward AG Block 21
9	High	Tirunelveli	CN Village Puliyamthoppu Ward AJ Block 9
10	High	Tirunelveli	Sindupoondurai Ward J Block 3
11	High	Ambasamudram	Thiruvalluvar Naga (Vickramasingapuram Part-2)
12	High	Ambasamudram	Thamirabarani Nagar (Vickramasingapuram Part-2)

13	High	Cheranmahadevi	Annanagar (Mukudal)
14	High	Cheranmahadevi	Kakkan Nagar (New Colony)
15	High	Radhapuram	Levinjipuram (Kootapuli, Ethankadu, Iyyapan Nagar, Jeyamathapuam)
16	High	Radhapuram	Levinjipuram (Perumalpuram, South Karunkulam, EB Colony)
17	High	Radhapuram	Chettikulam (Perumanal, Puthumanai)
18	High	Radhapuram	Karunkulam (Indira Colony, Veeranvillai)
19	High	Radhapuram	Koothankuzhi (Thiruvambalapuram)
20	High	Radhapuram	Udayathur (Erumbi Colony)
21	High	Radhapuram	Vijayapathi (Idinthakarai)
22	High	Radhapuram	Vijayapathi (Thillaivanam Thoppu)
23	High	Radhapuram	Vijayapathi (Thomaiyarpuram)
24	High	Radhapuram	Achambadu (Kizhavaneri)
25	High	Tisaiyanvilai	Kannanallur
26	High	Tisaiyanvilai	Chittur
27	High	Tisaiyanvilai	Kovankulam
28	High	Tisaiyanvilai	Baratharuvari
29	High	Tisaiyanvilai	Karaisuthuuvari
30	High	Tisaiyanvilai	Kuttam
31	High	Tisaiyanvilai	Kooduthalai
32	Moderate	Ambasamudram	Keelmugam
33	Moderate	Ambasamudram	Thimarajasamudram

34	Moderate	Cheranmahadevi	Cheranmahadevi (Ammanathar Koil Street)
35	Low	Tirunelveli	Kandiyapperi - I Ward AC Block 1
36	Low	Tirunelveli	Kodaganallur
37	Low	Tirunelveli	Thenpathu
38	Low	Palayamkottai	Melanatham
39	Low	Palayamkottai	Manakavalam Pillai Nagar, Thirumalai Street (Palayamkottai Part -3)
40	Low	Palayamkottai	Karim Nagar, Melapalayam,Reddiyarpatti Road (Keelaveeraragavapuram)
41	Low	Palayamkottai	Xavier Colony (Kulavanigarpuram)
42	Low	Palayamkottai	Rahmath Nagar (Palayamkottai Part -3)
43	Low	Palayamkottai	Thiyagaraja Nagar, Kumaresan Nagar, Sivanthipatti Road (VM Chattram)
44	Low	Palayamkottai	Johns Brain City (Parpakulam)
45	Low	Palayamkottai	Anbu Nagar Housing Board (Kulavanigarpuram
46	Low	Palayamkottai	Manapadaiveetu (Near Sivan Kovil)
47	Low	Manur	Moovirunthali
48	Low	Manur	Pirancheri
49	Low	Ambasamudram	Aaladiyur Part-1
50	Low	Ambasamudram	Vairavikulam
51	Low	Ambasamudram	Rengasamudram
52	Low	Ambasamudram	Ayanthiruvaleeshwaram
53	Low	Ambasamudram	Keela Ambasamudram

54	Low	Cheranmahadevi	Sivagamipuram (Pappakudi-Part-2)
55	Low	Nanguneri	Chidhambarapuram Road
56	Low	Nanguneri	Thamaraikulam tank, Malayadiputhur
57	Low	Nanguneri	Nanguneri Periya kulam
58	Low	Nanguneri	Keelakarivelankulam to Manjivilai Bridge, Pathai
59	Low	Nanguneri	Moolaikaraipatti Part-1 Village- Nagalkulam hamlet
60	Low	Nanguneri	Moolaikaraipatti Part-1 Village- towards Nanguneri Road-Near Esakkiamman koil
61	Low	Nanguneri	Mudankaraikulam, Uchikulam
62	Low	Nanguneri	Therku Nanguneri Village- Veerangulam hamlet
63	Low	Radhapuram	Vadakku Valliyoor Part -1 (Narikuravar Colony)
64	Low	Radhapuram	Aanaikulam (Chinammalpuram)
65	Low	Radhapuram	Aanaikulam (Mylaputhur)
66	Low	Radhapuram	Aanaikulam (Thalavaimanai)
67	Low	Radhapuram	Aanaikulam Hamlet
68	Low	Radhapuram	Aanaikulam (Thulukarpatti)
69	Low	Radhapuram	Vadakku Valliyoor Part -1 (Kottaiyadi Hamlet)
70	Low	Radhapuram	Parivirisooriyan (Kombanthan Bridge)
71	Low	Radhapuram	Parivirisooriyan (Kannimar Stream)
72	Low	Tisaiyanvilai	Tisayanvillai Hamlet

6.9 Damages in General:

Natural Calamities have menaced mankind since the beginning of the Century millions of lives have been lost in frequent earthquakes, cyclones,

floods, droughts and other extra events hitting the globe now and then. Loss of life, damage to property, dwellings, human suffering, etc., feature in the aftermath of such natural calamities.

Natural hazards cannot be prevented from occurring but their impacts can be reduced and risks minimised if effective measures are taken in time. This calls for advance planning on disaster preparedness.

Combating disasters have been occupying the attention of scientists, bureaucrats and technocrats involved in different fields. World meteorological Organisation has been actively engaged in devising policies and monitoring and helping in the implementation of ways and means of reducing the effect of weather related hazards through regular and reliable forecasts and warnings.

Meteorological Service in India has advanced so much that it is possible to locate a storm right from its initial formation stage as a low pressure area, follow its movement, assess its intensity, predict its movement and landfall point to the greatest accuracy.

6.10 Warnings:

The most important warning for disaster management is the one issued to government officials. An alert message is sent to the chief secretary (who is the top most executive official in the state), Collectors of maritime districts and other important designated officials normally 48 hours before expected commencement of adverse weather. Twenty four hours before expected bad weather when the likely course of the cyclone is known better, a WARNING message is sent to these officials who are also advised to monitor cyclone warning bulletin broadcast AIR station. This is also known as a TWO-STAGE warning system. The ALERT message enables; the Government to mobilize disaster management machinery although at that stage the exact course of the cyclone may not be known. The WARNING message helps them to organize relief operations.

Over the Radio, in normal times a weather bulletin is broadcast daily giving general weather summary followed by forecast and or warning to expect adverse weather. During cyclone situations additional bulletins are put out. When the cyclone is tracked with confidence by a coastal radar station, which happens usually about 24 hours before land fall, hourly broadcasts are arranged giving the latest position of the cyclone and the expected adverse weather over different districts. These broadcasts are made by interrupting regular radio Programme or by extending the working hours of the radio station if necessary. Bulleting broadcast over All India Radio (AIR) station have a wide coverage in view of a large number of the regional and local AIR stations. The broadcasts are usually in the regional language of the concerned state. The news bulleting put out by AIR New Delhi in various languages in addition to Hindi and English also

includes this information. Similar information is also put up on TV whenever required. The press also publishes special weather bulletin subject to the limitation with the newspapers come out only once or twice a day.

From 1984 onwards, the Indian Meteorological Department has introduced a very special type of warning system known as DISASTER WARNING SYSTEM (DWS) through which warnings are directly received by the recipients as soon asthey are issued by the cyclone warning centre. Under DWS scheme the cyclone warning message is first transmitted to the INSAT satellite through the earth station at chengalpet (CHENNAI). The transponder in the satellite in turn broadcasts it for instantaneous reception by the receivers wherever they have been installed. By a system of selective addressing, warnings are received out by those receivers for whom warnings are intended. Loud siren will blow for one minute which will be followed, with a gap of one minute, by the actual warning message for about nine minutes.

Performance of DWS receivers during the cyclones that affected the coastal areas of Tamil Nadu and Andhra Pradesh during the past few years had been quite satisfactory. Quick dissemination of cyclone warning messages using DWS has been greatly appreciated by concerned State Governments.

Cyclones cannot be prevented. But with the existing facilities and integrated approach, all the agencies involved in disaster mitigation can contribute their best to minimize loss of lives and property by taking all necessary timely steps during pre and post cyclone phases. Periodical exchange of available information of Disaster and disaster mitigation among various agencies will go a long way in reducing the communication gap. Public awareness on the subject is more important. This is being done by educating them using all available media in the country.

6.11 DO'S AND DON'TS DURING ALL POSSIBLE HAZARDS INCLUDING HEAT WAVE

6.11.1 Floods:

Flooding is one of the natural disasters that threaten the lives and economic well being of Indians. A flood is caused when water inundates land, which is normally dry. While the pattern of flooding varies, there are few areas of the country where the community is not at risk. Flood warning is one way of reducing the damaging impact of floods.

Following a flood warning for your area, typical actions you should take as a volunteer include giving instructions and increasing awareness about the dangers and preparedness measures, such as:

- All members of a community should know the safe route to nearest shelter / raised pucca house.
- Move valuable / personal items to a safe place above expected flood level.
- Open doors of refrigerators and other heavy airtight items that could float, tip over and be damaged.
- Switch off electricity and gas at supply points to the building.
- Protect/relocate stock and equipment in commercial/industrial premises.
- Have an emergency kits on hand which includes: A portable radio, torch and spare batteries, Stocks of fresh water, dry food (chura, mudi, gur, biscuits), Kerosene, candle and matchboxes, Waterproof or polythene bags for clothing and valuables, an umbrella and bamboo stick (to protect from snakes), salt and sugar, A first aid kit, manual and strong ropes for tying things.

The earlier you act and increase awareness about the preparedness measures, the better you will be prepared. Both during and after a flood keep tuned to your radio. Where possible, you will be kept up to date with the likely duration and level of flooding and when it is over you will receive advice from local authorities on where to obtain medical care, assistance with food, clothing shelter and how best to help yourself and your community recover.

6.11.2 During Floods:

- Encourage drinking of boiled water.
- Make sure that all the food is kept covered, don’t take heavy meals.
- Use raw tea, rice – water, tender coconut-water, etc., during diarrhoea; contact your ANM/AWW for ORS and treatment.
- Do not let children remain on empty stomach.
- Give instructions to use bleaching powder and lime to disinfect the surrounding.
- As a volunteer, help the officials distribute relief materials.

6.11.3 After the Flood-Vital Points:

Floodwater can be extremely polluted and as a volunteer it is essential to spread awareness of the following in the affected areas, so as to follow these rules to reduce risk of injury, sickness or infection:

- Do not eat food, which has been in contact with floodwater.
- Boil all water until supplies have been declared safe.
- Do not handle wet electrical equipment.
- Avoid wading even in shallow water as it may be contaminated – if you must enter shallow floodwater, wear solid boots or shoes for protection.
- Beware of snakes and spiders, which may move to drier areas in your house.
- Check with police for safe routes before driving anywhere.

6.11.4 Water Depth and Current:

The great majority of the deaths from flooding result from people attempting to drive, walk, or swim through floodwaters. Floodwater depth and current are easily misjudged and are capable of sweeping away and submerging even large vehicles. Also, in small streams the water level can change suddenly. Some deaths have even resulted from people camping in, or near, normally dry riverbeds. People have also died when flash floods occur in strom water drains and irrigation channels.

Many of those thought to have drowned in floods, especially flash floods, may actually have been killed by the violence of the water, or as a result of having been struck by, or having struck, objects in the water or the river bed. Thus, simply being a good swimmer may not be enough to survive.

THEREFORE, DO NOT ENTER OR DIVE INTO FLOOD WATERS, especially where an obvious current exists. If your vehicle becomes stranded in floodwater, leave it and move to higher ground before the water level rises further. BE AWARE of other potential injuries or adverse effects from floodwaters such as:

- Possibility of exposure (hypothermia) after becoming soaked;
- Risk of illness after drinking from water supplies polluted by sewage and other hazardous wastes in urban and recreation areas;
- Injuries from vehicle accidents caused by road washouts, soft edges and damaged bridges; and

- Electrocution by overhead or fallen power lines. If in a boat on floodwater, be aware of power lines. They may be dangerously close to an aerial, mast, cabin, etc, or may even be in the water.

6.11.5 Initial Steps:

It may take months, rather than weeks, to get a house back into its original condition. However, it is important to start work just as soon as the rain stops and the water has receded. As a volunteer, your duties include giving instructions and increasing awareness about the dangers and preparedness measures that need to be done as quickly as possible:

- Clear up, drain and start drying out the house as soon as floodwaters recede.
- Take out everything that is wet and that can be moved – floor coverings, furniture, bedding and clothing.
- On dry days, keep all doors and windows open. On wet days, leave windows slightly open.
- Drain away water under the house, and try to increase the airflow there to assist drying.
- Check for trapped water and mud in wall cavities, as well as areas such as shower trays, baths, benches and bottom shelves.

6.11.6 Warning:

The hints given assume there is no structural building damage such as leaning walls or foundation damage. If there are any signs that the house has moved on its foundations – buckled floors, new cracks in the walls, out-of – shape doorframes, consult a qualified structural engineer or building consultant.

6.11.7 Cloud Bursts:

It is a sudden occurrence and severe heavy rain and of very high intensity in a limited place. It creates a sudden flood in both plain and hilly areas, causes big landslides, brings down boulders, and uproots trees. Due to this torrential rain occurs in a limited area.

Cloudbursts cause heavy damages in the flood prone plain areas. Due to sudden rain or water flow, breaching of banks and over flowing of dams could happen.

It causes landslide, traffic obstruction and damages to houses. Periodically, in the could burst areas, people have to construct houses in higher

elevation than in flood prone places. This has to be enforced very strictly for saving the people.

People should avoid rivers and drainage channels during cloud burst as sudden flooding may endanger their lives.

Cloudbursts bring a lot of debris and boulders, and silt larger areas and make it uncultivable.

The most vulnerable areas could be the plains adjoining the hills.

6.11.8 Thunder & Lightning:

Thunder is the sound that follows a flash of lightening and is caused by sudden expansion of the air in the path of the electrical discharge.

6.11.9 During Thunderstorms:

Lightning claims quite a few lives and injures many every year. Quite a large number of injuries from the electric shock received while using fixed telephones during thunderstorms.

6.11.10 If caught outdoors:

If you hear thunder 10 seconds after a lightning flash, it is only about three kilometres away. The shorter the time, the closer the lightning, so find shelter urgently.

As a volunteer you must make sure you give instructions and increase awareness about the dangers associated with thunderstorms and lightening and preparedness measures, such as:

- Seek shelter in a hardtop (metal-bodied) vehicle or solid building but avoid small open structures or fabric tents.
- Never take shelter under a small group of (of single) tree (s).
- If far from any shelter, crouch (low, feet together), preferably in a hollow. Remove metal objects from head/body. Do not lie down flat but avoid being the highest object.
- If your hair stands on end or you hear „buzzing“ from nearby rocks, fences, etc, move immediately. At night, a blue glow may show if a object is about to be struck.
- Do not fly kites during thunderstorms.
- Do not handle fishing rods, umbrellas or metal rods, etc.
- Stay away from metal poles, fences, clotheslines etc.
- Do not ride bicycles or travel on open vehicles.

- If driving, slow down or park away from trees, power lines, stay inside metal – bodied (hard top) vehicles or in a pucca building but do not touch any metal sections.
- If in water, leave the water immediately.
- If on a boat, go ashore to a shelter as soon as possible.
- Be sure the mast and stays of the boat are adequately secured.

6.11.11 If you are Indoor's:

- Before the storm arrives, disconnect external aerial and power leads to radios and television sets. Disconnect computer modems and power leads.
- Draw all curtains and keep clear of windows, electrical appliances, pipes and other metal fixtures (e.g. do not use the bath, shower, hand basin or other electric equipments)
- Avoid the use of fixed telephones. In emergencies, make calls brief, (do not touch any metal, brick or concrete) and do not stand bare foot on concrete or tiled floors.

6.11.12 Lighting Facts and Myths:

- When struck, people struck actually die, and the incidence of longterm disability is low, particularly when appropriate first aid is applied promptly.

- If your clothes are wet, you are less likely to be seriously injured if struck, as most of the charge will be conducted through the wet clothes rather than your body.

- Lightning can, and often does, strike more than once in the same place.

6.11.13 Heat Waves:

Heat Wave conditions can result in physiological strain, which could even result in death. Orissa experienced severe heat wave conditions during April to mid June in 1998, and nearly 2,000 people died of heat stroke.

To minimise the impact during the heat wave and to prevent serious ailment or death because of heat stroke, you can as a volunteer give instructions and increase awareness about the dangers and preparedness measures, such as the following measures:

- Avoid going out in the sun, especially between 12.00 noon and 3.00p.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 strenous 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.

- 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. whick 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.

6.11.14 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 re-hydrate the body.

- ❖ Take the person immediately to the nearest health centre. The patient needs immediate hospitalisation, as heat strokes could be fatal.

6.11.15 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.

6.11.16 Droughts:

Droughts are slow creeping disasters. Of all disasters, droughts have the greatest potential economic impact and can affect the largest number of people. Droughts affect large geographical areas – often covering whole countries or parts of continents – they may last for months and in some cases several years. They invariably have a direct and significant impact on food production and the overall economy. A drought is a slow onset natural hazard and it offers time and opportunity to mitigate its impact. Drought connotes a situation of scarcity and distress usually caused by prolonged failure of rains, effecting agricultural activities adversely, leading to loss of production and employment, drinking water shortages, deficiency in fodder supply, etc. Consequential effects are migration of people in search of an alternative employment or livelihood.

6.11.17 Typical adverse effects of droughts are:

- ❖ Reduced income for farmers
- ❖ Negative impact on agricultural economy
- ❖ Negative impact on nutritional status
- ❖ Increased stress and morbidity if migration occurs
- ❖ Loss of water quality and quantity
- ❖ Negative social impact

As far as action points for the district administration are concerned, it would be useful to distinguish between widespread and prolonged droughts calling National or State level policies, and the more frequently occurring local level scarcities.

The two major reasons for onset of drought are the failure of monsoons, and inadequate water conservation efforts.

6.11.18 Possible Risk Reducing Measures:

To reduce the risk of transitory food insecurity due to drought, it is necessary to protect people's access to food through:

- Ensuring the availability of food in the affected areas, and
- Protecting the entitlements of all groups within the affected population.
- Some of the principal measures for maintaining food security during droughts are:
- Price Stabilization
- Food subsidies
- Employment creation programs
- General food distributions
- Supplementary feeding programs
- Special programs for livestock and pastorals populations
- Complementary water programs
- Complementary health programs

6.11.19 Post Drought Assistance:

The affected population must be assisted to replace assest lost during the period of temporary food insecurity and where this is realistic to re-establish their livelihoods. The severity of this food insecurity episode will determine the

nature and scale of the rehabilitation requirements. Thus, if migration to camps and significantly

increased mortality has occurred, then a comprehensive rehabilitation program will be required. This may involve:

- Health care counselling

- Assisting the migrants back to their homes
- Material support to re-establish their homes and productive activities. Such provisions may include seeds, tools, cooking utensils, blankets, and support until households are capable of supporting themselves.

If the impact of the temporary food insecurity episode has not been severe and most households have not been obliged to sell productive assets (e.g.consume seed stocks and breeding livestock) then a rehabilitation program may not be required. Rehabilitation needs should therefore be carefully assessed and intervention tailored to the particular situation.

6.12 Tsunami:

System Classification	Maximum sustained winds	
	(in Knots)	(in kmph)
Low pressure area	Less than 17	Lessthan 31
Depression	17-27	31-49
Deep depression	28-33	50-61
Cyclonic Strom	34-47	62-88
Severe Cyclonic Strom	48-63	89-118
Very Severe Cyclonic Strom	64-119	119-221
Super Cyclone	120 and above	222 and above

The Tsunami (Giant Tidal Wave) that struck the Tirunelveli coast on 26.12.2004 was unprecedented in its suddenness and ferocity. The calamity has caused unprecedented devastation in the following 10 coastal villages of Radhapuram Taluk in Tirunelveli District. Radhapuram headquarters is situated

66 Kms away from Tirunelveli and 12 Kms away from the Western side of Bay of Bengal coastal line

6.12.1 Vulnerable Areas:

The Tsunami (Giant Tidal Wave) that struck the Tirunelveli coast on 26.12.2004 was unprecedented in its suddenness and ferocity. The calamity has caused unprecedented devastation in the following 10 coastal villages of Radhapuram Taluk in Tirunelveli District. Radhapuram headquarters is situated 66 Kms away from Tirunelveli and 12 Kms away from the Western side of Bay of Bengal coastal line

6.12.2 VILLAGE AND FAMILIES AFFECTED BY TSUNAMI

Sl.No.	Name of the Villages	Total Population	No. of persons evacuated	No. of families affected	No. of huts damaged
Radhapuram Block					
1.	Uvari	4871	2400	1448	32
2.	Koottapanai	629	305	287	02
3.	Kooduthalai	667	312	246	0
4.	Periyathalai	660	308	104	34
5.	Koothankuli	3481	1410	1025	168
6.	Thomiahpuram	488	247	91	0
7.	Vijayapathi	952	510	47	0
8.	Idinthakarai	9703	3209	1460	260
Valliyoor Block					
9.	Perumanal	2618	1107	362	16
10.	Kootapuli	3879	1362	854	118
	Total	**27948**	**11170**	**5924**	**630**

6.12.3 Warnings related to Tsunami:

Tsunami The Indian National Centre for Ocean Information Services (INCOIS) provides round-the-clock monitoring and warning services for the coastal population on tsunamis, storm surges, and high waves through the in-house Indian Tsunami Early Warning Centre (ITEWC).

When an earthquake occurs in a Tsunami genic source and if the **magnitude is more than 6.5 and the depth is less than 100 km,** INCOIS automatically starts issuing a real-time tsunami warning.

6.12.4 Nature of Advisories issued by INCOIS:

Real-time tsunami warnings are issued by INCOIS by first announcing the area of warning, alert and watch based on travel time together with an estimate of the height of the tsunami calculated on pre-run numerical models of tsunami propagations. Based on the hazard - 'warning', 'alert' and 'watch' are issued.

A. Area under Warning: Area that is within 60 minutes from the tsunami generic sources and wave height expected is more than 2 meters.

B. B. Area under Alert: Area within 60 minutes travel time of the tsunami and wave height is less than 2m and Area more than 60 minutes travel time of tsunami and the expected wave height is more than 2 m.

C. C. Area under Watch: Areas that are outside the 60 minutes travel time of tsunami and are kept under watch when the wave height is expected to be less than 2 m.

INCOIS issues bulletins over a period of four to five hours as many as six bulletins.

The **First Bulletin (Type – I)** is issued before the lapse of 20 minutes of the earthquake when the seismic network detects an earthquake occurring in the Andaman Sumatra Subduction Zone (ASSZ). The First bulletin informs that an earthquake has occurred and the preliminary estimates of the location of the epicentre, magnitude, depth of focus and time are informed.

The Second Bulletin (Type – II) is issued not later than 30 minutes of the earthquake in the subduction zone with a magnitude of > 6.3 and the depth of focus is less than 100 km detailing the areas under warning and threat.

The Third Bulletin (Type – II Supplementary) is issued with updated earthquake parameters and revised information on tsunami wave height and accordingly the status of the threat is updated.

The Fourth Bulletin (Type III) is issued when tsunami is confirmed. If the threat is upgraded to warning status evacuation will be started immediately.

The Fifth Bulletin (Type – III Supplementary) is issued when the tsunami reaches the coast with hourly updates and also whenever real-time water level information are available.

The Final-"ALL CLEAR" bulletin indicates withdrawal tsunami warning.

In addition, an early warning system for earthquake/tsunami in Indian Ocean is operational at Madras Atomic Power Station, Kalpakkam. This PC-based Earthquake Notification System (ENS) is installed in Control room of MAPS.

6.12.5. Disaster Declaration:

The Disaster Management Act, 2005, provides for the **State Government** to declare any area where Tsunami have occurred or likely to occur as disaster affected area on the **recommendations of the State Relief Commissioner or the District Collector.**

Types of TWC Tsunami Bulletin Messages

a. **Earthquake Information Bulletin (T+20 Min)**:

   It contains information about origin time, latitude and longitude of the epicenter, name of geographical area, magnitude and depth of an earthquake. This message also contains preliminary evaluation of tsunami potential based on the magnitude. (e.g. earthquake occurring on land or earthquake with < M 6.5 or earthquake occurring > 100 Km depth or earthquake occurring in very shallow water column, etc. no tsunami is expected; Bulletin is provided to Ministry of Home Affairs (MHA).

b. **Tsunami Warning (T+30 Min) (RED):**

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e.g. For earthquakes with > M 6.5 occurring in the Ocean within a depth of < 100 Km, a tsunami warning will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is > 2 m). This is the highest level wherein immediate actions are required to move public to higher grounds. Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from pre-run model outputs. Information provided to Ministry of Home Affairs (MHA) and public.

c. Tsunami Alert (T+30 Min) (ORANGE):

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e.g. For earthquakes with > M 6.5 occurring in the Ocean within a depth of < 100 Km, a tsunami alert will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is between 0.5 to 2 m as well as for those areas falling above 60 minutes travel time from the earthquake source and if expected run up is >2 m). This is the second highest level wherein immediate public evacuation is not required. Public should avoid beaches since strong current are expected. Local officials should be prepared for evacuation if it is upgraded to warning status. Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from pre- run model outputs. Information provided to Ministry of Home Affairs (MHA) and public.

d. Tsunami Watch (T+30 Min) (YELLOW):

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e. g. For earthquakes with > M6.5 occurring in the Ocean within a depth of < 100 Km, a tsunami watch will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is < 0.5 m and for those areas falling above 60 minutes travel time from the earthquake source and if expected run up is 0.5 to 2 m). This is the third highest level wherein immediate public evacuation is not required. Local

officials should be prepared for evacuation if it is upgraded to warning status. Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from Pre-run model outputs. Information provided to Ministry of Home Affairs (MHA).

e. Tsunami Cancellation (GREEN):

It will be issued if the tsunami warning was issued on the basis of erroneous data or if the warning center determines from subsequent information that only an insignificant wave has been generated. In addition, tsunami warning may be canceled on a selective basis when a significant wave that has been generated clearly poses no threat to one or more of the areas the warning center warns, either because of intervening continents or islands which screen them or because the orientation of the generating area causes the tsunami to be directed away from these areas. To maintain credibility the warning center will use the terminology —non-destructive tsunami II in the cancellation message whenever applicable.

f. Tsunami All Clear (GREEN):

This bulletin indicates that the Tsunami Threat is passed and no more dangerous waves are expected

Action plan:

District Emergency Operations Centres (DEOCs) to be activated with full strength.

SOPs at District level:

Time Frame	Task	Activity	Responsibility
0 to (-) 60 Minutes	Warning Receipt and Dissemination - Monitoring seismic activity, provide warnings, based on seismic models and issue periodic bulletins	Reporting to all concerned District Collectors as well as Control Room DEOCs of the district/s likely to be affected as per preliminary warning of IMD and INCOIS by State government	INCOIS, ISR, IMD, COR, SEOC, CRA, DEOC, District Collector.

	Interdepartmental coordination Establish Alternate Lines of Communication	-Activation of DEOCs based at full strength based on information/warning received. **-** Alert all response teams in the State for deployment - Remain in constant touch with control rooms at National & State Level - Coordinate with District Collectors of districts not likely to be affected to be prepared for providing: • Additional humanpower • Additional resources • Vehicles, Machinery & Equipment • Relief material to the districts likely to be affected - Mobilize resources from areas in the district that are less likely to be affected by Tsunami - Activate alternative line of communication equipments i.e. satellite phones, HF/VHF sets, Ham radio, VSAT at District level. - Establish communication links with SEOCs and Search & Rescue Teams in all Municipal Corporations/Districts and alert them to be in stage of readiness.	

		- Establish communication links with villages likely to be affected as per the contact details available in SDRN and DDMP	
0 to (-) 50 Minutes	Review of situation and reporting	Establish contact with IMD, INCOIS, ISRO and the Defence Ministry of GoI for aerial / satellites imageries, through the CRA. - issue instructions and orders for emergency response to areas likely to be affected. - Take over full command of DEOC - Arrange dissemination of information through various means of communication such as Radio, TV, Cable Network, SMS about Tsunami to districts/areas which are likely to be hit. - Impose restriction on all transport activities heading towards coastal areas that are likely to be affected by Tsunami. In this regard reach out to transport secretary through CRA. - Mobilize following	**District Collector, IMD, INCOIS, ISRO** **Local media, telecom companies** **CRA, Transport Secretary**

		teams: • Evacuation • Emergency Medical Services • Search and Rescue Mobilize following emergency response forces: • Fire & Emergency Services • NDRF/ SDRF • Village Disaster Management Teams • Police, Home Guards, Civil Defence • State Reserve Police Force • Army (if required) • Air Force (if required)	**District Nodal officers of each of these emergency response forces**
	Tsunami Response to Coastal Areas (Likely to be Affected)	-Based on the warning issued by IMD/ INCOIS, pin point the districts and villages likely to be affected by Tsunami and start the procedure for identifying safe places/shelters for evacuation in those villages. -village wise data for safe shelter to be used and District Collectorate should contact the village level nodal officer responsible for this to know the status and capacity of these shelters.	**District Collector, Taluk and village level nodal officers** **District transport authority**
		- Accordingly transport arrangements to be made for mobilization of emergency teams and for safe evacuation.	**Ports and fisheries department.**
		- Ensure arrangements are there to evacuate fishermen and salt workers	**Tourism**

		- safety of toursists visiting the beaches along the coast- for this coordinate with the tourist department and hotels, resorts at those places. Cordon off coastal areas for restricting entries of rail or road traffic. Ensure law and order is maintained in areas likely to be affected. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown- *Kudankulam Nuclear Power Plant (KNPP)* Ensure that local help lines are opened and effectively managed for public information, guidance and rumour control. Ensure that the information to public and media about the progress of Tsunami waves at periodic intervals is released. Health Department to activate their Departmental Tsunami Disaster Management Plan and SOPs for Management of casualties	**department, hotels, resorts** - **Home department** **-NPCIL, Industries and mines dept, TANGEDCO, TNEB.** **Information and Public Relations Dept** - **TvMCH, GHs, PHCs, DD Health, JD, Dean of TvMCH.**
0 to (-)	Review and Reporting	Review and monitor	**Line staff, Taluk**

15 Minutes		following activities: • Evacuation of people from coastal areas likely to be affected • Positioning of Search and Rescue Teams • Positioning of mobile communication units • Positioning of quick medical response teams • Mobilization of restoration tea m s o f re s p e c t i ve departments • Requirement of armed forces in rescue and relief operations • Dissemination of information to the vulnerable areas • All preparedness measures to be taken by various authorities Release of information at appropriate time to media and public regarding response measures organized by the Government	**nodal officers, Reporting to CRA,** **PRO**
	Emergency Relief Management	Ensure that the arrangement for basic following amenities at evacuation/relief centres are made available: • Drinking water • Food • Clothing • Sanitation and hygiene • Lighting • Medicines and Health Care Inform following agencies to be in a state of readiness for assisting in the Tsunami response measures (if required):	**Civil Supply Dept., Revenue Dept. & Dist. Collector, Municipal Commissioner, Water Supply Dept., TANGEDCO, Health Dept** **DSO** **DRO** **TWAD** **TNEB** **DD health** **Nodal officer for NGOs**

		• Public sector agencies • Private sector agencies • NGOs • CBOs • Volunteer Organizations	- **PSUs in the district**
		Request for assistance (if needed) to state as well as centre- MHA / National Disaster Management Authority	**Coordination through CRA**
		Make necessary arrangements for public information/guidance, public opinion and rumour control	**PRO**
Time = 0 Hrs	Disaster Declaration	Recommend and submit required report to the CRA in order declare the disaster	District Collector, CRA
Time = 0 + 24 Hrs	Mobilization and Deployment	Immediate mobilization of following units / teams to areas affected by Tsunami • S & R Teams of Fire and Emergency Services • SDRF • Quick Medical Response Teams • Quick Damage & Loss Assessment Teams • Quick Need Assessment Teams • Road Clearance Teams • Teams for identified management of the dead • Teams for disposal of carcasses • Teams for debris clearance (if any) • Teams for maintaining Law & Order in the affected areas • Arrange for S & R teams of Air Force (If	**District Collector, Municipal Commissioner, Police Department- COP, DCPs, SP, DSP,**

		required) To survey the access roads/routes leading to the affected areas and manage traffic for mobilization of equipments, machinery and volunteers. • Identify alternate roads/routes for evacuation. • Undertake repairing/restoration of damaged roads leading to the affected areas. • • Identify and declare unsafe buildings/structures in Tsunami affected areas. • Evacuate people from unsafe buildings/ structures and shift them to relief camps/sites.	
	. Necessary Arrangements at evacuation/relief centres	• To ensure that necessary arrangements at evacuation/ relief centers is made with sufficient availability of: a. Food, b. Water, c. Blankets/Clothing d. Medicines e. Lighting f. Sanitation and hygiene etc. • To ensure necessary security arrangements for the personals (Emergency responders/relief teams) who are working at Relief	**Revenue Dept., Civil Supply Dept., Collector, SP, Municipal Commissioner, Water Supply Dept., Health Dept., TNEB, Power & Energy Dept., TWAD and CMWSSB & Local Authorities, Home Dept.**

		Centers and involved in distribution of Relief Materials. • To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well.	
	Safety of fishermen and salt workers	Ensure that all the fishermen and salt workers have returned from the sea or those who are in the sea are rescued and evacuated to safer places	Port and Fisheries Dept
	. Ensure immediate health and minimization of outbreak of disease	• To establish camp hospitals near the affected areas. • To make transportation arrangements to shift seriously injured persons to nearest a. Camp Hospitals, b. Taluk and District Hospitals, c. Regional and State Hospitals • Ensure that the Hospitals are well prepared to deal with seriously injured persons. • To ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained. • Take sanitation and epidemic control measures	**Health and Transport depts.**

		for preventing any water borne disease. • Keep adequate stock of essential medicines, first-aid etc. at taluk/ district hospitals • Take steps to purify drinking water sources • If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluk/district level for immediate medical assistance.	
	Cattle	• Assess need for fodder if required. • Keep teams ready for carcass disposal (if required)	**Animal Husbandry dept**
	Information to public and media	• Establish Media/Press Centre for media management and information dissemination • Ensure that the information to media/general public about the response of the State Government is released in an organized manner. • Organize media briefing twice a day at pre-determined intervals	**PRO**
	. Other important work	• Prepare quick need	**CRA, District**

	related to immediate response	assessment report for planning of relief operation. • Additional assistance may be asked for emergency response/ relief from GoI- NDMA (If needed). • Maintain constant touch with SEOCs and other control rooms. •Coordinate with CRA in conducting Aerial survey of affected areas for taking a stalk of the situation.	**Collector**
Time = 0 + 24 to 48 Hrs	Restoration of critical infrastructure / essential services	-Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of people and smooth management of emergency response. • Ensure that key administrative and lifeline buildings are brought back to operation quickly • Ensure following primary necessities are restored • Power • Water • Telecommunication • Roads • Bridges	
		• Ensure following procedure is followed before disposal/ handing over of dead bodies:	

		• Photographs of the dead bodies are taken, • Identification of the dead bodies is done • Post Mortem where ever necessary and possible is carried out, • Handing over dead bodies of persons known/identified to their relatives, • Disposal of unclaimed and unidentified dead bodies Establish Help Lines for facilitating communication between the victims and their relatives residing outside the affected area/s. • Establish Help Lines / Information Centers at strategic locations for providing information about persons evacuated to the relief centres/hospitals. Depute additional officers and supporting staff to Tsunami affected areas from non-affected areas (if required) to accelerate the rescue and relief operations)	
		• Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution to Tsunami affected areas according to their need and proper accounts are maintained about both receipt and distribution	**DSO**

Time = 0 + 48 to 96 Hrs		Arrangement for transportation of injured from field hospital to base hospital • Arrangement for transport of dead bodies to their native places. • Ensure maintenance of record, timely reporting and information management	Revenue Dept, Health Dept., Transport Dept **District Collector, CRA**
Time = 0 + 96 to 168 Hrs		• After receiving the message of de- warning, ensure that people are moved back safely to their houses. • Organize a quick rapid visual survey of the affected areas (through a technical team of engineers) to ascertain the safety of the structures decide on giving the go-ahead to people to move back to their respective houses.	**District Collector, Taluk and village nodal officers,** **DRDA, Municipal Commissioner**
		• Ensure relief disbursement, allotment of funds and grants to line department for organizing emergency response, relief and evacuation arrangements.	**Revenue dept**

Short Term Relief Measures:

Ensure that all the following identified measures addresses the Minimum standard of relief defined by the state government.

a. Provide temporary shelter to the affected people

b. Temporary shelter site should be safe and easily accessible.

c. Continue to provide essential services (food, water, clothing, sanitation, medical assistance, power, etc.) to the affected people.

District Collector to ensure the following in the relief camps:

i. Special emphasis on hygiene and sanitation aspects should be given in relief camp sites. (Health Dept.)

ii. Separate area should be earmarked within the relief camp for storage of relief materials. (Civil Supply & PWD Dept.)

iii. Adequate manpower and transport facilities for the camp site. (Transport Department)

iv. Arrangements to be made for trauma management. (Health Department)

v. Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured. (Health Dept.)

vi. Information centre should be established by the administration. (I&B Department)

Interim Relief Measures

a. Arrangements to be made for quick identification and maintenance of the records of disposal of dead bodies in the affected areas (Home, Revenue, Health Dept., Local Authorities).
b. Arrangements to be made to record the complaints of all persons reported missing. Follow up action in terms of verification of the report also needs to be made. (Home Dept.)
c. Sub-Divisional Magistrates to be empowered to exempt the requirement of identification and post-mortem in case of mass casualties. Revenue Dept may depute additional Sub-Divisional Magistrates to expedite disposal of the dead bodies. (Revenue & Home Dept.).
d. Unclaimed/unidentified dead bodies to be disposed of with the help of pre identified voluntary Agencies at the earliest after keeping their records. (Home, Revenue, Health Dept. & Local Bodies)
e. Additional humanpower to be deployed in the affected areas for supplementing the efforts of the local administration. (Revenue Dept.).
f. Separate Cell to be established at district/ taluk level to coordinate with the NGOs and outside donor/aid agencies. (Revenue Dept).
g. Regular meetings of the different stakeholders/departments should be attended at state level for sharing of information, developing strategies for relief operations. (Commissioner of Revenue Administration & Collectors at District Level). Similar meetings to be held periodically at District level with all the Taluk level nodal officers.
h. Information & Public Relation Dept. to coordinate with the media to play a positive role in disseminating appropriate information to public and the government in order to facilitate the speedy recovery. (I& B Dept).

Assessment of Damage/Loss and Relief Needs

a. District Collector should provide the needs assessment report to the Commissioner of Relief so that he/she can consolidate them and prepare—States Needs Assessment Report.
b. The District Collectors to provide the damage and loss assessment report as per the isntructions issued by the Commissioner of Relief so that COR can consolidate the same and to prepare —Relief Memorandum (if necessary) which will be useful in planning and implementing the relief operation after the disaster for the victims of the disaster.
c. Adequate humanpower, vehicles, stationery, etc. should be provided to supplement the efforts for need/ loss assessment. (CRA & Revenue Dept.)
d. The Relief Memorandum should be provided by the Collectors. (Commissioner of Relief & Collectors) as per the performa issued given in the SDMP.
e. Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries. (PWD Dept., Revenue Dept and Local Bodies)
f. Arrangements for distribution of gratuitous relief and cash doles. (Revenue Dept., RD&PR Dept., UD&UHD Dept. and Collectors)
g. Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons. (Revenue Dept.)
h. Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment. (Revenue Dept and Local authorities)
i. As reconstruction of houses will take a long period, arrangements to be made to provide interim shelters to the affected. (Revenue Dept and Line Departments like Water Supply Dept., PWD and TNEB. etc)
   i. Identification of the site for interim shelter
   ii. Allocation of areas to affected families
   iii. Providing appropriate shelters to the affected families
   iv. Providing essential services as under in the interim shelter sites like water, transportation, power, road, drainage/ sanitation, school, PDS, health, protection, distribution of shelter materials to individual families, etc

Chapter 7

ACCIDENT RELATED DISASTERS

7.1 Urban & Rural Fires:

Urban fires are manmade disasters, and lives and properties worth millions of rupees are lost.

The phases in the development of an urban fire are outbreak, development, spread, and extinction. Besides cataclysmic natural events, urban

fires are caused by electrical faults (in an estimated 35-40 percent of cases), human carelessness or malevolence, the lack of supervision of a naked flame, or the uncontrolled product of a chemical or physical reaction. Once the flame is ignited it would either go out by itself or spread in its initial surroundings at a variable speed. The materials encountered are likely to very in terms of their abundance, flammability and calorific potential. As it develops, the fire would produce heat and hot gases, which are potentially toxic or chemically aggressive.

The spread of fire in urban areas depends on the structure and materials of buildings, their volumes and partitions or spacing. Doors, windows, facades, ducts and holes may provide shafts that act as vectors for the spread of the fire. The risk to people, rather than property, depends on their location and concentration, their perception of the hazard, and the potential for rapid evacuation via safe routes. Particular problems are likely to result from the rapid destruction early in the fire of "nerve centres" such as communications headquarters and the nodes of warning systems.

The risk can be reduced greatly by structural and non-structural measures. Extinguishers, sprinklers, hoses, evacuation routes, and fire sensors are all well known structural approaches. Evacuation drills designed for cases of fire hazard can be combined with those created for natural hazards such as earthquakes. Fire hazards can be investigated in terms of all phases, producing information on where and when fires are likely to break out, how they are likely to develop and spread and with what degree of rapidity this is likely to occur. Fire-fighting plans must be based on this sort of knowledge and prediction.

7.2 Fire leads to:

- High intensity of heat
- High concentration of smoke
- Generation of toxic and noxious fumes
- Explosion
- Building collapses/struictural damage
- Disruption of essential services like
- Water / Food / Medicine / Communication / Transport / Power supply.

7.3 Fire Protection / Rescue:

- Identification of high risk areas
- Installations of hydrants
- Provision of static water tanks
- Provision of passive and active fire protection system
  Provision of adequate means of escape with exit sign
- Establishment of fire station with proper adequate appliance and equipment/manpower
- Co-ordination with other essential services by local administration (water, supply, electricity, PWD, etc.)
- Proper communication network.

7.4 Electrical Disasters:

Electricity is a necessity in our lives – just think of all the ways we benefit from electrical power on a daily basis. Electricity is readily accessible and safe when used properly, it is still important to follow necessary safety precautions.

7.5 Use Electricity Safely:

If an appliance emits smoke or has an unusual smell, unplug it immediately and have it repaired. Replace any electrical cord that is cracked or frayed. Do not overload extension cords or run them under rugs.

- Do not tamper with fuses this is a potential fire hazard.
- Do not overload circuits. Overload may cause the wires to heat and may ignite insulation or other combustibles.
- Replace or repair electrical appliances that over heat, spark, smoke, or have cracked or frayed cords.
- Wiring installations should always be made by a licensed electrician or other qualified person.

- Use light bulbs of the wattage recommended for your lamp and ceiling fixtures.

- Never break off the third prong of a plug.

- Do not use extension cords for permanent wiring. they may not be able to carry the load.

- Ensure lamps are free from contact with inflammable material.

7.6 Some do's and dont's:

Remember, electricity always tries to reach the ground. It travels over "conductors" or anything that allows electricity to flow. People, water, trees, damp ground, and metal are excellent (bad for people) conductors. An insulator is the opposite of a conductor. As a volunteer, your job includes giving instructions and increasing awareness about the dangers, such as:

- Touching a faulty appliance, plug, or bare wire can make you part of the electric circuit and put you at risk of electric shock.

- Frayed wires are dangerous anywhere. They should be repaired at once, or better yet, replaced.

- Replace inflexible electric cords.

- Repair any appliance that sparks, emits smoke, or shocks you.

- Don't use any appliance while you're touching metal pipes and faucets or anything wet.

- Outlets near water sources (bathrooms, kitchen sinks, garages outdoors) should be product.

- Never touch an electric cord or appliance while your hands are wet.

- Unplug appliance before cleaning them or removing anything from them.

- Don't yank the cord when unplugging appliances.

- Keep work areas clean. Oily rags, newspapers, and sawdust can catch fire from electric sparks.

- Never overload a circuit with high – voltage appliances. Check the voltage on your appliance labels and be sure the combined voltage of all the appliances you want to plug into the same circuit does not exceed the circuit rating.

- Never use electric power tools or appliances in the rain or while standing in water.

- For outdoor locations, use only lights, cords, and fixtures intended for outdoor use.

- NEVER USE WATER on an electrical fire! Water can carry the electricity back to you and you could receive a deadly shock.

- Finally, having a working smoke alarm dramatically increases your chances of surviving a fire. And remember to practice an escape plan frequently.

7.7 Indoors Safety Tips:

To be safe, it is recommended that wiring be installed and/or inspected by a licensed electrician. Your house or apartment may be inadequately wired if:

- Lights dim and motors slow down when an appliance goes on.

- Fuses blow or circuit breakers trip frequently.

- Toasters or irons fail to heat properly.

- The television picture shrinks.

- Turn main power off before replacing a fuse or adjusting circuit breakers.

- Never pull a plug out by the cord.

- Regularly check wires, extension cords and appliances for signs of wear.

- Use appliances and power tools with three pronged plugs.

- Never touch appliances, wires or electrical switches with wet hands or feet.
- Turn television set and other appliances off during a lightning storm.
- If there are small children in your house, use plastic safety caps in unused outlets.
- Never insert a metal object into an appliance without disconnecting the appliance.
- Fire fighting in case of electrical fire, fire – fighting medium should be non-conductive and non – magnetic.
- Never build a shed or other structure under the power line leading to your house.

7.8 Road Accidents:

Road accidents are a major killer and take place without any warning. Accidents may involve passenger vehicles, goods vehicles, vehicles carrying hazardous and toxic materials. The damage therefore may involve injuries and deaths, chemical spills, fires or release of toxic gases.

Data on road accidents reportedly indicate that 70% of road accidents arise from driver's failure. Apart from this factor, the generic reasons are

- Poor road conditions
- Mixed traffic
- Poor vehicle maintenance
- Carelessness in driving
- Lack of safety belts and helmets
- Poor emergency services
- Absence of pedestrian amenities.

7.9 Accident Site:

In the event of an accident involving passenger vehicles, those at the accident site should follow the following priorities:

- Look for and rescue the injured or those trapped in the vehicles.
- Arrange for transport of the injured to the nearest medical care centre.
- Place the dead bodies on one side to avoid obstructions.
- Organize locally, traffic control using the available manpower to avoid traffic jams.
- Discourage people from crowding near the accident spot.
- Discourage people from looting the goods from the accident vehicle.
- Arrange to inform the nearest traffic police station / post through passing vehicles on either side.

7.10 Measures that need to be taken:

- All two – wheeler drivers, including pillion riders must always wear the right kind of protective headgear.
- Drunken driving / liquor availability and sales all along the highway are the cause for accidents. This should be restricted.
- Awareness to be created among pedestrians regarding cross the roads, etc.,
- Burning the vehicle involved in the accident and beating the driver/crew by the local people to be checked.

SOP for ROAD ACCIDENT

stages	Action	response
Pre-Incident Preparation	**Infrastructure development** 1. Design and maintain the roads with safety features to prevent accidents on sharp curves, highways, and accident-prone areas 2. Construct pedestrian and cyclist infrastructure 3. Upgrade roads to reduce potholes, cracks, and faulty road conditions is essential to reduce accidents caused by poor infrastructure. 4. Improve the road lighting especially at intersection and higher risk zones **Regulation and Enforcement**: 1. ensure strict enforcement of traffic laws such as speed limits, seatbelt and helmet requirements, and prohibitions on drunk with random roadside inspection to prevent violation **Public Education and awareness** 1. develop public awareness campaigns on road safety These campaigns can use TV, radio, social media, and billboards to raise awareness 2. Integrate road safety into school curricula it cultivate a safety-conscious mindset from a young age. 3. Conduct proper driver license tests and provide driver education and training programs **Real-Time Weather Updates and Warnings**: Provide real-time weather updates and warnings to drivers about fog, heavy rain, or snow, which can reduce visibility or road traction. **Accident blackspot Mapping** Collect and analyze accident data and identify high risk area to map accident hotspots and focus on deploying resources like increased traffic enforcement, better road signage, and	Police, traffic police officers, highway, NGO, RTO, Local Bodies, RADM

	infrastructure improvements in these areas.	

Stages	Action	Response
During accident immediate response (within 24 hours) Immediate Response by First Responders	**Stop and access the Scene**: Any witness or involved party must stop and check the condition of those involved. Before approaching the accident site, Look for potential dangers such as fire, fuel spills, unstable vehicles, or oncoming traffic. **Alert Emergency Services** immediately dial the emergency number Provide an accurate description of the situation to allow emergency services to prepare adequately. • Location of the accident • Number of vehicles involved • Estimated number of injured persons and their condition • Any visible hazards (e.g., fire, fuel leaks, blocked traffic) • **Assess Injuries**: Check for life-threatening injuries but avoid moving injured persons unless necessary to avoid further harm **First aid:**provide basic first aid if trained assist the injured person with basic care **Move to safer location**:move to a secure spot away from traffic	Bystanders and Good Samaritans Firefighters, Police Officers Traffic Control Officers Roadside Assistance and Tow Truck Operators, ambulance, health, rescue team, Volunteers
Immediate response by Emergency Responders	**Secure accident scene :**block off area to prevent further accident **Access scene safety**:ensure the area is safe for responders and victim **Rescue Operation: Extricate Trapped Victims**: Firefighters or trained personnel use specialized tools to free any victims	Firefighters, Police Officers Traffic Control Officers, Roadside Assistance and Low Truck Operators, ambulance, health, rescue team,

	trapped in vehicles, while ensuring the vehicle is stabilized. **Fire Control**: Firefighters manage and extinguish any fires that may arise from the accident. **Medical aid** Prioritize first aid and emergency medical assistance for the injured **Transpor**t seriously injured persons to the nearest hospital with appropriate medical facilities. Communication with hospital staff : To prepare the hospital for incoming patients **Communication and Coordination** Coordinate with emergency units to ensure a coordinated response and efficient care for all victims. Information dispatch :update dispatch on situation and resource needs	
Post-Incident Management (after 24 hours of accident)	**Documentation and Investigation Scene Documentation**: Take photographs of the vehicles, damages, tire marks, road conditions, traffic signals, and relevant objects. Record vehicle numbers, licenses, and details of drivers. **Interview Witnesses**: Gather detailed accounts from any witnesses to understand the sequence of events leading up to the accident. **Collect Physical Evidence**:Obtain evidence such as vehicle parts, debris, etc **Clearing the Accident Site** Ensure Safe Movement of Traffic: Remove debris, spilled substances, or wreckage from the road to prevent further accidents.	

	If the vehicles involved in the accident cannot be moved, ensure proper traffic diversion is in place. **Reopen the Road**: Once the scene is cleared, reopen the road for normal traffic flow as quickly as possible to minimize disruption. **Filing a Report**: The police must file a formal accident report documenting all collected evidence, statements, and any legal violations. **Informing the Family**: The authorities should inform the next of kin of anyone who is seriously injured or deceased. **Follow-up Investigation**: Depending on the severity, the police or investigative agencies may conduct a follow-up investigation to determine liability. **Insurance Claims**: Drivers or vehicle owners should notify their insurance companies and provide necessary documents to process **Follow-Up on Victims**: Medical personnel may reach out to victims who were treated in hospitals to check on their recovery and address any ongoing medical needs. **Mental Health Support**: Assess and provide access to mental health resources for victims, witnesses, and first responders who may be experiencing trauma or stress following the accident. **Legal Actions** **Initiate Legal Proceedings**: If criminal or civil liability is determined, legal actions will be pursued against those responsible. **Ensure Compensation**: The authorities will ensure that victims or their families receive compensation through insurance or	Police, Traffic control officers, Fire and Rescue, Health, Law Enforcement, Media, RADM

	legal proceedings if applicable.	

Rights of Stakeholders

Victims:

- **Right to Immediate Medical Care**: Hospitals are required to treat victims without waiting for paperwork.
- **Right to Compensation**: In case of severe injury or death, claim compensation under Motor Vehicles Act 1988.

Witnesses/Good Samaritans:

- **Right to Anonymity**: Good Samaritans are not required to disclose personal information.
- **Protection from Legal Hassles**: Witnesses aiding in emergencies are protected from unnecessary questioning or litigation.

What the Law Says

- **Motor Vehicles Act, 1988**: Governs the reporting of accidents and mandates driver responsibility.
- **Good Samaritan Law**: Protects those who help accident victims from legal complications.
- **Tamil Nadu Traffic Rules**: Obligates police to secure accident sites and ensures the investigation proceeds smoothly.

CHAPTER 8

CHEMICAL, INDUSTRIAL AND NUCLEAR DISASTERS

8.1 Radiation Exposure

Nuclear plants, in general, adopt a defence in depth approach and multiple physical barriers to ensure that radioactivity is contained at all times. However, a finite number of very low probability events are postulated to occur, releasing radioactivity in to the environment. Consequently, emergency preparedness and response plans are in place to cope with nuclear or radiological emergency scenarios ranging from minor incidents like a small spillage of radioactive material to a major nuclear accident releasing large-scale radioactivity (like Chernobyl) in the public domain.

Nuclear/radiological emergencies being man-made in nature, maximum emphasis has been laid on the prevention of such emergencies without diluting

other aspects of the disaster continuum. However, in the event of any such emergency taking place due to circumstances beyond control, the DAE and the district authorities have drawn up emergency response plans to provide adequate protection to the population and property against any possible adverse effects of such as a release and to mitigate the consequences of emergency.

8.2 Indian nuclear PowerProgramme:

Nuclear Power Corporation of India Limited (NPCIL) is a Public Sector Enterprise under the administrative control of the Department of Atomic Energy (DAE), Government of India. The Company was registered as a Public Limited Company under the Companies Act, 1956 in September 1987 with the objectives of operating atomic power plants and implementing atomic power projects for generation of electricity in pursuance of the schemes and programmes of the Government of India underthe Atomic Energy Act, 1962. NPCIL also has equity participation in BHAVINI, another Public Sector Undertaking of Department of Atomic Energy (DAE) which implements Fast Breeder Reactors programme in the country.

NPCIL is responsible for design, construction, commissioning and operation of nuclear power reactors. NPCIL is presently operating 21 nuclear power reactors with an installed capacity of 6680 MW. The reactor fleet comprises two Boiling Water Reactors (BWRs), 17 Pressurised Heavy Water Reactors (PHWRs) and two 1000 MW Pressurized Water Reactor (VVER type) at Kudankulam. In addition, at present NPCIL have four reactors (PHWR type, 700 MW capacity) and two reactors (VVER type, 1000 MW capacity) under various stages of construction totaling 4800 MW capacity.

Nuclear power plants in the country are located at geographically diverse locations and the sites are either inland or coastal. These details are given in the table below

Location and Name of Nuclear Power Plant		Number of units and Installed Capacity	Type of site	Geographical Location
Tarapur Atomic Power Station	At Tarapur in Maharashtra	2x160MW 2x540MW	Coastal	Longitude72°66″E Latitude19°83″N
Rajasthan Atomic	At Rawatbhata in Rajasthan	1x200MW 4x220MW	Inland	Longitude 75°36“E Latitude 24°52“N

Power Station				
Madras Atomic Power Station	At Kalpakkam in Tamilnadu	2x220 MW	Coastal	Longitude 80°17' E Latitude 12°55'N
Narora Atomic Power Station	At Narora in Uttar Pradesh	2x220 MW	Inland	Longitude78°01″E Latitude28°42″N
Kakrapar Atomic Power Station	At Kakrapar in Gujarat	2x220 MW	Inland	Longitude73°40″E Latitude 21°19″N
Kaiga Generating Station	At Kaiga in Karnataka	4x220 MW	Inland	Longitude **74°43' E** Latitude 14°86'N
Kudankulam Nuclear Power Project	At Kudankulam in Tamilnadu	2x1000 MW	Coastal	Longitude77°70″E Latitude8°17″N

8.3 NPP in the District Location – Brief Details

(like type of reactor, power levels safety provisions etc.)

8.3.1 KKNPP Introductions

The KKNPP Site comprises two operating units KKNPP-1&2 of VVER based 1000 MWe nuclear power plants along with their auxiliary facilities. Two units (KKNPP-3&4) areunder construction. Construction of two units of VVER 1000 reactors (KKNPP-5&6) is under pre-project activities stage.

The KKNPP-1&2 comprises of two units of VVER based 1000 MWe nuclear power plants. The VVER reactors belong to the family of Pressurized Water Reactors (PWRs).KKNPP-1&2 has many significant safety enhancement features such as:

- Double Containment with the inter-space kept at negative pressure to reduce releasessignificantly.
- Passive heat removal system to provide cooling during station backout;
- Larger number of control rods giving higher sub-criticalitymargins;

- Second quick acting shutdown system, quick boron injectionsystem;
- HydrogenRe-combiners;
- CoreCatcher;
- Passive FiltrationSystem.

The Containment structure of KKNPP is a double containment (primary containment and secondary containment). Primary containment is made of pre-stressed reinforced concrete with carbon steel lining on the inner surface. Secondary containment is made of reinforced concrete. Secondary containment is engineered to withstand external natural and man-made impacts, such as Seismic loads, Airplane crash, Extreme climatic conditions, air shock wave, impact from fall of stack etc.

National – Safety and
regulatoryframework
Refer**Annexure-1**
Site – address, locationetc.

Kudankulam Nuclear Power Plant (KKNPP) termed as "KKNPP SITE", covering about 1053.25 hectares, is situated 13 KM east of Chettikulam village and 35 KMs away from Nagercoil. It is located in Radhapuram taluk of Tirunelveli district of Tamil Nadu state.

The site is on the shore of Gulf of Mannar and is located near the south-eastern tip of India. The town of Kanyakumari is about 27 KMs away from the site. A major district road runs along the coast and passes through Kudankulam village at a distance of 3 KMs from the site. The nearest national highway (NH-44) passes through Anjugramam village and is at a radial distance of 17 KMs from the site.

8.3.2 NPP-Hazards/Safety issues:

Types of Emergencies that can occur in the NPP and the agencies that are tasked to respond during OffsiteEmergencies

8.3.3 Emergency Classification:

Radiation Emergencies are classified based on the nature and severity of the incident. The emergency situations of nuclear facilities are classified as:

- PlantEmergency,
- Site Emergencyand
- Off-siteEmergency.

For Plant Emergency, the radiological consequences are expected to remain confined to the plant and the affected areas within the plantboundary.

In case of site emergency, the consequences are likely to extend beyond the plant but remain confined to the site boundary (exclusionzone).

In case of off-site emergency, areas in public domain beyond the exclusion zone are also likely to be affected in addition to site boundary.

8.3.4 Plant Emergency:

For handling and controlling Plant Emergency situations, there exists an Emergency Organization at KKNPP-1&2 called the Plant Emergency Organization. During Plant Emergency at KKNPP-1&2, the Plant Emergency Organization comprising of the Plant Advisory Group and Emergency Response groups would be activated and take actions as per the approved Plant Emergency Preparedness and Response Manual, Vol-I.

The Station Director, KKNPP-1&2 is the Plant Emergency Director (PED). PED is responsible for overall emergency handling of the Plant Emergency situation and to mitigate and limit theconsequences.

8.3.5 Site Emergency:

For handling and controlling Site Emergency situations, there exists an Emergency Organization at KKNPP site called the Site Emergency Organization. During Site Emergency at KKNPP site, the Site Emergency Organization comprising of the Site Emergency Committee and Emergency Response groups would be activated and take actions as per the approved Site Emergency Preparedness and Response Manual, Vol-II.

The Site Director, KKNPP is the Site Emergency Director (SED). SED is responsible for overall emergency handling of the Site Emergency situation and to mitigate and limit the consequences.

8.3.6 Off-site Emergency:

For handling Off-site emergency situation in public domain, the responsible agencyis District Disaster Management Committee (DDMC) headed by the District Collector of Tirunelveli District, who is the Off-Site Emergency Director(OED)/Responsible Officer (RO)/ Incident Commander (IC) and having officials of the district organization as themembers. DDMC will function from the District Disaster Management Control Centre / Emergency Operation Centre (EOC).

The Off-Site radiological conditions assessment group headed by Site Director who is the Site Emergency Director of KKNPP Site will provide the necessary technical guidance to RO/IC in handling the off-site emergency situation during the Early Phase. The official will be supported by Crisis Management Group, Department of Atomic Energy (CMG-DAE) which is the nodal agency responsible to provide technical support and expert guidance for handling any nuclear or radiological emergencies in the country in the public domain. On situation developing to an Intermediate or Late Phase the RO/IC will be rendered technical guidance for effective handling of the emergency situation by Director (or Associate Director), Health Safety and Environment Group, BARC, who is designated as the Emergency Response Director (ERD)-DAE.

Grades of OSE i.e. 1, 2 or 3 with actions by the various agencies. (1,2,3 grade should be defined indefinitions)

As per the guidelines of NDMA & IAEA, now grading is changed to phases and are defined as follows:

8.3.7 Phase of Nuclear Emergency

a) EarlyPhase

This phase consists of a pre-release phase and, if applicable, a release phase.

Pre-release phase:

The pre-release phase starts at the point in time where a nuclear plant operator identifies that a major radionuclide release may occur, and ends with the onset of such a release or by bringing the incident under control. The pre-release phase may last for hours or days. The main tasks to be performed during the pre-release phase include initiation of crisis management, informing the public and taking action to protect the public. During this phase, precautionary measures should be implemented to avert a significant amount of expected dose to public. Decision making in this phase is based on status of the plant which is used for source term projection and estimating the time available for the protectiveaction.

In spite of the large uncertainties in determining the source term from plant criteria and the uncertainty of predicting the meteorological conditions, dispersion and dose calculations support the decision-making process for precautionary measures.

b) Release phase:

The release phase follows the pre-release phase and may last for hours, days or even a few weeks. If a "precautionary action" was not or could not be carried out, measures to significantly reduce radiation exposure are urgently required in the dispersion area of the radioactive cloud. The release phase ends once dispersion and deposition have finished and the plant is under control with no further major releases. This phase is characterized by the transition from an initial projection of the radiological situation to ascertainment of the actual level of environmental contamination measurements performed in the field. Unpredictable changes, weather and atmospheric dispersion conditions may give rise to the need for changes or augmentation ofprotectivemeasures that have already been initiated. During this phase, special attention must be paid to the exposure pathways directly associated with the passing radioactive cloud.

c) <u>Intermediate Phase</u>

This phase covers the period where radiation from the cloud, direct inhalation of radioactive substances and deposition have ended or are at least of no further relevance, and reliable environmental measurements are available for use as a basis for protective actions decisions.

In this phase the decisions on whether to lift, ease or change the early phase protective measures and on introduction of new protective measures are made. When deciding on changes to protective measures implemented during the previous phases, or on decision to implement additional measures, the limitation of the measures considered in averting the dose due to its delayed implementation will also be considered. Necessary actions to reduce long-term radiation exposure and to reduce the radioactive contamination of the environment areinitiated.

Contamination values for foodstuffs, drinking water, surfaces, soils, plants and bodies of water can be determined during the transition phase by performing a sufficient number of reliable measurements in order to gain a clear picture of the radiological situation. The termination of the off-site emergency marks the end of the transition phase and the beginning of either an existing exposure situation or a planned exposuresituation.

This phase may overlap the early phase and Late Phase and may last from weeks to months.

d) <u>Late Phase</u>

This phase, which can be categorized as an existing exposure situation where the activities of people and the society are adjusted to the prevailing condition and the focus is to bring back the society to new normal condition. The period beginning when recovery actions designed to reduce radiation levels in the environment to acceptable levels are commenced and ending when all recovery actions have been completed. The duration of Late phase may last for months to severalyears.

Recovery typically includes actions taken to reduce public exposure and to this end, the affected population and businesses should be provided with practical information on implementing radiation protection. Long-term restrictions regarding the use of land and water areas are implemented ifnecessary. *Note: The three phases cannot be represented by precise periods of time and may even overlap. The phases are to be viewed in terms of activities, rather than time spans and can provide a useful framework for emergency responseplanning.*

8.3.8 Institutional Mechanism / Preparedness

The agencies and task groups that need to be alerted by DM and what preparations needed at their grouplevels.

For handling Off-site emergency situation in public domain, the responsible agencyis District Disaster Management Committee (DDMC) headed by the District Collector of Tirunelveli District, who is the Responsible Officer (RO)/ Incident Commander (IC) and having officials of the district organization as the members. DDMC will function from the District Disaster Management Control Centre / Emergency Operation Centre (EOC).
So official of district organization who are the members of DDMC need to be alerted by the District Collector.

As per the Off-site Emergency Plan, Rev-0 (approved by District Collector in March, 2011), DDMC was known as Offsite Emergency Response Coordination Committee (OERCC). The composition of OERCC is given below.

<u>Composition of Offsite Emergency Response Coordination Committee (OERCC)</u>

S. No.	Description	Designation
1.	District Collector, Tirunelveli	OED
2.	District Revenue Officer, Tirunelveli	Alternate OED & Member secretary
3.	Site Director, KKNPP	Member & SED
4.	Superintendent of Police, Tirunelveli	Member
5.	District forest officer, Tirunelveli	Member
6.	Joint Director fisheries, Tirunelveli	Member
7.	Dy. Controller, Civil Defense, Tirunelveli	Member
8.	District Fire Officer, Tirunelveli	Member
9.	Executive Engineer, Irrigation Tirunelveli	Member
10.	Joint Director of Agriculture, Tirunelveli	Member
11.	Dy. Director, Animal Husbandry	Member
12.	District Supply Officer, Tirunelveli	Member
13.	Regional Transport Officer, Tirunelveli	Member
14.	Dy. Director Health Services, Tirunelveli	Member

8.3.9 RESPONSIBILITIES OF OERCC

The overall responsibilities of OERCC are the following:

- Ensuring preparedness for providing Off-site emergency response in the publicdomain.
- Providing assistance to Department of Atomic Energy personnel for carrying out environmental monitoringwork.
- Coordinating the implementation of the following protective measures as and when necessary: -
  - **(a)** Sheltering
  - **(b)** Distribution of stableiodine
  - **(c)** Evacuation
  - **(d)** Enforcement of access control to contaminatedareas
  - **(e)** Ensuring blockage of contaminated articles like crops, vegetables, milk, fish and other farm & milk products ifnecessary.
  - **(f)** Arranging for the security and safety of the public and their property in the contaminated areas during the period of their absence followingevacuation.
  - **(g)** Liaison with agencies like military, civil defense, police, public health, news media for necessary assistance in coping with

emergencysituation.

The brief responsibilities of the different offsite agencies that will be called upon for assistance during offsite emergencies are outlined below.

8.3.10 RESPONSIBILITY OF DISTRICT COLLECTOR

District Collector assumes the responsibility of Offsite Emergency Director (OED) during offsite emergency conditions and is the authority to execute the offsite emergency plan for its implementation. In absence of District Collector, the first alternate is District Revenue Officer, Tirunelveli will officiate as OED and for offsite emergency works. All the protective actions are to be initiated and carried out in the public domain will be directed byhim.

He makes periodic assessment of assistance and facilities required by him for carrying out the protective actions.

He should initiate actions to ensure adequate preparedness for handling the emergency and to arrange for the rectification of any deficient areas in this preparedness.

The OED should also arrange for periodic mock exercises to maintain a state of constant preparedness by the emergency agencies. The exercises should include all the key emergency personnel and their alternates.

Detailed Action Plan for District Collector, Tirunelveli during offsite emergency is given in action plan

8.3.10(a) ACTION PLAN FOR DISTRICT COLLECTOR / (OED)

OED is Responsible for implementation of the following,

a) Declaration of Offsite Emergency at KKNPP

b) Handling of Emergency situation, keeping machineries for handling of emergency in operational condition

c) Organizing Offsite Emergency Exercises, Training of District Officials involved in implementing the emergency plan and up keeping of the emergencyplan.

Action Plan

1. On hearing of site Emergency at KKNPP from Site Emergency Director, shall acknowledge the message and will give message to SED to thateffect.
2. DC, Tirunelveli shall alert all the officials of District Level Committee for handling radiation emergency.
3. On getting information regarding the proliferation of Site Emergency into an Offsite Emergency from Site Emergency Director, KKNPP, shall acknowledge the message and will give the message to SED to

thateffect.

4. DC, Tirunelveli shall activate the District Level Committee and various other agencies, which come into play for handling the emergency immediately. DC, Tirunelveli shall proceed to District Disaster Management Control Centre / Emergency Operation Centre (EOC).
5. On arrival at DDMCC, he shall get first-hand information from SED. DC, Tirunelveli shall assume the charge of Offsite EmergencyDirector.
6. DC, Tirunelveli shall ascertain from SED regarding magnitude and complexity of situation and shall declare the Offsite Emergency.
7. DC, Tirunelveli shall seek following information from Site Emergency Director, KKNPP Centre on the followingaspects.
   a. Wind speed
   b. Wind direction
   c. Names of the Sectors affected
   d. Level of prevailing radiation fields in affected Sectors.
   e. Level of existing airborne activity in affected Sectors.
   f. Type of recommended protective actions.
   g. Contamination level ofgrass.
   h. Contamination level of farm produce and vegetables.
   i. Contamination level of meat, fish and milk.
   j. Contamination level of drinking water.
   k. Type of countermeasures to be implemented.
   l. Time for completion of the implementation of counter measures.
8. DC, Tirunelveli shall ascertain from SED whether aerial radiation survey is required, if so he shall requisite the services of military in thisregard.
9. DC, Tirunelveli shall order the closer of educational institutions in affected areas and keep open the Rallyingpost.
10. DC, Tirunelveli shall make use of Civil Defense, Home guards, Fire Stations and seek necessary assistance from military for implementation of emergency plan if needed.
11. DC, Tirunelveli shall arrange formation of the teams for carrying out followingtasks
    i) Warning and advice teams and dispatch them to the villages with appropriate advice as recommended by Plant Authorities.
    ii) Traffic controls teams and dispatch them to pre-defined traffic control points for egress & ingresscontrol.
    iii) Rallying post teams and dispatch to rallying posts.
    iv) Prophylactics Distribution and Administration teams for the distribution of KI03 tablets to affected people in consultation with

the SED/ SECmembers.

12. Depending on the prevailing radiological conditions in the affected sectors, he will be advised by SED to implement evacuation counter measures. On receiving this information, DC, Tirunelvelishall:

i) Arrange to form evacuation teams and dispatch them to the affectedvillages.

ii) Alert the Regional Transport Officer, Tirunelveli and shall ask for the supply of requisite number of buses for transporting affected people and shall direct that ST buses to be sent for parking in KKNPPColony.

iii) DC, Tirunelveli shall arrange to form the convoy teams at the earliest and send these teams along with required buses to affected village. The convoy team shall assist the evacuees in boarding buses and send them to their respective shelter places. The teams always accompany the evacuees to their shelterplace.

iv) Form the Rallying Post Teams and dispatch them to shelterplaces.

v) Form Patrolling teams and send them to the affected villages for the protection of evacuees" properties. Make standby teams for relieving the patrol teams andsend on the advice ofSED.

vi) Arrange for the supply of clean food, clean clothing, and clean drinking water to the evacuees at shelter places with the assistance of District Supply Officer.

vii) Arrange for lighting, sanitation and medical facilities at the shelter places.

viii) Arrange for the maintenance of law and order at shelter places and affected sectors with the help of Police Department.

ix) Arrange for the checking of contamination of the vehicles at the redesignated points on the enroute to the rallying post and arrange decontamination of the vehicles if required with the help of Decontamination Teams.

x) Livestock left behind by evacuees in villages shall be taken to cattle camps for safety with the assistance of Animal Husbandry Department.

xi) Issue orders to various diesel depots (Public and Private) to make their entire stock available for the use of emergency purposesonly.

xii) Instruct RTO, Valliyoor, Tirunelveli District for diversion of private vehicles like trucks etc. ifneeded.

xiii) Maintain communication with rallying post teams & convoyteams.

13. He shall arrange for Press, TV and Radio releases periodically throughout emergencyperiod.

14. DC, Tirunelveli shall arrange for continuous Offsite radiation

monitoring and shall continuously monitor the entire situation. If required, he will take assistance from district forest officer, Tirunelveli and Executive Engineer, irrigation, Tirunelvei.

15. DC, Tirunelveli shall ascertain with the help of Environmental Survey Teams whether any supplies of foodstuff, vegetables, farm produce, fish, meat, grass & milk are to be confiscated due to high level of contamination. If so, shall do the needful with the help of Agriculture, Fisheries, Irrigation and Animal Husbandry Departments. He shall arrange for the distribution of uncontaminated and clean edible items, drinking water, milk and vegetables among the affected populace with the help of District SupplyOfficer.
16. He shall terminate Offsite Emergency on the advice of SED, KKNPP
17. The OED shall arrange for decontamination of soil if required by earth excavation and disposition to burialground.
18. DC, Tirunelveli shall arrange to bring back evacuees to their villages from the rallyingpost.
19. OED is also responsible for Maintenance of chronological log of event during entire period ofemergencies.
20. District Collector or his alternates shall be available throughout the emergency period.

8.3.11 RESPONSIBILITY OF POLICE DEPARTMENT:

During emergencies, it might become necessary to implement one or more mitigatory actions to counter act the radiation emergencies in the public domain. SP, Tirunelveli will be coordinating all the necessary actions for smooth implementation of counter measures and maintain law and order in the area. Detailed Action Plan for SP, Tirunelveli during offsite emergency is given below

8.3.11(a) ACTION PLAN OF SUPERINTENDENT OF POLICE

1. On receiving information about the offsite emergency at KKNPP, he immediately alerts all the local police station in the affected sector and proceeds to District Disaster Management Control Centre / Emergency Operation Centre (EOC).
2. One vehicle mounted with police wireless set will be brought to District Disaster Management Control Centre for speedy communication. SP, Tirunelveli will take actions for the protection of public in consultation withOED.
3. SP, Tirunelveli start taking the actions regarding dispatching of the following teams to the affected areas.
    - Warning adviceTeam

- Traffic controlteams

4. For implementing these actions, help may be taken from Kudankulam police station and also from other nearby policestation.
5. The warning and advice teams will announce the pre-defined messages as approved by offsite Emergency Director in the affectedvillages.
6. Text for public announcement is givenin
7. The specific instructions for announcement as mentioned above will be given to warning & advice teams by Offsite Emergency Director or Superintendent of Police for announcement, vehicles already available in affected police stations will be augmented from police stations which are not affected. This will help in completing the task at the earliest. For this purpose, following facilities / equipment will beused:
    - Available vehicles with Police Administration
    - Megaphones available at District Disaster Management Centre (DDMC) or built- in PA system on the policevehicles.
8. SP, Tirunelveli will find out from OED about evacuation plan and arrange police force to be deployed for thepurpose.
9. Police personnel on emergency duty will be provided with personal monitoring devices TLD/ Dosimeter which will be made available by OIC, ESLKKNPP.
10. SP, Tirunelveli will ensure Control of vehicular and other traffic to isolate the affected sectors thru Traffic Control teams to prevent spread of contamination and for smooth implementation of countermeasures.
11. Men deployed for this duty will stop vehicular and other traffic, excepting vehicles involved in emergency operation. The traffic control team will be working in coordination with decontamination team posted at all traffic checkpoints.
12. SP, Tirunelveli will ensure the following with the help of the above mentionedteams
    - There would be no panic andchaos.
    - Team will proceed to the designated village with thePolice.
    - Announcementinthevillage(usingthewrittenmessagegiventothembyOED).

      The team will be provided with mega- phones or siren mounted police vehicles.
    - Evacuation of affected areas as per the advice ofOED
    - Orderliness in the wholeprocess.
    - People belonging to affected areas should be escorted safely and

they should carry their valuables and clothes withthem.

- Arrangement for round the clock functioning of police personnel in the affected villages till evacuation isover.
- Escort of evacuees to the Rallyingpost.
- Maintaining law and order during evacuation, transit and at rallyingpost.

13. SP, Tirunelveli shall arrange for round the clock police patrolling in the evacuated villages. The houses and properties would be protected from thefts, mischief, looting and arson.
14. The police Wireless sets are to be operational for fast communication of the instructions and instruction during the emergency period. If required standby channels may be activated for communicationpurposes.
15. Even after the actual emergency is over, use of fodder/water by animals and fresh food/water/vegetables by general public from the areas affected by radiation will have to be restricted as per the advice from OED. Police officers and men already deployed for duty will be entrusted with this work. Bandobast will be withdrawn only after OED give clearinstructions.

8.3.12 RESPONSIBILITY OF FISHERIES DEPARTMENT:

This department provides assistance in collection of fish samples from the different fishing centers located in the affected areas. Also, it will arrange for impounding of the fish and control / discontinuation of further fishing, in case of detection of contamination.

Detailed Action Plan for Joint Director of Fisheries during offsite emergency is given below

8.3.12(a) ACTION PLAN OF JOINT DIRECTOR FISHERIES

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. Based on instruction received from OED about radiation emergency declaration, he will carry out thefollowing:
   - JD, Fisheries shall compile data on the harvesting of marine products from the affectedsectors
   - Assisting Environmental Survey Laboratory, KKNPP in collection of fish and other samples from the different fishing centers located in the affectedareas.
   - Arrangements for impounding of the fish and control /

discontinuation of further fishing, in case of detection ofcontamination.

- Ascertaining the selling of fishes from the affected arebanned.

3. JD, Fisheries shall also take appropriate action for disposal of contaminated marine products in consultation with OED.

8.3.13 RESPONSIBILITY OF CIVIL DEFENSE DEPARTMENT:

The civil defense department provides assistance in educating and creating awareness to public. Officials from this department convince the public that operation of Nuclear Power Plant is very much safe due to its safe design and operation by qualified and trained engineers and that the chances of any radiation emergency arising from the plant are very remote.

Create awareness in the public about the existence of radiation emergency plan to ensure their safety during emergency.

To make public aware about the actions to be taken by individuals during any radiation emergency i.e. staying indoors after closing doors and windows and observing other precautions in not using contaminated food or water or edibles.

To co-operate with the District Authorities in implementing the action plan during emergency. Detailed action plan for Deputy Controller, civil defense during offsite emergency is given below.

8.3.13(a) ACTION PLAN OF DEPUTY CONTROLLER, CIVIL DEFENCE, THIRUNELVELI

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. Based on instruction received from OED, he will carry out thefollowing:
   a) Convince public that operation of Nuclear Power Plant is very much safe due to its safe design and operation by qualified and trained engineers and that the chances of any radiation emergency arising from the plant are veryremote.
   b) Create awareness in the public about the existence of radiation emergency plan to ensure their safety duringemergency.
   c) To make public aware about the actions to be taken by individuals during any radiation emergency i.e. putting wet cloth over nose and mouth, staying indoors after closing doors and windows and observing other precautions in not using contaminated food or water oredibles.
   d) To co-operate with the District Authorities in implementing the

action plan during emergency.

e) Assisting in makingannouncement.
f) Assisting in evacuation of affected sectors in orderlymanner.
g) Assisting in preventingrumors.
h) Providing volunteers for decontamination of vehicles ifnecessary.
i) Providing volunteers for taking samples of meat, fish, grass, milk, vegetables, crops, water andair.
j) Assisting people at shelterplaces.
k) Assisting the old, sick and children duringevacuation.
l) Assisting the injured and decontamination of injured and their firstaids.
m) Assisting in distribution of prophylactics (Iodinetablets).

8.3.14 RESPONSIBILITY OF FIRE BRIGADE:

The firefighting personnel at KKNPP fire station are trained for firefighting in radiation areas. District Fire officer will assist the KKNPP fire services personnel for additional help, if required.
Detailed Action Plan for District Fire Officer, Tirunelveli during offsite emergency is given below.

8.3.14(a) ACTION PLAN OF DISTRICT FIRE OFFICER, TIRUNELVELI

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite Emergency Director.
2. Based on instruction received from OED, he will make necessary arrangement and deploy required numbers of firefighting squads in the affected sectors.
3. He shall also be providing assistance as required to the disabled, handicapped, aged and ailing persons during transportation to the Rallying Posts.
4. He will also arrange for any other relief work according to the orders issued by the District Collector. If required, the services of Fire Stations at other centers within the District will be requisitioned.

8.3.15 RESPONSIBILITY OF WATER UTILIZATION AND IRRIGATION DEPT:

This agency will be called upon to respond in the unlikely events when there is unacceptable high concentration of radioactive materials in the water

bodies in the public domain surrounding the plant. Executive Engineer, Irrigation, Tirunelveli will be implementing the required counter measure

Detailed Action Plan for Addl. Chief Engineer, Irrigation, Tirunelveli during offsite emergency is givenbelow.

8.3.15(a) ACTION PLAN FOR EXECUTIVE ENGINEER, IRRIGATION, Tirunelveli

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. Based on instruction received from OED, he will make necessary arrangement and deploy required numbers of officials in the affected sectors for the following activities.

   Identification of all the areas and points where water is utilized for irrigation or domestic purposes.

   Collection of samples of water from different water bodies for analysis by Environmental Survey Laboratory for identifying the presence ofradioactivity.

   Controlling /stopping of the use of the contaminated water and arranging for supply of clean water from alternatesources. Collection of samples of produce (vegetables, grains etc.) and milk from the affectedareas.

8.3.16 RESPONSIBILITY OF AGRICULTURE DEPARTMENT:

This Department will work under the guidance of OED and in collaboration with Irrigation Department and arrange for identification of affected areas and provide assistance in the sampling of crops, milk and other produce etc. Joint Director of Agriculture has prepared a program in this respect.

Detailed Action Plan for Joint Director of Agriculture during offsite emergency is given below.

8.3.16(a) ACTION PLAN OF JOINT DIRECTOR OF AGRICULTURE

1. On receiving information regarding offsite emergency at KKNPP shall alert the Sub Divisional Agriculture Officer.
2. JD, Agriculture shall take charge of the food grains and standing crops left behind in the evacuated sectors.
3. JD, Agriculture shall make available samples of these items to ESL, KKNPP for analysis of the contamination levels.

4. JD, Agriculture shall coordinate in assay of Radioactive Contamination in agriculture products and enforce regulation of their consumption in the affected sectors.
5. JD, Agriculture shall be briefed about the procedure for collections of crop, water and soil samples, for determination of levels of radioactive materials.
6. If radioactive contamination in crops is significantly high then, he suggests the methods of disposal of the crops if the levels warrant such action.
7. The Sub-Divisional Agriculture Officer and the Agriculture Officer are required to visit their respective sectors assisting the KKNPP ESL officials in the collection of crop, water and soil samples from the affected sectors.
8. JD, Agriculture shall also arrange to apprise the farmers of the results of the assay and advise them about the implications.
9. If the radioactive levels in food crops are such as to warrant blocking of harvesting operations, sale and consumption of the crops, JD(Agriculture) shall arrange to take over the standing crops, harvested products or the stored products as the case maybe.
10. JD, Agriculture shall also furnish the District Collector the estimated value of theproduce soblocked.

8.3.17 RESPONSIBILITY OF ANIMAL HUSBANDRY DEPARTMENT:

This department is equipped with data on the number of livestock and other domestic animals in the area. In addition, they will assist in sampling meat, poultry and milk from the major production centers for analysis. Dy. Director, Animal Husbandry has drawn up a program to move out animals from the affected areas during emergency.
Detailed Action Plan for Dy. Director of Animal Husbandry during offsite emergency is given below.

8.3.17(a) ACTION PLAN OF DY. DIRECTOR, ANIMAL HUSBANDRY

1. On receipt of information about declaration of the offsite emergency, he will precede to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.

2. Dy. Director, Animal Husbandry shall arrange for transportation of Cattle out of the areas affected due to offsite emergency.

3. Dy. Director, Animal Husbandry shall Provide Assistance in obtaining samples of milk, meat, poultry products around KKNPP for analysis to check presence of radioactivity.

4. Dy. Director, Animal Husbandry shall Enforce regulations on the consumption of the produces if they foundcontaminated.

5. He shall arrange for fodder for the cattle shifted from affectedvillages.

8.3.17(b) NOTES TO JOINT DIRECTOR (ANIMAL HUSBANDRY)

1. The livestock can be expected to cover a distance of about 5 to 6 kms in one hour. Cross country routes would minimize the distance to be walked and the time needed forevacuation.

2. Available bullock carts in the villages can also be used for the transport of sheep, goats and poultry.

3. Four persons would be required for each 100 head of livestock for escorting them to the Rallying Post. Additional staff would also be deputed, ifrequired.

4. The requirement of 3 to 4 Kg of paddy straw per day per animal as maintenance ration has been taken as thebasis.

5. Staff of Animal Husbandry department will lead the livestock to cattle camps. If required, he will request RTO, Vallioor to provide Trucks for fasterevacuation.

6. Available grazing areas and forest land in the area surrounding cattle camp can be thrown open for use by the livestock.

7. He shall coordinate with ESL, KKNPP for periodical analysis of milk, meat & poultry products from the affected area around KKNPP and to regulate/ban the consumption of these products depending upon the result ofassay.

8.3.18 RESPONSIBILITY OF DISTRICT SUPPLY OFFICER

The District Supply Officer, Tirunelveli is responsible for adequate supply of catering at the shelter places.

Detailed Action Plan for District Supply Officer, Tirunelveli during offsite emergency is given below

8.3.18(a) ACTION PLAN OF DISTRICT SUPPLY OFFICER

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. District supply officer Remains in contact with the OED to ascertain the availability and state of readiness of the Shelter places to receive the supplies. Meanwhile he alerts the following officials
   - ❖ Taluka Supply Officers to be ready to mobilize the equipment and machinery to transport supplies of essential commodities to the rallying post.
   - ❖ District Transport Officer, Tirunelveli to be ready to mobilize the vehicles needed for transport of essential commodities supplies to the rallying post
3. After getting instruction from OED for the requirement of essential commodities, District supply officer carries out thefollowing
   - ❖ Organize the transport of essential commodities to the Shelter Places for the affected sectors.
   - ❖ Organize the catering operations, clothing distribution etc. at the Shelter Places after the arrival of the evacuees. Experience may be utilized for arriving the requirement of the essential Commodities.

8.3.19 RESPONSIBILITY OF STATE TRANSPORT DEPARTMENT:

After hearing about the radiation emergency from OED, Regional Transport Officer, Tirunelveli will:

- Send the required number ofbuses.
- Regional Transport Officer, Tirunelveli shall have ready reference of private light and heavy vehicles available with him for diverting the same for emergencypurposes.

Detailed Action Plan for District Transport Officer, Tirunelveli during offsite emergency is given below.

8.3.19(a) ACTION PLAN OF DISTRICT TRANSPORT OFFICER

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. Based on instruction received from OED, he will carry out thefollowing:
    - Mobilizing the required number of buses and vehicles for smooth implementation of countermeasures.
    - He shall liaison with RTO, Vallioor to meet the requirement of the vehicles needed for evacuation of the affectedpopulation.

Note:

1. Regional Transport Officer, Vallioor needs to keep the list private vehicles along with their address, and telephone numbers to deploy the private vehicles for emergency operation whenever required.
2. It may be necessary that the ST buses available in various depots may have to be diverted for use in the emergency operations. As the time is very important factor in implementing the counter measures a speedy action in this regard is very much essential.

8.3.20 RESPONSIBILITY OF HEALTH SERVICES:

During emergency, health services will assist in the following respect:

- To accommodate patients with injuries that is compounded with radioactive contamination and /or radiationexposure.
- To accommodate patients injured who might be shifted from the areas affected by emergency in case it becomes necessary to evacuate theseareas.
- To send ambulance and other medical equipment and / paramedical staff for assistance in affected areas, if calledfor.

The patients will be sent to government hospitals/ Primary Health Centers.Primary Health Centres will assist in distribution of KIO3 tablets and other relief measures. Detailed Action Plan for Deputy Director Health Services during offsite emergency is given below.

8.3.20(a) ACTION PLAN OF DEPUTY DIRECTOR HEALTH SERVICES

1. On receipt of information about declaration of the offsite emergency, he will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. Public Health and preventive measures are to be taken promptly on advice from the Offsite Emergency Director. District Health Officer will

be the nodal officer for implementing protective and reliefmeasures.

3. Based on instruction received from OED, he will carry out thefollowing:

   A) Administration of stable Iodine (Distribution of KIO3 tablets) in the affected villages.

   B) Taking care of public health at the affected sectors and the rallyingposts

A. <u>Administration of stable Iodine</u>

During an Off-site emergency as a part of counter measures, Potassium Iodate tablets will be given to the population if necessary, in the villages of affected sectors.

Required quantity of Potassium Iodate tablets (KIO3) is stored in all the Primary Health Centers / dispensaries in the Emergency Planning Zone. Concerned medical officers along with the prophylactics distribution team will draw these tablets from the nearest PHC and distribute to the affected population during the emergency under the advice of OED. The doses that are to be administered during the emergency are available with the Doctor at the PHC.

Distribution of Medicine and Relief measure should be completed as early as possible. The vehicles will be put into service within 2 hrs declaration of offsite emergency.

B. <u>Facilities at rallying posts</u>

Following sanitary facilities are to be made at the Rallying Posts for prevention of epidemic breakout/spreading.

1. Sanitation at The Rallying Posts

Temporary shelters for the evacuated persons may house a minimum of 500 to 1000 evacuees from the affected villages.
For the maintenance of sanitation at the Rallying Posts, District Health officer will make necessary arrangements by providing requisite number of sanitary workers and sanitary supervisor at each Rallying Posts.

2. WATER SUPPLY

Adequate quantity of portable water will be made available at the rallying post.

3. DRUG REQUIREMENT

District Health officer will be ensuring availability of drugs and medicines required for health care of persons at the shelter places.

7.3.21 RESPONSIBILITY OF DISTRICT FOREST DEPARTMENT

This Department will be called upon to respond in the unlikely events of unacceptable high radioactive materials in the forest premises. He will work under the guidance of OED and in collaboration with Irrigation & Agriculture Departments arrange for identification of affected areas and provide assistance in the sampling grass, plants & water bodies in the areas. Detailed Action Plan for District Forest Officer during offsite emergency is given below.

8.3.21(a) ACTION PLAN OF DISTRICT FOREST OFFICER (DFO)

On receipt of information about declaration of the offsite emergency,

1. District Forest Officer will proceed to District Disaster Management Control Centre and report to District Collector, Tirunelveli who will be the Offsite EmergencyDirector.
2. DFO shall be briefed about the procedure for collections of water and soil samples, for determination of levels of radioactivematerials.
3. DFO shall make available samples of forest items such as grass, plants & water bodies to ESL, KKNPP for analysis of the contaminationlevels.
4. DFO shall coordinate in assay of Radioactive Contamination in forest products and enforce regulation of their consumption in the affectedsectors.
5. If radioactive contamination in his area of control is significantly high then, DFO, Tirunelveli suggests the methods of disposal of the crops if the levels warrant suchaction.

8.3.22 EMERGENCY RESPONSE TEAMS

For effective implementation of protective action recommendations, following teams are formed and are put in into action during offsite emergency. The team will be activated for their mission only after administration of Prophylaxis to the members

1. Warning and AdviceTeam
2. Traffic ControlTeam
3. Prophylactics DistributionTeam
4. EvacuationTeam
5. ConvoyTeam
6. DecontaminationTeam
7. Rallying PostTeams
8. PatrollingTeam
9. InformationTeam
10. Service supportteam

8.3.23 WARNING AND ADVICE TEAM

Team Composition

1. Head PoliceConstable

2. Policeconstable

Responsibilities

On notification by the OED, the warning and advice team will be formed to alert and warn the public in the affected sectors about emergency. Alerting and warning the public will be done through any or all methods as listed below.

- Siren (vehiclemounted)
- Public address announcement (vehiclemounted)
- Messenger (megaphoneequipped)
- Radio and Televisionsystem.

Instructions to the public on the measures to be taken will be precise and clear.

8.3.24 TRAFFIC CONTROL TEAM

Team Composition

1. Head PoliceConstable
2. Policeconstable

Responsibilities

Following are the responsibilities of the team

i) Team will proceed to the designated traffic Control point along with the requisite materials like road blockers, diversion signsetc.

ii) They will not stop the movement of the vehicles that are being used for emergency purpose.

iii) The Access and Egress control will be exercised as per OED direction depending upon the direction of thewind.

iv) The team shall arrange to maintain proper accounts for vehicle movement to/from affectedarea

v) The following arrangement is required with Traffic controlteam.

   a. Personnel contamination monitoringinstrument.
   b. Decontaminationteam.

8.3.25 PROPHYLACTICS DISTRIBUTION TEAM

Team Composition

1. Primary Health Center MedicalOfficers
2. Primary Health Center NursingStaffs

Responsibilities

Following are the responsibilities of the prophylactics distribution team:

i) Team will proceed to the designated village with Primary Health Centre (PHC)staffs.

ii) On instruction from OED, they will distribute prophylactics to the villagers along with the rallying post teammembers.

iii) For additional requirement of tablets if any, they should contactOED.

Distribution of Prophylactics

In the event of an actual or projected release above the intervention levels of radioactive nuclides from the plant, Iodine in the form of KI03 tablets will be distributed to the persons who are likely to get affected from these radio nuclides. The distribution of these prophylactics will be done under the supervision of District Health Officer / Assistant District Health Officer. His medical officers and staff from different Public Health Centers will assist him. The prophylactics (KI03 tablets) are stored at following location in Emergency Planning Zone.

1. Environmental Survey Laboratory, Anuvijay Township - 28 bottles (each contains 500 tablets)
2. KKNPP Hospital, Anuvijay Township – 4 bottles (each contains 500tablets)
3. Primary Health centers (7 nos) – 12 bottles at each PHC (each bottle contains 500 tablets)

8.3.26 EVACUATION TEAM

Team Composition

1. Tahasildar (Team Leader)
2. Police sub-inspector
3. Police HeadConstable
4. Police Constables
5. Medical Officer
6. Nursing Staff
7. Member of villagepanchayat

Responsibilities

Following are the responsibilities of this team

i) Team will proceed to the designated village with thePolice.

ii) For evacuation and advice in the village, they will be using the written message given to them by Offsite EmergencyDirector.

iii) For announcement in the village, the team will be provided with mega-

phones or siren mounted policevehicles.

iv) The personnel on duty should ensure that there would be no panic and chaos in the public.

v) There should be orderliness in the wholeprocess.

vi) People belonging to affected areas should be escorted safely and they should carry their valuables and clothes with them.

vii) Complaints like missing valuables, children, and cattle would also be coming in such a situation the same to beregistered.

8.3.27 CONVOY TEAM

Team Composition

1. Dy. Tahasildar (TeamLeader)
2. Circle Inspector
3. oliceSub-inspector
4. Member of villagepanchayat
5. Primary Health Center MedicalOfficer
6. Primary Health Center NursingStaffs
7. Headconstables
8. Policeconstables

Responsibilities

Following are the responsibilities of the team

i) The team members will be moving to the affected sectors along with the convoy of the buses.

ii) After the people board the buses they will escort the convoy to the rallying post. Health surveyor will monitor the contamination of the public boarding the buses. If persons found contaminated, he will make necessary arrangement to transport the contaminated persons for decontamination in consultation with the District Disaster Management Committee(DDMC).

iii) The Convey Team leader shall ensure that a public address system is fitted to the vehicle for announcement to the public, regarding the arrival, the place of parking, the time of departure, etc., so as to minimize delays. He shall further ensure that the destination, route, and alternate route avoiding plume direction as per OED directive to be followed are prominently displayed on thevehicle.

iv) He shall also ensure that all the officials attached to him have undergone prophylactic treatment and are provided with protective clothes and dosimeters before embarking on theirtasks.

8.3.28 DECONTAMINATION TEAM

Team Composition

1. Supervisor from MSS group, KKNPP(TeamLeader)
2. Health Physics personnel, KKNPP
3. Civil Defense personnel

Responsibilities

The team members will be available along with the decontamination kit at the contamination checkpoint, which are on the route through which the evacuation convoy will be moving from the affected sector to their designated rallyingpost.

The team will be checking all the vehicles, which are coming out of the affected sector for presence of contamination. If they are found contaminated, necessary arrangement are to be made fordecontamination.

8.3.29 RALLYING POST TEAMS

Team Composition

1. Tahsildar - TeamLeader
2. Taluk supply Officer
3. Policesub-inspector
4. Police Head Constables
5. Medical Officer
6. Nursing Staffs
7. Member of Grampanchayat

Responsibilities

i) The team will be moving to the designated shelter places and make necessary arrangement for receiving the evacuees.

ii) The team leader shall be assisted by the local Revenue Inspectors, Village Administrative Officers and Village Government Servants.

iii) The rallying post team shall maintain a record of the evacuees (under the heads men, women and children) and shall be solely responsible for the overall activities of the temporaryshelters.

iv) They shall arrange for return of the evacuees as soon as the termination of Emergency is announced.

v) Maintaining law and order at the rallying post is also the responsibility of the rallying postteam.

8.3.30 PATROLING TEAM

Team Composition

1. Head PoliceConstable
2. Policeconstable

Responsibilities

Following are the responsibilities of patrolling team

i) Team will proceed to the designated village by the available vehicles with thePolice.

ii) The team will be guarding the property of the evacuees from theftetc.

iii) Depending on the prevailing radiological conditions on the advice of OED, the patrolling team will bereplaced.

8.3.31 INFORMATION TEAM:

Team Composition

1. Superintendent of Police, Tirunelveli(information groupleader)
2. District informationofficer

Responsibilities

i. During the early phase of emergency, information on the emergency situation and response action in the public domain through the electronic & print media (TV, Radio & Newspaper) will be provided by RO/IC based on the inputs received fromSED.

ii. During the Intermediate and Late phase of emergency, ERD-DAE will provide the necessary information on radiological conditions in the public domain that are to be included as part of the information dissemination byRO/IC

iii. Superintendent of Police, Tirunelveli (information group leader) provides authentic information for media for decision making process regarding public and media perspectives andreactions.

iv. They will also keep liaison with state level informationcentre.

8.3.32 SERVICE SUPPORT TEAM

Team Composition

1. Officer

2. Telephoneoperator
3. Typists
4. Messenger

Responsibilities

Service support Team shall give full support to District Disaster Management Committee (DDMC) during Offsite emergency conditions.

Zoning:

Topo sheet (digital map) of the site with site in the centre and having marked circular (for single NPP site)/elliptical (for multi NPP unit site) boundaries around the site….

8.4 EMERGENCY PLANNING ZONES AND DISTANCES:

The area around the KKNPP Site is divided into different zones and distances based on Source term, anticipated release, atmospheric parameters and time for initiation of response action

(a) Precautionary Action Planning Zone(PAZ):

The PAZ up to 5km is established for taking precautionary urgent protective actions before or shortly after a release of radioactive material. PAZ should be demarcated by features readily identifiable by people within that area. Such boundaries generally will include major topographical features (e.g., rivers, roads, transmission line corridors, rail rights of way) and political boundaries. The PAZ should be further subdivided, using similarly identifiable features, to facilitate implementing protective actions when the entire PAZ is notaffected.

(b) Urgent Protective Action Planning Zone(UPZ):

The UPZ up to 16km is established for taking urgent protective actions. The protective actions, which must be taken promptly (normally within hours), will be based on generic criteria and operational criteria.

(c) Extended Planning Distance(EPD):

The EPD up to 30km for emergency preparedness is for early monitoring of deposited radioactivity and to determine areas warranting protective actions including:

- Evacuation within a day following the releaseor
- Relocation within a week to a month following therelease.

(d) Ingestion and Commodities Planning Distance(ICPD):

For Planning, the ICPD up to 30Km is established around KKNPP site for temporary control of food stuffs until further environmental assessments are performed. The ICPD distance will be adjusted as per the actual conditions during the emergency situation.
The protective actions in ICPD include:

- Placing animals on covered feed and protecting drinking water supplies that use rainwater (e.g. to disconnect rainwater collection pipes);and
- Restricting consumption of local produce and non-essential food, milk from grazing animals andrainwater.

The area around KKNPP site up to 30 km is further divided into 16 sectors to facilitate fast identification of affected area during radiological emergencies, based on wind direction, and implementation of emergency action plans. The sectors are designated by letters A to P in clockwise, starting from North and of 22.5º each.

<u>Demographic Data:</u>

Details of population centers (villages, cities etc.) (sex, age and distance wise), road/rail network, facilities, (like rallying points, shelters, medical facilities, decontamination centres) in each sector, of 22.5º around NPP up to UPZ. (Note: Shelters should be outside the affected area)

**** it is as per the Off-site Emergency Plan, Rev-0 (approved by District Collector in March, 2011).***

HUMAN POPULATION DATA IN EMERGENCY PLANNING ZONES (AS PER CENSUS YEAR 2011)

Sl. No	Sector	Zone	Villages Name	Human Population*	Zone wise Total Population *
1.	A	1.6-5.0 KM	Kudankulam	12957	35970
		5.0-16 KM	Parameshwarapuram	2324	
			Udayattur	4550	
			Radhapuram	7469	
			Samugarangapuram	5522	
			Kumbikulam	3148	
		16.0-30 KM	Samugarangapuram	5522	46873
			Kumbikulam	3148	
			Kottaikarungulam	3160	
			Kovankulam	1206	
			Anaikulam	3726	
			Achchambadu	2947	
			Kannanallur	3236	
			Therku kallikulam	5980	
			Illangulam	5132	
			Irappuvari	4360	
			Madamkarungadu	1484	
			Papankulam	2398	
			Rajakalmangalam	4574	
2.	B	1.6-5.0 KM	Kudankulam	12957	31442
		5.0-16 KM	Udayattur	4550	
			Vijayapathi	10854	
			Kasthurirangapuram	3081	
		16.0-30 KM	Islapuram	316	38685
			Urumangalam	4868	
			Kottaikarungulam	3160	
			Kumarapuram	3993	
			Kovankulam	1206	
			Vijayanarayanam	10156	
			Ittamoi	8118	
			Ramakrishnapuram	4325	
			Sadayaneri	2543	
3.	C	1.6-5.0 KM	Kudankulam	12957	51218
			Vijayapathi	10854	
		5.0-16 KM	Vijayapathi	10854	

Sl. No	Sector	Zone	Villages Name	Human Population*	Zone wise Total Population *
			Thiruvampalapuram	3438	
			Rammadupuram	2850	
			Kasthurirangapuram	3081	
			Karaichuttupudur	7184	
		16.0-30 KM	Urumangulam	4868	35326
			Karaichuttupudur	7184	
			Karaichuttu Uvari	3122	
			Mudumottamuli	4786	
			Islapuram	316	
			Mahadevankulam	516	
			Kumarapuram	3993	
			Tisaiyanvilai	2048	
			Appuvilai	2212	
			Kuttam	6281	
4.	M	1.6-5.0 KM	Irrukandurai	4586	53697
			Kudankulam	12957	
		5.0-16 KM	Chettikulam	13866	
			Irrukandurai	4586	
			Levinjipuram	14020	
			Karungulam	3682	
		16.0-30 KM	-	-	-
5.	N	1.6-5.0 KM	Irrukandurai	4586	43657
			Kudankulam	12951	
		5.0-16 KM	Irrukandurai	4586	
			Adangarkulam	3754	
			Palavur	17780	
6.	O	1.6-5.0 KM	Kudankulam	12957	45943
			Irrukandurai	4586	
		5.0-16 KM	Irrukandurai	4586	
			Danakkakulam	6308	
			Adangarkulam	3754	
			Alanganeri	489	
			Sadayaneri	2543	
			Perungudi	10720	
		16.0-30 KM	Thandaiyarkulam	1500	42115
			Perungudi	10720	
			Panagudi	29895	

Sl. No	Sector	Zone	Villages Name	Human Population*	Zone wise Total Population *
7.	P	1.6-5.0 KM	Kudankulam	12957	17543
			Irrukandurai	4586	
		5.0-16 KM	Irrukandurai	4586	39739
			Parameshwarapuram	2324	
			Danakkakulam	4994	
			Radhapuram	7469	
			Veppilangulam	4440	
			Soundarapandiapuram	2212	
			Samugarangapuram	5522	
			Soundarapandiapuram	2212	
			Terku Kallikulam	5980	
		16 -30 KM	A.Thirumalapuram	2543	49167
			Valliyur	29417	
			Achchanbadu	2947	
			Dalapadisamudiram	6938	
			Rajakalmangalam	4574	
			Nabittalaivanpattayam	2748	

Emergency planning is done for the area around the plant with 15 KM radius. The datagiven above for the area beyond 15 KM radius is for the information purpose.

Note:-

- Kudankulam villages is considered for all the sector as it is falling under 5 kmradius
- Even if a part of village is falling on a sector, then the population of the whole village is considered for thatsector
- Population data for Sectors D to L are not given as these sectors are falling in the water region
-

List of Identified Rallying Posts

Sl. No	Sector Name	List of Rallying post		Accommodation capacity (Approx)
		UtilityName	Utility location	
1.	A	Government Higher Secondary School, Parappadi	Illangulam	20000
		Vanuvu Primary School	Illangulam	15000

2.	B	St. Mary's Higher Secondary School	Vijayanarayanam	18000
		RC. Maravar Panchayat Union School, Rajagopalapuram	Vijayanarayanam	17000
3.	C	Sri. Ramakrishna Higher Secondary School	Tisayanvilai	25000
		StellaMary's Higher Secondary School	Tisayanvilai	27000
4.	O	Sacred Heart Higher Secondary School	Panagudi	30000
		Government Higher Secondary School	Panagudi	20000
5.	P	Concardia Higher Secondary School	Vallioor	35000
		Salvation Army Higher Secondary School	Vallioor	35000

LIST OF TRAFFIC DIVERSION POINTS

Sl. No.	Sector	Location of Traffic Diversion Point	Diversion of vehicle proceeding towards
1.	A	Samugarengapuram	Kasturirangapuram
2.	C	Islapuram	Kasturirangapuram
3.	C	Karaichchutu Pudur	Thiruvambalapuram
4.	M	Levengipuram	Chettikulam
5.	N	Palavoor	Adangarkulam
6.	O	Kavalkinaru	Perungudi
7.	P	Therku Valliyur	Perungudi
8.	P	Alankinaru Thirumalapuram	Veppilankulam

LIST OF POLICE STATION IN THE EPZ

*To be updated as per latest directory

1.	Sector	Location of Police Station	Contact No.*
2.	A	Koodankulam	04637-250150
3.	B	Vijayanarayanam	04635-255148
4.	C	Thisayanvilai	04637-271366
5.	C	Overi	04637-277126
6.	N	Palavoor	04637-288527
7.	O	Panagudi	04637-245144
8.	P	Vallioor	04637-220256
9.	P	All Women Police Station, Vallioor	04637-222755
10.	P	Radhapuram	04637-254124
11.	P	Eruvadi	04635-240134

LIST OF GOVERENMENT HOSPITALS & PRIMARY HEALTH CENTRESIDENTIFIED FOR USE IN EMERGENCY

*To be updated as per latest data

Sl.No.	EPZ	Location of Hospital/PHC	Name of The Hospitals*
1.	All sectors	Kudankulam	Government Hospital.
			Primary Health Centre.
2.	A	Anaikulam	Mother&Child Care Centre, Anaikulam.
		Radhapuram	Primary Health Centre, Radhapuram.
		Kumbikulam	Reprimary Health Centre, Silathikulam.

3.	B	Muthumuthamoli	Primary Health Centre, Anaikudi.
		Kottaikarunkulam	Primary Health Centre.
		Kovankulam	Mother&Child Care Centre, Cionmalai.
4.	C	Karaichuthupudur	Reprimary Health Centre, Karaichuthupudur

Sl.No.	EPZ	Location of Hospital/PHC	Name of The Hospitals*
		Kuttam	Primary Health Centre, Kuttam.
		Thisayanvilai	Government Primary Health Centre, Thisayanviali.
		Thisayanvilai	Sub Health Centre, Kiraikaranthattu, Selvamaruthur, Idayankudi.
5.	M	Karungulam	Vetnary Hospital, Sanganapuram.
			Primary Health Centre, Sanganapuram
6.	N	Palavoor	Primary Health Centre, New Colony, Palavoor.
			Vallioor Gram Panchayat Union Bharathiyar Momorial Hospital, Avaraikulam.
7.	O	Panagudi	Government Primary Health Centre, Panagudi.
		Dhanakkakulam	Sub Health Centre, Koliyankulam, Petharengapuram.
		Parungudi	Primary Health Centre, Vaddakkankulam.
8.	P	A.Thirumalapuram	Mother&Child Care Centre.
		South Vallioor	Sub Health Centre, Therku Vallioor.
			Sub Health Station, Kalanthapanai

Live Stock:(a) Handling. (b) Evacuation, (c) Shelter, (d) Availability of Veterinary doctors/trained staff

Dy. Director, Animal Husbandry, Tirunelveli is responsible of handling, evacuation and sheltering of Live stock.

Action plan of Dy. Director, Animal Husbandry, Tirunelveli is given in Section 2 (iii).

Evacuation:

(i) Sectorwise plan for handling of vehicular traffic, especially, during evacuation and movement of emergencyvehicle.

Action plan of District Transport Officer, Tirunelveli is given in Section 2 (iii). List of traffic diversion points are given in section 4.

(ii) Evacuation routes and alternate routes in each sector up toshelters

Village wise evacuation route is listed in **Annexure-3**.

(iii) &(iv):

Estimated transport support required for evacuation and Resource mapping is enclosed in annexture.

Medical Facilities:

(i) Availability of Medical facilities and trained medical Drs and paramedics to respond to radiological injuries in and around eachsector.

(ii) Identify atleast one designatedhospital

List of government hospitals & primary health centers identified for use in emergency is given under Section 4 above.

Action plan of Dy. Director Health Services, Tirunelveli is given in Section 2 (iii).

Availability of trained medical staff and paramedics to respond to radiological injuries in land around each sector is enclosed in annexture. One designated hospital is to be identified.

SOP in Handling surge in number of patients:

Surge capacity is the ability of a health service to expand beyond normal capacity to meet increased demand for clinical care. Every hospital shall calculate their surge capacity early in the planning process such that the disaster response structure can be established, expanded, and contracted depending on the type and size of the incident. The objective of planning for surge capacity shall be to undertake the following activities during a disaster event:

1. Conduct a situationassessment
2. Collect, evaluate disseminate, and use information of theevent/incident
3. Develop information with regard to the hospital's current status with respect to the event/incident, to assist in the development of contingency plans (including statusof response efforts and resources)

The Hospital Capacity Analysis tool shall be used to calculate a hospital's surge capacity by determining:

a. Hospital Treatment Capacity (HTC): defined as the number of casualties that can be treated in the hospital in an hour and is usually calculated as 3% of the total number of beds.
b. Hospital Surgical Capacity (HSC): the number of seriously injured patients that canbe operated upon within a 12-hour period. It is usually calculatedas.

$$\frac{\text{HSC} = \text{Number of Operation rooms} \times 7 \times 0.25}{12 \text{ Hours}}$$

Note: The above standards are for a 1000 bedded tertiary hospital. Modifications shall be made based on the bed strength and staff strength for individual hospitals. Hospitals shall device and calculate their own treatment capacity based on their previous experiences.

To ensure that the estimated surge capacity is applicable in real-time scenarios, every hospital/healthcare facility shall:

i. Estimate the expected increase in demand for hospital services and calculate the maximum capacity required for thesame
ii. Identify methods of expanding hospital inpatient/outpatientcapacity
iii. Outsource care or shift non-critical patients to appropriate alternative sites to increase the hospital's capacity
iv. Designate care areas for patientoverflow
v. Verify availability of vehicles and resources for patienttransportation
vi. Establish mechanisms for inter-facility patienttransfer
vii. Identify potential gaps in the provision of critical medical care and address thesame while coordinating with neighboring and networkhospitals
viii. Identify sites that may be converted into additional patient careunits
ix. Prioritize/cancel non-essential services whennecessary
x. Adapt hospital admission and discharge criteria and prioritization of clinicalinterventions according to the available treatment capacity anddemand
xi. Designate a specific area that may be used as a temporary morgue and formulatea contingency plan for ensuring required post mortemprocedures
xii. Establish protocols for maintenance of a special disaster store/stockpile
xiii. Designate an official for information and communication with attending family members

Additionally, the following resources shall be assessed and maintained to ensure effective surge capacity management:

1. Manpower
2. Stores andequipment
3. Mortuary
4. Procedure for discharge/transfer ofpatients
5. Emergency bloodbank
6. Dietaryservices

Mutual aid agreements for transfers and accommodation with networkhospitals

Avalability of Iodine for thyroid blocking

(i) Stock of prophylaxes (stable iodine (KI/KIO3) in each sector at designated places or in hospital/NPP. And designated teams to distribute these to the affected area well within stipulated time.

The distribution of these prophylactics will be done under the supervision of District Health Officer / Assistant District Health Officer. His medical officers and staff from different Public Health Centers will assist him. The prophylactics (KI03 tablets) are stored at following location.

1. Environmental Survey Laboratory, Anuvijay Township - 28 bottles (each contains 500 tablets)
2. KKNPP Hospital, Anuvijay Township – 4 bottles (each contains 500tablets)
3. Primary Health centers – listedbelow

Location	Available 170 mg tabs. (Exp date : June 2026)	Available 85 mg tabs. (Exp date : March 2027)	Available 42.5 mg tabs. (Exp date : March 2027)
Primary Health Centre, Chettikulam.	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Primary Health Centre, Sanganapuram	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Primary Health Centre, K.Navaladi	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Primary Health Centre, Vadakkankulam	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Government Hospital, Radhapuram	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Government Hospital, Kudankulam	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs
Primary Health Centre, Pazhavur	10 bottles of 500 tabs	1 bottle of 500 tabs	1 bottle of 500 tabs

Method of administration of KIO_3

a. All individuals above 12 years of age 170 mg - as soon aspossible;
   85 mg - second and third day only
   170 mg - repeat after two weeks, if required
b. Pregnant women and children of age 3-12 years 50% of quantities given in(a)
c. Children under the age 3 years 25% of the quantities given in(a)

Action plan of Dy. Director Health Services, Tirunelveli is given in Section 2 (iii).

(i) Arranging adequate quantity of essential facilities and items at identified shelters (like water, food, sanitation, medical managementetc.)

Arranging adequate facilities and quantity of essential items at identified shelters (like water, food, sanitation, medical management etc.) is the responsibility of District Health Officer / Assistant District Health Officer.

Action plan of Dy. Director Health Services, Tirunelveli is given in Section 2 (iii).

Guidelines and procedure for conducting exercisesEmergencyExercises

Emergency exercises are conducted to check the readiness of the emergency response of the Off-Site Emergency Organization and to also check that arrangements are in place for a timely, controlled, coordinated and effective response at alllevels.

Types of Emergency exercises are as follows:

1) **Table Topexercise**

The scope of the exercise is decision making and response to the early phase of an emergency by plant personnel. The exercise is primarily focused on the decision making aspects of plant personnel based on emergency action levels (EALs). In this exercise method, the conditions that are expected during an emergency situation are introduced to the decision makers on real time and the exercise progresses on further new conditions introduces in form of injects. The decision on identification of plant conditions, affected area and the necessary mitigatory/response actions are expected to be appropriate to given situation during the exercise.

2) **Command and ControlExercise**

The scope of the exercise is decision making and response to an emergency by the responsible organizations at Plant and District level. This will include the activation of overall response frame work including other agencies (DAE-CMG & District Authorities) with emphasis on decision making and command control structure. In the domain of field response, only response of the first responders is exercised, and will not include activities involving movement of plant personnel and public. The exercise will also include decision making in the intermediate phase (dose assessment, evaluation of residual dose, use of reference levels and terminations of emergency). For the conduct of the exercise, the method of introducing

evolving conditions through injects (mocked scenario) will be followed.

3) **Full scaleexercise**

Specification for conduct of Off-site emergency exercise

a) Emergency exercise will cover all the specified functions in a phased manner to obtain feedback and implement correctivemeasures.
b) The personnel responsible for emergency response functions will participate in exercises on a regularbasis.
c) The exercises will be systematically evaluated against pre-established objectives of emergency response to demonstrate that identification, notification, activation and response actions can be performed effectively to achieve the goals of emergency response.
d) servers deputed by AERB, State / National authorities and other response organizations will also be involved to evaluate the effectiveness of theexercises.
e) The District administration will also involve the members of the public in emergency exercises asappropriate.

(ii) **Guidelines/plan on OSE exercise, frequency, arrangement etc.**

a) Records of all exercises along with deficiencies observed and critiques willbe maintainedfor periodic review andrectification.

b) The emergency preparedness plans and procedures will be updated periodically as per theregulatory requirement and based on the feedback received during the conduct of exercises.

c) The chronological log of events during the entire period of emergency willbe maintained

Communication:

(i) Availability of EW (Early Warning) System andMechanism

Under scope of District Authorities

(ii) Line ofCommunication:

Refer Annexure-13 for communication flow diagram

(iii) With NPP Site/local/District/State/NationalAuthorities

Refer Annexure-13 for communication flow diagram

(iv) WithPublic

(v) Withmedia

Information on the plant conditions to the Local media / local public during an Off-Site Emergency Situation will be done by Site Emergency Director or his nominee.

During the early phase of emergency, information on the emergency situation and response action in the public domain through the electronic & print media (TV, Radio &Newspaper) will be provided by RO/IC based on the inputs received fromSED.

During the Intermediate and Late phase of emergency, ERD-DAE will provide the necessaryinformation on radiological conditions in the public domain that are to be included as part ofthe information dissemination byRO/IC.

(vi) Instruments forcommunication

Telephone/Mobile /Fax/email
Wirelesssets
Megaphones
PA system on the police vehicles
TV/Radio

(vii) Communication with fishermen already atsea in annexture.

Additional Information (during Early & Intermediate phase):

8.5 ACTION PLAN OF SITE EMERGENCY DIRECTOR:

Site Emergency Director:

Site Director of KKNPP Site is the Site-Emergency Director. When Site emergency conditions deteriorate and enter conditions for Off-Site Emergency as identified in EALs, the Site Emergency Director (SED) declares the start of "Off-site Emergency" around KKNPP Site.

For deciding the Protective actions required in the ***early phase*** in the off-site domain, the SED is supported by the Off-Site Radiological conditions assessment group. The group will assess the fall out in the public domain in the Off-site areas of KKNPP Site due to the radioactivity releases from the affected unit(s).

The responsibilities of the Site Emergency Director during an Off-Site Emergency situation are detailed below:

1. When Site emergency conditions deteriorate and enter conditions for Off-Site Emergency (as identified through EALs), the Site Emergency Director declares "Off-site Emergency" around KKNPP Site and communicates RO/ICfor notification. **(**The format is given in**Annexure-4)**.
2. SED informs Off-site emergency declaration to CMG-DAE-ECR,

Alternate CMG- DAE-ECR ERD-DAE, CMD NPCIL and NREMC-AERB. **(**The format is given in**Annexure-5)**. The initiating conditions for declaring the Off-site emergency and the relevant source term estimated will also be communicated toERD.

3. SED ensures that all identified officials for Off-Site Radiological Conditions Assessment (ORCA) are available. If required additional officials as required depending on the scenario will be deputed Round the Clock till the crisis is resolved.

4. SED ensures that the radiological conditions (Actual measured by Radiological survey team from ESL / projected by DSS) of the affected sector and all the technical inputs on the progression / assessment of emergency situation of the affected unit are available to the members of the Off-Site radiological condition assessment (ORCA) for decision making on Protective Action Recommendations (PAR).

5. SED will recommend the Protective Action Recommendations (PAR) **(**The format is given in**Annexure-6)** to RO/IC for implementation. The evolving situation will continuously be assessed by ORCA group and further updated PARs will be recommended to theRO/IC.

6. In case RO/IC finds limitations in implementing the suggested protective actions due to socio-economic and/or ground conditions, he will communicate the same to SED who in turn will recommend optimized/ alternate protective actions, if feasible.

7. If conditions at the SECC becomes inhabitable, SED will decide to function from the Off-Site Emergency support Centre located at ESL in Anuvijaytownship.

8. The format of the communication with respect to protective actions recommendations by ERD-DAE (CMG) to the RO/IC is given in **Annexure-7**.

9. On off-site emergency situation developing to an Intermediate phase (*Plant is under control and no further major release is taking place*), SED will communicate to CMG on the plant/site conditions and request CMG of changeover of early phase to Intermediate phase of the Off-Site emergency **(**The format is given in **Annexure-8.** On receiving acceptance of the request from CMG regarding change over to intermediate phase (The format is given in **Annexure-9**), SED will communicate the transition to the Intermediate Phase for the ERD to take over responsibility of guiding RO/IC for further actions. **(**The format is given in **Annexure-10)**.

10. ERD will send an acknowledgement for taking over the responsibility of guiding RO/IC, for further Protective actions requirement during Intermediate Phase **(**The format is given in **Annexure-11).**

11. SED will continue to take further mitigatory action at the affectedunit.

12. Intimation from ERD-DAE to RO/IC on termination of off-site emergency is given in**Annexure-12**

The Site Emergency Director will closely liaison with the ERD and provide all the required technical inputs on the plant/site conditions. The SED will also provide all the logistic requirements to the ERD for effective functioning of his teams.

Command and Control:

(i) Org. for chain ofcommand

Refer Annexure-1 & Annexure-13.

(ii) IRS and roles and responsibilities of various IRSteams

Refer Emergency Response Teams composition and responsibility given in Section-2 (iii)

(iii) OECC (Off-site Emergency CoordinationCommittee)

OECC is named as DDMC (District Disaster Management Committee).

Refer Section 2 (iii) for details of DDMC composition, responsibilities and action plans

(iv) Location of ECCs/EOCs

ECCs of KKNPPsite:

Site Emergency Control Centre (SECC): Located at KKNPP Site

Off-site Emergency Support Centre (OESC): Located at Environmental Survey Laboratory (ESL) at Anuvijay Township.

ECC for DDMC (District Disaster Management Committee):

District Disaster Management Control Centre / Emergency Operation Centre (EOC).

Plan for managing post accidentsituation:

to (v)

Handling Existing Exposure Situation

During the existing exposure situation, most of the public dose comes from ground contamination (ground shine) as there will be adequate control on ingestion of contaminated food stuff andwater.

a) Since the plant is under control and no radioactivity releases taking place; plume dose, submersion dose and dose due to airborne contamination will be negligible. Therefore, for projected dose calculation only radiation levels arising from ground deposited radioactivity will beconsidered.

b) Even when the radiation source is under control, areas may remain contaminated. People living in long-term contaminated areas after a nuclear accident or a radiation emergency will continue to have the protective measures like adequate control on ingestion of contaminated food stuff and water for continuing to live there rather than abandoning theseareas.

c) In existing exposure situation, the measures like decontamination of land & facilities, their recovery and evacuees will be undertaken. This needs assessment of residual radioactivity in the affected area and carrying out the decontamination process. Monitoring of air, grass/vegetation, dietary items, etc., is required to be continued till the radioactivity level comes down to acceptable levels forconsumption

d) RO/ICwill ensure conduct of Decontamination activities involving digging of soil, disposing of soil, washing / painting of facilities etc. in the affected area. They will also ensure to provide essential tools / equipment and personal protective gears to the work force during decontaminationwork.

e) CMG-DAE will ensure continuation of monitoring of environmental radioactivity levels, contamination levels and radiation fields in the affected area including continuation of monitoring of air, grass / vegetation, dietary items, etc., till the acceptable levels are achieved.

f) CMG-DAE will advise RO/ICfor taking decision for safe return of the public in the affected area based on the prescribed limits. A detailed plan shall be worked out as per actualrequirement.

Recovery actions during existing exposure situation:

Late Phase is the period beginning when cleanup and recovery actions have begun and ending when all recovery actions have been completed. This phase may extend for months to years.

The Late Phase cleanup process begins sometime after the commencement of the intermediate phase and proceeds independently of intermediate phase protective action activities. The transition is characterized by a change in approach, from strategies predominantly driven by urgency, to strategies aimed at both reducing longer-term exposures and improving interim livingconditions.

The cleanup process during Late Phase involves characterization and stabilization, establishment of cleanup goals, strategies and implementation of the same for achieving the re-occupancy of the affected areas. Radiation protection requirements will be addressed taking in to consideration health, environmental, economic, social, psychological, cultural, ethical, political, and other considerations.

1. **Characterization and Stabilization:**

   a) The first step in remediation or cleanup process during the Late Phase is characterization or the comprehensive mapping and monitoring of the distribution and level of radioactive contamination in the affectedarea.

      Characterization activities are necessary in the preparation for and verification of a successful remediation or cleanup effort. Characterization in this phase consists of delineation, in detail, of the nature and extent of contamination in areas impacted by the incident.

   b) Stabilization is intended to reduce the spread of contamination to clean areas, the airborne inhalation hazards and the volume of radioactive wastegenerated.

      Stabilization techniques are designed to immobilize radioactive contamination on soils, buildings, roads and equipment. This becomes paramount in a large-scale radiological incident where the spread of contamination can occur from natural weathering effects to human and animal interactions with the environment.

      Stabilization reduces chronic low-level exposures to residual radiation, airborne hazards, and volumes of secondary waste. These reductions can result in significant benefits to the long-term recovery in terms of time-to-normalcy and economic recovery.

2. **Goals and Strategies**

   Areas impacted by radioactive contamination are documented and defined to the best extent possible once the characterization and stabilization activities are accomplished in the Late Phase.

   The development of goals and strategies marks the second step in the Late Phase remediation or final cleanup process. The following aspects need to beconsidered.

   a) The type of contamination including nuclide mix and chemical form, as well as risk from non-radiologicalhazards.

   b) The technical feasibility, cost, timeliness and effectiveness of decontamination measures; and the availability and cost of options for the disposal ofwastes.

   c) The size and character of the areas that are contaminated; past

and projected future uses for these areas; and the preservation or destruction of places of historical, economic, national, or regional significance.

d) Site-specific natural and anthropogenic background levels ofradioactivity.

e) Estimates of the impacts of both contamination and options for decontamination, on human health, communities, the economy, ecosystems and ecosystemservices.

While it may take many years to achieve final cleanup levels, a timely return to normalcy, including re-occupancy and a viable community, requires a cleanup process that is flexible, iterative and inclusive. Decisions should be made on a site-specific basis and should reflect the interim risks that are reasonable and acceptable to the affected community while active remediation, radioactive decay, and natural weathering move the site toward long-term cleanup goals.

The Radioactive waste arising in a nuclear emergency including radioactive waste arising from associated protective actions and other response actions taken, will be identified, characterized and categorized in due time and will be managed in a manner that does not compromise the protection strategy taking into account prevailing conditions as these evolve. The policy and strategy for management of radioactive waste generated in emergency will be in line with the general objectives of radioactive wastemanagement.

Implementation and Re-occupancy

To implement cleanup actions in each community, measurable quantities associated with cleanup goals should be derived taking into account exposures from all potential pathways and through all environmental media. These values typically are derived considering reasonably anticipated future land use, dietary habits, and commerce patterns. Although it may take years to achieve the final cleanup goals for all land uses, re-occupancy of the affected area will be possible; when interim cleanup can reduce short-term exposures to acceptable levels during the time it takes to achieve the long-term goals. There may be institutional or engineering controls placed on some portions of the site to prevent excessive exposures until further active remediation, radioactive decay, or natural weathering allow the site to meet cleanup goals. Stakeholder involvement should be integrated throughout the entire cleanupprocess.

Also refer section 2 (iii)

<u>Capacity building at all levels including community</u>

General

Maintenance of emergency preparedness plans is essential to ensure that the basic, functional and infrastructural requirements are

kept at an acceptable level of readiness. This is achieved by upkeep of equipment, materials for handling emergency, training and retrainingof the officials involved in emergency roles and updating of the off-site emergencypreparedness and response plans based on feedback from emergency exercises conductedperiodically. The Plan Implementing procedures required to be maintained.

Training on Emergency Preparedness and Response

Training shall be provided to ensure that the emergency response personnel have therequisite knowledge, skills and abilities to perform their assigned response functions andensuring that agencies/individuals involved in emergency management understand thepurpose and scope of theaction plans. Periodic refresher courses shall be arranged to these trained personnel to make them abreastof the changes or modifications in the emergency preparedness plans.

Public Awareness on preparedness and response to an emergency:

DDMA & KKNPP should have a well-established public awareness programme. Suchprograms should have specific objective to disseminate relevant information to the membersof public on various measures that are part of preparedness and response to an emergencycondition. These programs on nuclear energy and nuclear emergency preparedness should beconducted periodically to increase the awareness among the public. This should cover themeans/methods of providing instructions, warnings and relevant information to the publicduring an emergency, including knowledge and information on the various public protectionmeasures during an emergency commensurate with those expected to be taken in the affectedareas. Appropriate public awareness programs should be developed and organized forvarious community groups such as school children, college students, farmers, professionals, business community etc. especially for those residing in the emergency planning zone (EPZ)around KKNPP.

Plant Emergency:

Declared emergency conditions in which the radiological/other consequences, confined to the plant or a section of the plant, requiring immediate operator action.

Prophylaxis:

Prophylaxis is the intake of specific stable chemical compounds, which have a reducing or blocking effect on the uptake of certain radio-nuclides. The most important example is the use of KIO_3 to reduce the uptake of radio-iodine“s (particularly I-131) in thyroid gland.

Safety Systems:

Systems important to safety, provided to ensure, under anticipated operational occurrences and accident conditions, the safe shutdown of the reactor (Shutdown System) and the heat removal from the core

(Emergency Core Cooling System) and containment of any radioactivity (Containment Isolation System).

Sheltering:

The short term use of a structure for *protection* from an airborne plume and/or deposited *radioactive* material. In practical terms, Sheltering means to stay indoors and refrain from going outside until further advice in the event of an emergency.

Site:

The area containing the facility defined by a boundary and under the effective control of facility management.

Site Emergency:

Accidental condition/emergency situation in the plant involving radioactivity transgressing the plant boundary but confined to the site or involving release of hazardous chemicals or explosion, whose effects are confined to the site, with off-site consequences being negligible.

Off-site Emergency:

The situation or condition involving release of radioactive materials / hazardous chemicals from the plant to the public domain calling for intervention constitutes an Off-site emergency.

Source Term:

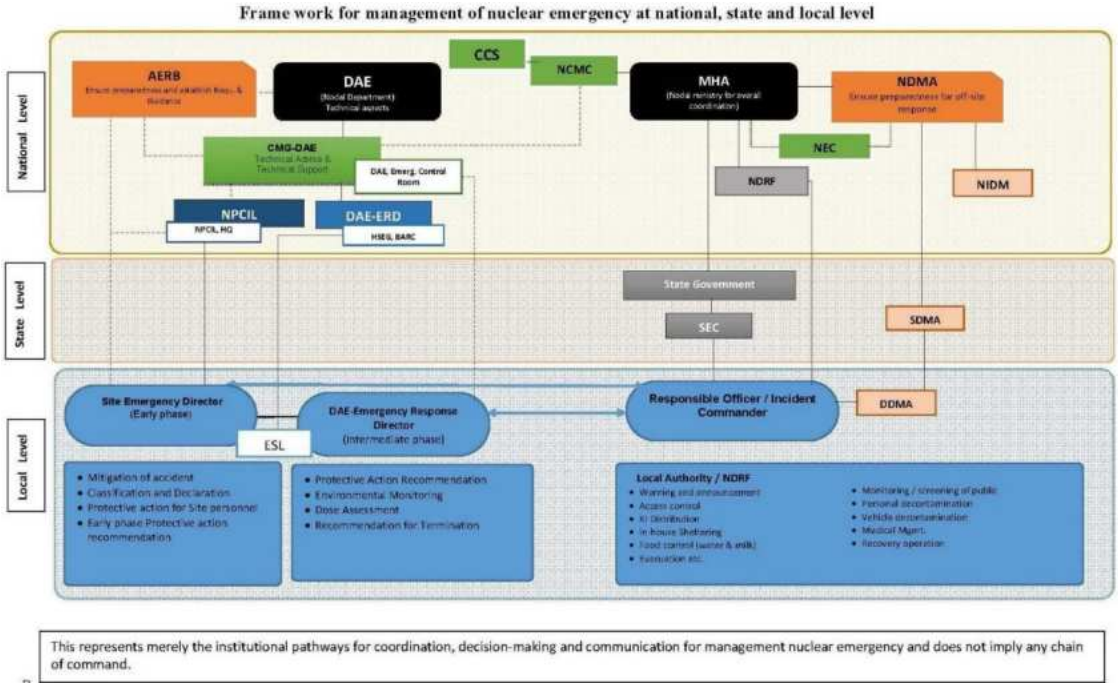
The amount and isotopic composition of *radioactive material* released (or postulated to be released) from a nuclear facility.

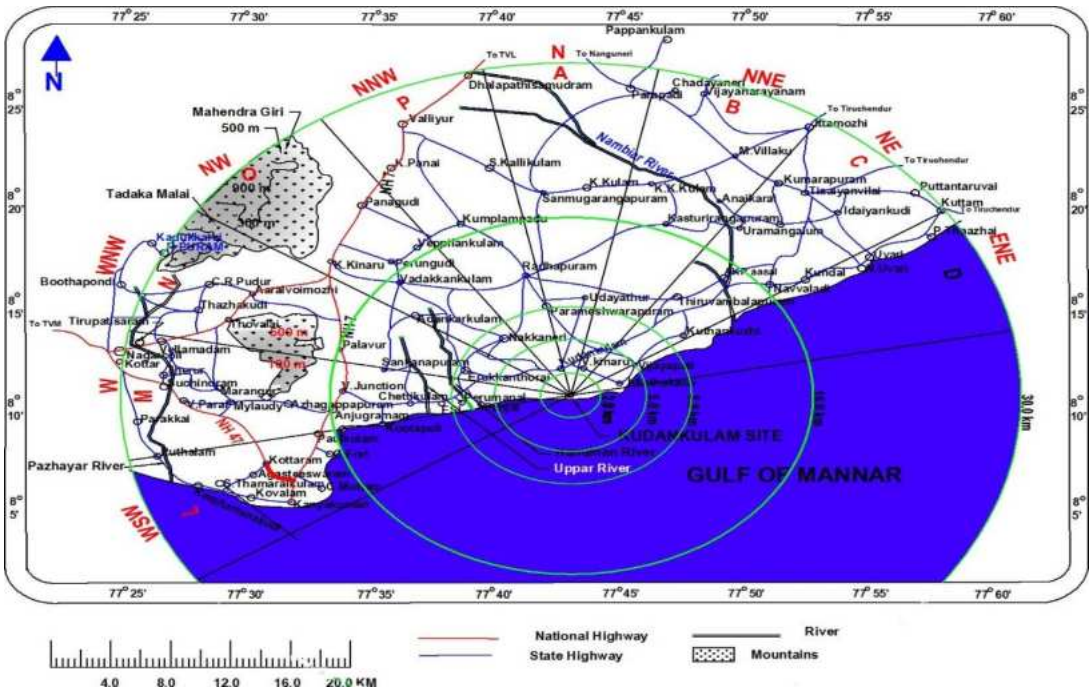
Station:

Station refers to a "twin unit" nuclear power plant.

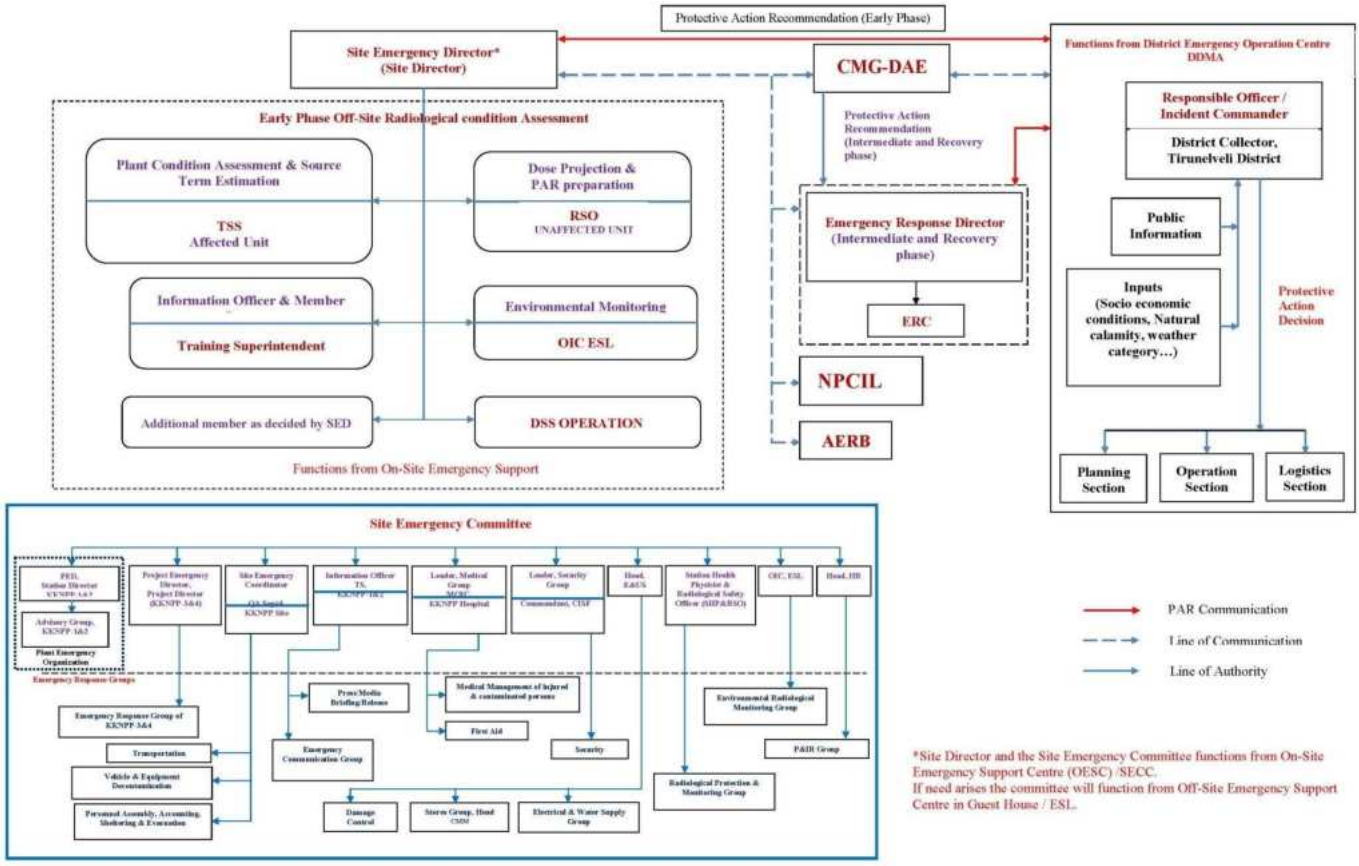
Unit:

An independent series of Nuclear and Conventional Systems producing Electricity from Nuclear Fuel.





Annexure-13: Communication flow diagram



*Site Director and the Site Emergency Committee functions from On-Site Emergency Support Centre (OESC) /SECC.
If need arises the committee will function from Off-Site Emergency Support Centre in Guest House / ESL.

CHAPTER-9

INSTITUTIONAL MECHANISM FOR DISASTER MANAGEMENT

9.1 Introduction:

For prevention and mitigation effects of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation it has been decided by the Government to enact a law on disaster management to provide for requisite institutional mechanism for drawing up and monitoring the implementation of Disaster Management Plans and ensuring measures by various wings of Government. The Disaster Management Act, 2005 provides for the effective management of disasters and for other matters connected therewith or incidental thereto. The Disaster Management ACT, 2005 under section 3, 14 & 25 seek to provide for establishment of National, State and District Disaster Management Authorities.

9.2 DISTRICT LEVEL MECHANISM IN TIRUNELVELI:

As per section 25 of Disaster Management ACT, 2005, a District Disaster Management Authority, Tirunelveli has been formed under the chairmanship of Collector. The DDMA Tirunelveli is a 7-member high-powered committee. The members of DDMA Tirunelveli are as follows:

Sl. No	Name	Designation	Position	Cell No.
1	Thiru.Dr.K.P.Karthikeyan I.A.S.,	District Collector	Chairperson	9444185000
2	Thiru.V.S.R Jegadeesh	District Panchayat Chairman	Co-Chairperson	9443371830
3	Thiru.N.Silamparasan I.P.S.,	Superintendent of Police	Member	9498153000
4.	Tmt. M. Suganya	District Revenue Officer,	Chief Executive Officer	9445000928
5	Tmt.Latha	Joint Director (Health Services)	Member	7358122173

6	Thiru.N.Saravanan	Project Direcetor (DRDA)	Member	9443285614
7	Thiru.C. Maheshwaran	PersonaAssistant (G) to the collector Tirunelveli	Member	9445008157

The District Disaster Management Authority works as the District planning, coordinating and implementing body for Disaster Management and take various measures for the purpose of Disaster Management in the District in accordance with the guidelines laid down by the National or State authority. Powers and Functions of District Authority as per Section 30 of DM ACT, 2005 are as under: -

i. Prepare a disaster management plan including district response plan of the district

ii. Coordinate and monitor the implementation of the National Policy, State Policy, National Plan, State Plan and District Plan

iii. Ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disaster and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities.

iv. Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the departments of the Government at the district level and the local authorities in the district.

v. Give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary

vi. Lay down guidelines for prevention of disaster management plans by the department of the Government at districts level and local authorities in the district;

vii. Monitor the implementation of disaster management plans prepared by the Departments of the Government at the district level;

viii. Lay down guidelines to be followed by the Departments of the Government at the district level for purpose of integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance therefore;

ix. Monitor the implementation of measures referred to in clause (viii);

x. Review the state of capabilities for responding to any disaster or threatening disaster situation in the district and give direction to the relevant departments or authorities at the district level for their up gradation as may be necessary;

xi. Review the preparedness measures and give directions to the concerned departments at the district level or other concerned authorities where necessary for bringing the preparedness measures to the level required for responding effectively to any disaster or threatening disaster situation;

xii. Organize and coordinate specialized training programmes for different levels of officer, employees and voluntary rescue workers in the district;

xiii. Facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non- governmental organizations;

xiv. Set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public;

xv. Prepare, review and update district level response plan and guidelines;

xvi. Coordinate response to any threatening disaster situation or disaster;

xvii. Ensure that the Departments of the Government at the district level and the local authorities prepare their response plans in accordance with the district response plan;

xviii. Lay down guidelines for, or give direction to, the concerned Department of the Government at the district level or any other authorities within the local limits of the district to take measures to respond effectively to any threatening disaster situation or disaster;

xix. Advise, assist and coordinate the activities of the Department of the Government at the district level, statutory bodies and other governmental and non-governmental organization in the district engaged in the disaster management;

xx. Coordinate with, and give guidelines to, local authorities in the district to ensure that measures for the prevention or mitigation of threatening disaster situation or disaster in the district are carried out promptly and effectively;

xxi. Provide necessary technical assistance or give advise to the local authorities in the district for carrying out their functions;

xxii. Review development plans prepared by the Departments of the Government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation;

xxiii. Examine the construction in any area in the disaster and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being or has not been followed, may direct the concerned authority to take such action as may be necessary to secure compliance of such standards;

xxiv. Identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places;

xxv. Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;

xxvi. Provide information to the State Authority relating to different aspects of disaster management;

xxvii. Encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management;

xxviii. Ensure communication systems are in order, and disaster management drills are carried out periodically;

xxix. Perform such other functions are the State Govt. Or State Authority may assign to it or as it deems necessary for

disaster management in the District. Powers and Functions of District Authority in the event of any threatening disaster situation or disaster as per section 33 under DM ACT, 2005:-

a) Give directions for the release and use of resources available with any Department of the Government and the local authority in the district.

b) Control and restrict vehicular traffic to, from and within, the vulnerable or affected area.

c) Control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area.

d) Remove debris, conduct search and carry out rescue operations.

e) Provide shelter, food, drinking water and essential provisions, health care and services.

f) Establish emergency communication systems in the affected area.

g) Make arrangements for the disposal of the unclaimed dead bodies.

h) Recommend to any Department of the Government of the State or any authority or body under that Government at the district level to take such measures as are necessary in its opinion.

i) Require experts and consultants in the relevant fields to advise and assist as it may deem necessary.

j) Procure exclusive or preferential use of amenities form any authority or person.

k) Construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster.

l) Ensure that the non-governmental organizations carry out their activities in the equitable and non-discriminator manner.

m) Take such other steps as may be required or warranted to be taken in such a situation.

9.3 EMERGENCY OPERATION CENTRE

Tirunelveli District has an exclusive Emergency Operation Centre (EOC) at District Head Quarter with in the revenue control room. The District EOC is functional on 24X7 basis and is manned by the following officials:

1. Tahsildar (1) Time Scale,
2. Two Desk Personnel (Consolidate Pay)
3. Junior Assistant (Consolidate Pay)
4. Data Entry Operator Cum Typist (Consolidate Pay)

The centre is well-equipped with various Information Technology (IT) based equipments such as Computer with internet facilities embedded with GIS based technologies, wireless set etc.

Considering the unique responsibility of the district Emergency Operation Centre, the equipments provided to it shall not be taken to any purpose other than disaster management. This centre is intended to coordinate all disaster related activities in the district starting from preparedness to rehabilitation and reconstruction.

In case of any emergency there shall be permanent sitting place for each Emergency Support Functionaries (ESFs) in the EOC and they shall be provided with sufficient telephone connections. Only the Nodal ESFs are to sit in the EOC and coordinate the disaster management activities in the district with their support agencies. There shall be dedicated telephone lines and other communication facilities.

9.4 Role of Emergency Operation Centre in Normal Time:

As per section 29 D of DM ACT, 2005 the Tirunelveli Disaster Management Authority has provided DDMA Tirunelveli, the Tahsildar (Disaster Management) as officer in charge of EOC for carrying out the functions of district authority. The Tahsildar (Disaster Management) will be responsible for the effective functioning of the EOC. Responsibilities of the EOC in charge in normal time include:

1. Ensure that all equipments in the EOC are in working condition;
2. Collection data on routine basis from line departments for disaster management

3. Develop status reports of preparedness and mitigation activities in the district;

4. Ensure appropriate implementation of District Disaster Management Plan

5. Maintenance of data bank with regular updating

6. Activate the trigger mechanism on receipt of disaster warning/occurrence of disaster.

9.5 Role of Emergency Operation Centre during Disaster:

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

1. All Emergency Support Functions

2. Members of DDMA-Tirunelveli / ESFs

3. Hospitals in the disaster area

4. Office of the Superintendent of Police

5. State Relief Commissioner

6. Emergency Operation Centre in the neighboring districts

7. National/State Emergency Operation Centre

8. People’s representatives from the district

Apart from this the District Emergency Operation Centre must arrange desks for the Emergency Support Function in its complex for better coordination and help. Simultaneously the onsite EOCs are to be set up with the help of the district EOC. Constant communication between the State EOC, District EOC and Onsite EOC is mandatory for updates on the disaster, which happened.

CHAPTER-10

PREPAREDNESS

10.1 Introduction:

The entire disaster management operations should be designed that all the levels disaster control and mitigation operation start immediately after the information of disaster striking the districts is received. In other words, the entire system at all the levels is self-activated without requiring any directions from the district level authorities to act. For this the role and responsibility of each of the officer at various levels of district administration has to be unambiguous, and the system should be in the state of alert during the normal flood and cyclone period.

10.2 Trigger Mechanism:

The trigger mechanism envisages that on receiving signals of a Disaster happening or likely to happen, all activities required for the mitigation process are energized and activated simultaneously without loss of any time and the management of the event is visible on the ground. The primary objective of the trigger mechanism is to undertake immediate rescue and relief operations and stabilize the mitigation process as quickly as possible.

The trigger mechanism in fact is a preparedness plan in which all the participation officers and agencies know in advance the task assigned to them and the manner in which they have to prepared themselves to respond. As such the organization and planning has already been taken care of. The resources are identified including manpower, material and equipment. The performers should have adequate delegation of financial and administrative powers and have mandate for accomplishing the task.

The success of the trigger mechanism depends on the vision and perception of the planners. They are required to anticipate the likely activities with reference to the nature of the Disaster and its impact. In fact the trigger mechanism can also be called the operating standard procedures where the implementation of the efforts on ground are well laid down. Generally, the activities will include evacuation, search and rescue, temporary shelter, food, drinking water, clothing and sanitation, communications, accessibility and public information. All these major activities, which are common in all types of disasters, will require sub-division and preparation of sub-action plans by each specified authority. They will be required to list all requirements and their availability within the prescribed response time.

To sum up, the trigger mechanism is an emergency quick response mechanism like ignition switch, when energized, spontaneously sets the vehicle of management into motion on the road of Disaster mitigation.

The District Collector as the chairman of the Disaster Management Committee activates the trigger mechanism in the district. Immediately on receipt of the warning message he starts issuing and receiving information to and from all the departments which each department is expected to pass on.

10.3 Role of the District Level Officials:

With increasing importance on the preparedness and preventive measures for disaster mitigation, immense initiatives have been taken by appropriate authorities at various levels, a paradigm shift from relief & rehabilitation and post disaster assistance to predisaster mitigation efforts has not gone unnoticed.

10.3.1 Role of District Collector:

Districts, headed by the District Collector (also known as the District magistrate), is the focal point at the district level for directing, supervision and monitoring relief measures for disaster and for preparation of district level plans, the collector exercised coordinating and supervisory powers over functionaries of the all department at the district level. The district disaster management committee consisting of and non-official members, including elected representatives, review the disaster mitigation measures in the district before, during and after any disaster. The District Collector is responsible for the district for day to day monitoring of the rescue and relief operation on a continuous basis.

The Collector maintains close liaison with the central government authorities in the districts, namely, army, air force and navy, ministry of water resource, etc, who supplement the effort of the district administration in the rescue and relief operation

The National Disaster Response Force (NDRF) of the country have played a vital role during disaster emergencies providing prompt relief to victims even in the most inaccessible and remote areas of the country. The organizational strength of the armed forces with their disciplined and systematized approach, and with their skills in technical and human resource management make them indispensable for such emergency situations, india having a federal structure the integrated disaster management mechanism exists within the government framework. The District Collector is responsible for providing all logistics and local support to the personnel of National Disaster Response Force (NDRF). He also

coordinates all voluntary efforts by mobilizing the Non-Government Organizations capable of working in such situations.

10.3.2 Powers and functions of the Collector:

During the period of disaster if an area is affected, the Collector may issue directions to the officers of the departments of the government and the local authority in the affected area, to provide emergency relief in accordance with the disaster management plans.

10.3.3 The Collector may:

Make arrangements for release and use of available resources, control and restrict traffic to, from and with the area affected by a disaster, control and restrict the entry into, movement within and departure from any disaster area or part of it; make arrangements for removing debris; conduct search and rescue operations;

Make arrangements for the disposal of the unclaimed dead body, by appropriate means; provide alternative shelter; provide food, medicines and other essentials; Require experts and consultants in the matters relevant to the disaster to provide relief under his direction and supervision; To take possession and make use of any property, vehicles, equipment, buildings and means of communication on such terms and conditions as may be prescribed. Procure exclusive or preferential use of amenities as and when required; Order for construction of temporary bridges or other structures; Demolish unsafe structures, which may endanger the public;

Coordinate with non-governmental organizations and ensure that such entities carry out their activities in an equitable manner, disseminate information to the public to deal with the disaster Direct and compel evacuation, of all or part of the such evacuation, and for such evacuation use force as may be necessary; Authorize any person, to make any entry into any place, to open or cause to be opened, any door, gate of the barrier, if the considers such an action is necessary for preservation of life and property, if the owner or occupies is absent, or being present, refuses to open such door, gate or barrier.

10.3.4 The Collector may exercise the powers to the extent only that this necessary for the purpose of:

Assisting and protecting the community; providing relief to the community; preventing or combating disruption; pr Dealing with the destructive and other effects of the disaster.

The collector may issue such directions to any person or government agency and take such other steps, as may be necessary to curtails the escalation of the disaster or to curtail the escalation of the disaster or to alleviate, contain or minimize the effects of disaster.

10.3.5 Collector shall:

Ensure that actions for prevention of a disaster or mitigation of its effects or preparedness to scope up with such effects are carried out in accordance with guidelines as may be prescribed; provide inputs to authority relating to various aspects of disaster management, such as early warnings and status of preparedness;

Ensure that officials in the district acquire the knowledge to deal with disaster management; Ensure that district disaster management plans are prepared, revised, and updated, Facilitate and, coordinate with, local government bodies to ensure that pre-disaster and disaster management activities in the district are carried out;

Facilitate community training awareness programmes and the installation of emergency facilities with the support of local administration, non-governmental organizations, and the private sector; Establish inter-department coordination on matters related to disaster management; Review emergency plans, DDM plans and guidelines;

Other powers and functions, ensure that local authorities in the district are involved in developing their own mitigation strategies; Ensure that communication systems are in order;

Ensure that fire fighting equipments and other equipments related to disaster management are so maintained as to be ready for use; Coordinate the activities of reconstruction and rehabilitation in the district; Ensure that disaster management is so maintained as to be ready for use; Coordinate the activities of reconstruction and rehabilitation in the district; Ensure that disaster management drills are carried out periodically; Assist the authority in monitoring the progress and outcome of efforts for reconstruction and rehabilitation; Exercise such powers and perform such functions as may be delegated by the state government, the authority and the commissioner; Exercise such other powers and perform such other functions as may be prescribed.

10.4 Functions of Local Authorities:

For the purpose of disaster management, local authority shall, subject to such directions as the authority may give and under the supervision of the collector:

Assist the authority, the commissioner and the collector:

Ensure that the staff of the local authority are trained:

Ensure that all resources related to disaster management are so maintained as to be ready for use; Ensure that all buildings and other structures in the local area comply with the specifications laid down in this behalf by the departments of government and the authority; carry out relief operations in the affected area subject to directions of the commissioner; Carry out reconstruction and rehabilitation activities in accordance with the guidelines framed by the authority; Prepare a disaster management plan setting out the following, namely:

(1) The manner in which the concept and principles of disaster management are to be applied in local area;

(2) Role and responsibilities of the local authority in the trerms of the disaster management plan of the state;

(3) Capacity of the local authority in the terms of the disaster management plan of the state;

(4) Particulars of disaster management strategies; and

(5) Contingency strategies and emergency procedures in the event of a disaster, including measures to finance the strategies.

Coordination in the preparation and the implementation of plan with those of the organizations of the estate and stake holders; necessary to regularly review and update the plan.

Conduct disaster management drills periodically; and provide such assistance to the authority, the commissioner and the collector and take such other steps as may be necessary for disaster management. each local authority shall submit to the authority and the commissioner a copy of its disaster management plan purposed and any amendment thereto. Each department of the government in a district management plan for the district and the collector shall ensure that such plans are integrated into the disaster management plan for the whole of the district.

The Department of government while preparing a plan:

- Anticipate the types of disaster that may occur in the district and their possible effects.

- Identify the communities and property at risk; provide for appropriate prevention and mitigation strategies;

10.5 Preparedness

10.5.1 District Emergency Operation Centre (EOC) - Preparedness:

- Setting up EOC and ensure 24 hours of service
- Conduct regular district coordination meetings and assign duties
- Conduct capacity building activities to all sectors in the district
- Regular maintenance of the Early warning system
- Arrange for safe shelter in coordination with relevant departments
- Arrange for food, water, medicines and basic necessities for the public
- Arrange for transportation facilities for public and livestock
- Plan spaces for the evacuees and livestock

10.5.2 District Emergency Operation Centre (EOC)- Pre Disaster:

- Early warning dissemination and coordination with departments
- Monitor the functioning of district Emergency Operation Centre (EOC)
- Conduct district coordination meetings and assign duties
- Information compilation from all relevant departments and NGO's
- Ensure proper maintenance and functioning of communication systems

10.5.3 District Emergency operation Centre (EOC)-During Disaster:

- Dissemination of information regarding status of the disaster
- coordinate with relevant departments and NGOs for relief and rehabilitation
- Monitor the entire situation to reduce rumours and illegal practice submit detailed report to state government and media

10.5.4 District Emergency Operation Centre (EOC)-Post Disaster:

- ❖ Dissemination of information regarding status of the disaster
- ❖ Coordinate with relevant departments and NGOs for relief and rehabilitation
- ❖ Monitor the entire situation to reduce rumours and illegal practice submit detailed report to state government and media.

10.6 Role of Line Departments:

10.6.1 Revenue Department-Pre Disaster:

- ❖ Establish control room in Taluk, RDO Offices and District Headquarters and train all staff on DM
- ❖ Form special teams headed by Zonal officer & install wireless systems in official vehicles
- ❖ Inspection of irrigation tanks/tanks/rain gauges and to report the number of repairs to be carries out.

10.6.2 Revenue Department-During Disaster:

- ❖ Co-ordinate with all departments to share information & resources, keep track of coordinated efforts.
- ❖ Evacuate, arrange temporary shelters, food and medical assistance until situation turns normal
- ❖ During Disaster for quick communication in Tirunelveli District VHF Sets are functioning in the Revenue Department Officer and Officer's vehicles.

TWO WAY COMMUNICATION SYSTEM (VHF/HF)
INSTALLED IN COASTAL DISTRICT

Sl. No.	Location Name	Base Station	Mobile Station
1.	District Collector	1	1
2.	District Revenue Officer, Tirunelveli Vehicle	0	1
3.	EOC	1	0
4.	Cheranmahadevi, Sub-Collector's office	1	1
5.	Revenue Divisional Office, Tirunelveli	1	1
6.	District Supply Office, Tirunelveli	1	0
7.	Tahsildar, Tirunelveli	1	1
8.	Tahsildar, Palayamkottai	1	1

9.	Tahsildar, Ambasamudram	1	1
10.	Tahsildar, Nanguneri	1	1
11.	Tahsildar, Manur	1	1
12.	Tahsildar, Cheranmahadevi	1	1
13.	Tahsildar, Radhapuram	1	1
14.	Tahsildar, Tisaiyanvilai	1	1
	Total	**13**	**12**

10.6.3 Revenue Department-Post Disaster:

- ❖ Ensure all resources and accounted & submit a report to coordinated departments & DMC

- ❖ Periodically verify the situation in the site & conduct case studies if required, document the activity

- ❖ To ensure proper distribution of cash doles/Food pockets and other benefits to the flood cyclone affected people.

- ❖ In Tirunelveli District the Rainguage Stations are maintained by IMD.

RAINGUAGE STATIONS IN TIRUNELVELI DISTRICT

Sl. No	Rainguage Stations
1.	Ambasamudram
2.	Cheranmahadevi
3.	Manimutharu
4.	Nanguneri
5.	Palayamkottai
6.	Papanasam
7.	Radhapuram
8.	Tirunelveli
9.	Servalar Dam
10.	Kannadian Anicut
11.	Kalakadu
12.	Kodumudiyaru Dam
13.	Moolaikaraipatti
14.	Nambiyar Dam
15.	Manjolai
16.	Kakkachi
17.	Nalumukku
18.	Oothu

47 NEWLY INSTALLED AUTOMATIC RAIN GAUGE STATIONS (ARG)			
SL.NO	ARG NO	LOCATION DETAILS	
1	ARG 919	Tirunelveli (T) – Gangaikondan (F) – Gangaikondan-II (V)	
2	ARG 920	Tirunelveli (T) – Madavakurichi (F) – Seethaparpanallur (V)	
3	ARG 918	Tirunelveli (T) – Tirunelveli (F) – Suthamalli (V)	3
4	ARG 922	Palayamkottai (T) – Melapattam (F) – Melapattam (V)	
5	ARG 923	Palayamkottai (T) – Munneerpallam (F) – Munneerpallam (V)	
6	ARG 921	Palayamkottai (T) – Palayamkottai (F) – Keelaveeragavapuram (V)	
7	ARG 924	Palayamkottai (T) – Sivanthipatti (F) – Sivanthipatti (V)	4
8	ARG 942	Manur (T) – Manur (F) – Kattarankulam (V)	
9	ARG 925	Manur (T) – Manur (F) – Manur (V)	
10	ARG 957	Manur (T) – Manur (F) – Vagaikulam (V)	
11	ARG 941	Manur (T) – Vannikodanthal (F) – Vannikonanthal (V)	
12	ARG 926	Manur (T) – Vannikonanthal (F) – Devarkulam (V)	5
13	ARG 927	Cheranmahadevi (T) – Cheranmahadevi (F) – South Veeravanallur (V)	
14	ARG 928	Cheranmahadevi (T) – Pappakudi (F) – Pappakudi (V)	2
15	ARG 954	Ambasamudram (T) – Ambasamudram (F) – Vikramasingapuram-II (V)	
16	ARG 929	Ambasamudram (T) – Singampatti (F) – Vairavikulam (V)	
17	ARG 955	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-II (V) – Manimutharu Falls	
18	ADD-ARG 34	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-II (V) - Manjolai	
19	ADD-ARG 35	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-III (V) - Kakkachi	
20	ADD-ARG 36	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-IV (V) - Nalumukku	
21	ADD-ARG 37	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-V (V) - Oothu	
22	ADD-ARG 38	Ambasadmudram (T) – Singampatti (F) – Jameen Singampatti-VI (V) - Kuthiraivetti	8
23	ARG 934	Nanguneri (T) – Eruvadi (F) – Eruvadi-II (V)	
24	ARG 936	Nanguneri (T) – Eruvadi (F) – Oochikulam (V)	
25	ADD-ARG 40	Nanguneri (T) – Eruvadi (F) – Thirukurnkudi (V) – Nambi Kovil	
26	ARG 963	Nanguneri (T) – Kalakadu (F) – Idaiyankulam (V)	
27	ADD-ARG 39	Nanguneri (T) – Kalakadu (F) – Kalakadu-I (V) - Chengaltheri	
28	ARG 933	Nanguneri (T) – Kalakadu (F) – Patthai-II (V)	
29	ARG 956	Nanguneri (T) – Kalakadu (F) – Vadakarai (V)	
30	ARG 932	Nanguneri (T) – Moolakaraipatti (F) – Munanjipatti (V)	
31	ARG 930	Nanguneri (T) – Nanguneri (F) – South Nanguneri (V)	
32	ARG 931	Nanguneri (T) – Poolam (F) – Karanthaneri (V)	10
33	ARG 965	Radhapuram (T) – Levenjipuram (F) – Chettikulam (V)	
34	ARG 959	Radhapuram (T) – Levenjipuram (F) – Erukandurai (V)	
35	ARG 958	Radhapuram (T) – Levenjipuram (F) – Karungulam (V)	
36	ADD-ARG 41	Radhapuram (T) – Panakudi (F) – Panakudi-II (V) –Mahendragiri ISRO	
37	ARG 953	Radhapuram (T) – Panakudi (F) – Parivirisuriyan (V)	
38	ARG 935	Radhapuram (T) – Radhapuram (F) – Thiruvanbalapuram (V)	
39	ARG 962	Radhapuram (T) – Tisaiyanvilai (F) – Idayankudi (V)	
40	ARG 937	Radhapuram (T) – Valliyoor (F) – Anaikulam (V)	
41	ARG 938	Radhapuram (T) – Valliyoor (F) – Valliyoor (V)	9
42	ARG 961	Tisaiyanvilai (T) – Tisaiyanvilai (F) – Kasthurirangapuram(V)	
43	ARG 952	Tisaiyanvilai (T) – Tisaiyanvilai (F) – Kuttam (V)	
44	ARG 939	Tisaiyanvilai (T) – Tisaiyanvilai (F) – Tisaiyanvilai (V)	
45	ARG 964	Tisaiyanvilai (T) – Vijayanarayanam (F) – Ittamozhi (V)	
46	ARG 960	Tisaiyanvilai (T) – Vijayanarayanam (F) – Mannarpuram (V)	
47	ARG 940	Tisaiyanvilai (T) – Vijayanarayanam (F) – Vijayanarayanam-I (V)	6
TOTAL			47

10.7 Panchayat Development

The key representatives of various departments are as follows for getting prepared for the disaster are noted below.

10.7.1 Panchayat Development-Pre Disaster:

- Establish control room in BDO Offices, District Headquarter & train staff & community on DRM
- Form task forces at village, Panchayat & BDO offices & install wireless systems in official vehicles
- Inspection of Minor irrigation Tanks.

10.7.2 Panchayat Development-During Disaster:

- Co-ordinate with local agencies to share information & resources, keep track of efforts.
- Evacuate, arrange temporary shelters, food and medical assistance until situation turns normal.

10.7.3 Panchayat Development-Post Disaster:

- Ensure all resources are accounted & submit a detailed report to co-coordinated agencies.
- periodically verify the situation in the site & conduct case studies if required, document the activity.

10.8 Corporation and Municipalities

10.8.1 Corporation and Municipalities-Pre Disaster:

- Establish control room in all municipalities and train all staff on DM techniques.
- Form task forces in ward levels & in municipalities & install wireless systems in all official vehicles.

10.8.2 Corporation and Municipalities-During Disaster:

- Co-ordinate with agencies to share information and resources, keep track of coordinate efforts.
- Evacuate, arrange temporary shelters, food and medical assistance until situation turns normal.
- To ensure chlorinated drinking water supply in Municipal proper maintenance of sanitation.

10.8.3 Corporation and Municipalities-Post Disaster:

- ❖ Ensure all resources are accounted & submit a detailed report to coordinated agencies.
- ❖ Ensure all resources are accounted & submit a detailed report to coordinated agencies.

10.9 Public Works Departments:

To keep close watch over the dams, rivers, Anacut by having the patrolling team:

- ❖ To give immediate information through wireless is excess inflow of water in river and channel is noticed.
- ❖ To watch the possible breaches in river banks by setting up mobile teams with adequate number of staff.
- ❖ To keep sufficient number of sand bags, along with transport facility for instant mobilization to the vulnerable places.

10.10 Highways Department:

- ❖ To ensure that the roads are properly maintained by locating the sensitive points and strengthening them.
- ❖ To keep ready, the rescue teams with the tree cutting materials preferably power saws for removing the flood and wind fallen trees.
- ❖ To keep sufficient stock of gunny bags, casurina and bamboo poles for strengthening the roads against over washes.
- ❖ To keep special teams to attend to the breaches in roads and culverts and cause ways.

10.11 Medical Department:

- ❖ To keep ready sufficient quantity of medicines such as drugs, and surgical textiles in the Government hospitals and PHCs.
- ❖ To form first aid be equipped with stretches and other emergency transport facilities like ambulances.
- ❖ To keep mobile surgical units for providing surgical facilities where the facilities are deficient.
- ❖ To keep sufficient stock of blood at the blood bank during the period form October to December.
- ❖ To keep Sufficient number of beds by restricting their admissions only to those who require emergency and immediate hospitalization.

10.12 Civil Supplies:

- ❖ To ensure that adequate stock of rice, sugar and kerosene at all storage points throughput the district (at lease one month minimum

stock should be kept) in co-ordination with Senior Regional Manager TNCSC.

- To ensure that all the fair price shops kept open all the days without stock out in coordination with the joint Register of Co-operative Societies.

10.13 Tamilnadu Electricity Board:

- To keep ready sufficient number of generators with trained personnel to operate them with mobilization facilities.
- To employ special team for putting off electricity supply at the time of any disaster so that the loss due to electrocution can be avoided.
- To keep sufficient number of rubber gloves and safety tools at all the substations.
- To form special teams to attend to the failing of electric lines, poles, transmission towers etc.,

10.14 Animal Husbandry Department:

- To keep sufficient number of preventive vaccines and essential drugs at all the centres.
- To form special squads to administer vaccination in the cyclone prone area to prevent contagious disease.
- To form mobile veterinary units with a vehicle.

10.15 Transport Department:

- To keep ready list of private vehicles along with the details of owners so that the vehicles can be sent to the affected areas whenever warranted.

10.16 Fisheries Department:

- To issue warning to the fishermen and boatmen tobe alert of the possible damages.
- To keep ready sufficient number of private boats and kattumaram with crew and nylon ropes etc.,

10.17 Rural Development Departments:

- To keep watch over the roads under their control.
- To keep ready the equipments needed for attending the breach.
- To make arrangements to clean the drinking water supply in the rural areas by chlorination.
- To be ready to transport drinking water to the affected areas if needed.

10.18 Education Department:

- To keep ready the school buildings in good condition for providing shelter to the affected people.

10.19 Fire service Department:

- To be in a state of alert to meet any kind of emergency.
- To keep may number of like jackets ropes etc., and with modern equipments like combination tools.

10.20 Police Department:

- To be alert to meet with any emergencies.
- To undertake rescue operation along with the fire department.
- To keep ready the wireless sets in all the stations for passing the messages about the damages and relief operations to the officers concerned.

10.21 NCC and Home guards:

- NCC to keep volunteered cadets who know swimming as rescue parties and to keep ready their boats for engaging in rescue operations.
- Home guards should have the volunteers for forming flood rescue teams.
- The Voluntary organisations to be ready to render all possible assistance to the flood affected victims and to render all cooperation to the district administration.

10.22 Check slip for preparations:

A copy of the plan is furnished to all members of the District Committee and other stake holders. It is up to the officers at all the levels to rise up to the occasion in providing relief restoration of damages and rehabilitation of the victims are achieved within the quickest time possible and by the easiest manner. The aim is to provide immediate relief to the persons in need of it.

All departmental offices will ensure that the duties and responsibilities assigned to them are carried on without any further order at every stage and they need not wait for orders at every stage. RDOs and the Tahsildars will clarify the instructions to the concerned officials in the vulnerable areas and fix the responsibility. Materials required facing any situation well in advance as briefly narrated below.

Lighting in the event of Flood and Heavy Rain the first and foremost need will be the provision alternate arrangements for lighting, as the electricity will naturally fail. The Tahsildars are requested to assess the requirements of generators (1) to serve their offices (2) and subordinate officers (3) other essential services and arrange to send advance intimations to all the proprietors intimating them that they should keep their generators ready for handing over to the department. At short notice for tiding over the situation. In fact, if the Heavy Rain is imminent, the generators may be brought to the offices and fitted so that the failure of lighting arrangements may not stop relief operations.

10.23 Staff:

During the months of October, November and December, ordinarily leave should not be granted to any government servant unless it is very essential. The residential address of all the members of staff in the various government officers should be collected and made available in the Taluk Offices where form the man power will have to be utilized case of an emergency.

10.24 Supply of Petrol and Diesel:

Quite a large number of vehicles will be pressed into service in the event of cyclone, the revenue divisional officers and district supply officer will ensure that at least 25% of the capacity of tankers are kept as reserve throughout the period of emergency i.e.16th October to 15th December. The District Supply Officer will chart out a programme and furnish it as a supplement to this plan.

The District Supply Officer, Tirunelveli the joint registrar of Co-operative Societies and the Senior Regional Manager TNCSC Ltd. Tirunelveli will move all essential commodities and store rice, sugar, kerosene, salt, candles, Matches, Lantern, edible oil, etc., in the vulnerable areas. The Senior Regional Manager and the joint registrar of Co-operative Societies, Tirunelveli have made necessary arrangements for the storage of two months buffer stock in the village fair price shopswhich are noticed as vulnerable. In order to avoid non-availability and scarcity of fire wood during the times of flood and heavy rains, they will take necessary steps to keep ready and store adequate stock fire-wood in advance for supply to retails shops. The District Supply Officer, Tirunelveli will see that the surplus stock of kerosene allotted to this district. The Tahsildars are requested to instruct all village administrative officers to procure locality and keep ready at least 5 lantern in each village for use at the time of floods.

CHAPTER - 11
PREVENTION & MITIGATION PLAN (2017-2030)
(WHAT MAJOR & MINOR DISASTERS WILL BE ADDRESSED THROUGH MITIGATION MEASURES)

11.1 Introduction:

The District Disaster Management Committee (DDMC) gathers once in three months to review the programme activities in the district and give their suggestions and recommendations for effective implementation. Apart from this there are DMCs formed at all administrative levels. There are, Block DMC, Urban Local Body DMC, All DM Committees comprise of local opinion leaders and decision makers to take decisions and respond during emergency. The DM Committee also facilitates the DM Teams to be prepared and to regularly practice their roles.

District Disaster Management Committee	–	District Level
Urban Local Body Disaster Management Committee	–	ULB Level
Block Disaster Management Committee	–	Block Level

11.2 Major Responsibilities of the DDMC:

1. Coordinate stakeholders in planning, implementing & monitoring
2. Ensure gender equality and unity in disaster related activities
3. Prepare the local communities in coping with disaster situation
4. Disseminate information of disaster and render technical support

The DDMC is the task force council and facilitates the task forces at all administrative levels of the district to carry out the objectives of the DDMP with community participation. The meeting of the DDMC shall be conducted by the Collector during September every year; so that the Collector can have a detailed discussion with each departmental Officer regarding the precautionary measures to be taken in the event of any emergency during the monsoon season and the departmental Officers shall be entrusted with various responsibilities.

The Revenue and administration have given the task to the district administration to prepare the District disaster management Plan (DDMP) to meet the common disasters of flood and cyclone the plan of action for the District is being prepared every year to manage the disaster Every year a Disaster Management plan for flood is drawn in consultation with key Departments, in which the action to be taken by each department is noted. During emergency time all the sources available within the district or within the area are utilized to recover from the disaster. Coordination from all departments at all levels at all stages is ensured by conducting a meeting in the month of September every year. In this regard. Instructions are also being issued from time to time

according to the instructions received from the Government. Mock drills are also being conducted every year in the month of September.

In the District Disaster management plan the action before, during and after a Disaster to be taken is explained elaborately with instructions to all departments. The machineries of key departments are put in a state of alert when the monsoon period begins. The Role to be played by the various departments is given in details in the District Disaster Management Plan.

11.3 District Disaster Management Organization:

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

In Tirunelveli District the apex body for disaster management is called District Disaster Management Committee (DDMC). The committee is headed by the Collector of Tirunelveli District as the chairman and the district Revenue Officer/Additional Collector (Revenue) acting as vice-chairman. The main function of the district disaster management committee is to coordinate the activities of various departments during the time of emergency in the district.

THE FOLLOWING OFFICERS CONSTITUTE
THE DISTRICT DISASTER MANAGEMENT COMMITTEE

1.	**COLLECTOR OF TIRUNELVELI DISTRICT**	**CHAIRMAN**
2.	District Revenue Officer, Tirunelveli	Vice Chairman
3.	Project Director, D.R.D.A. Tirunelveli	Member
4.	Superintendent of Police, Tirunelveli	Member
5.	Superintending Engineer (PWD) Buindings, Tirunelveli	Member
6.	Superintending Engineer, TNEB Tirunelveli	Member
7.	Superintending Engineer, TWAD, Tirunelveli	Member
8.	Corporation and Municipal Commissioners, Tirunelveli	Member
9.	Executive Engineer, (PWD-WRO), Tirunelveli	Member
10.	Divisional Engineer, (H&R.W) Tirunelveli	Member
11.	Divisional Engineer, (Rural Roads) Tirunelveli	Member
12.	Senior Regional Manager, TNCSC, Tirunelveli	Member
13.	Joint Registrar (Cooperative) Tirunelveli	Member
14.	Revenue Divisional Officers, Tirunelveli	Member
15.	Joint Director of Health Services, Tirunelveli	Member
16.	Regional Transport Officer, Tirunelveli	Member
17.	Public Relations Officer Tirunelveli	Member
18.	Deputy Director of Health Services, Tirunelveli	Member
19.	Assistant Director of Panchayats, Tirunelveli	Member

20.	Assistant Director of Audit Tirunelveli	Member
21.	Deputy Superintendent of Police, Home Guard, Tirunelveli	Member
22.	Executive Engineer (Building Constructions and Maintenance Division), Tirunelveli	Member
23.	Joint Director of Agriculture i Tirunelveli	Member
24.	Commanding Officer, (NCC) Tirunelveli	Member
25.	Joint director of Animal Husbandry, Tirunelveli	Member
26.	District Supply Officer, Tirunelveli	Member
27.	District Fire Officer, Tirunelveli	Member
28.	Area Commander (Home Guard) Tirunelveli	Member
29.	Chief Educational Officer, Tirunelveli	Member
30.	Personal Assistant (G) to Collector, Tirunelveli	Member
31.	Special Deputy Collector (SSS), Tirunelveli	Member
32.	All Personal Assistants to Collector, Tirunelveli	Member

Meeting of the district advisory committee is conducted by the collector, during September every year. The Preparedness of each department, man power available with the department, training they have received and the equipments and resources available with the various departments are discussed by the collector to make sure that the existing preparedness is adequate. The issue whether the resources to be mobilized from another District is also examined. Various departmental officers are entrusted with specific responsibilities to be carried out during emergency as per Standard Operating Procedures as specified in annexure.

The Collector acts as nodal officer for emergency management during disaster period. Since Tirunelveli district experiences cyclones during north east monsoon period, a Emergency Operation Centre (EOC) is opened every year from 1st October to 31st of December. The control room works round the clock and is manned by the officials in Collectorate. Various communications facilities like separate dedicated telephonic line, VHF sets, CANAL PHONE LINE by PWD, apart from other infrastructure are installed at Emergency Operation Centre (EOC). Emergency Operation Centre (EOC) acts as an emergency information collection centre, as well as disaster-warning dissemination centre to key government departments and to the public. Meteorological department has installed a disaster warning system in the Collectorate from where the advance Disaster warning signal can be directly received from the meteorological department. Disaster Management Organizational chart is given in below. Personal Assistant (General) to Collector act as the nodal officer for disaster management coordination activities during the period of emergency.

His main job is to-

Alert various agencies engaged in the disaster control and management about the imminent danger of an emergency.

- To mobilize and allot adequate resources like vehicles/man power etc., and relief materials at the places where it is required.

- To get the report of damages and relief measures taken from the field units and, after compilation communicate the same to government.

11.4 Crisis Management Group:

It is proposed to form crisis management group under the leadership of district Collector with the core group of district level officers as given below.

District Collector is the core-group leader.
Members: -
District Revenue Officer, Tirunelveli.
Superintendent of Police, Tirunelveli.
Divisional Engineer (Highways & Rural Works) Tirunelveli.
Executive Engineer, (PWD) Buildings, Tirunelveli.
Superintending Engineer, TWAD, Tirunelveli.
Superintending Engineer, TNEB, Tirunelveli.
Joint Director of Health Services, Tirunelveli.

11.5 The task of core group:

a) To assess the severity of expected disaster and finalize the resources required to meet the relief and rescue operations for disaster management.
b) To mobilize the resources from within the district and from neighboring district/state level agencies without undue loss of time.
c) To coordinate with various heads of departments to get additional man power and machinery for reconstruction activities after the disaster strike the district.

11.6 Block Disaster Management Committee (BDMC):

The Block Disaster Management Committee are responsible for the relief operation in their divisions and they are designated as Divisional Zonal Officers. To assist the divisions and they are designated as Divisional Zonal Officers. To assist the divisional level officer, each Block is placed under the supervision of one Deputy Collector, Rank Officer and he will be called Zonal Officer. This zonal Officer's shall operate from the Block headquarters.

During the period of north east monsoon, the Revenue Divisional Officers shall set up a control room in their office to monitor the situation. These control rooms shall function round the clock by rotation of staff. A register in the following format must be maintained for recording the messages-received regarding flood/cyclone. The messages have to be communicated then and there to the subordinate officers/concerned departments for necessary action.

11.7 Responsibilities of Block Disaster Management Committee:

During the period of October/November/and December one Deputy Collector rank officer is made in charge of each of the 10 blocks in the chart.

The BDMC responsibility is to manage the crisis situation at gross root level. The details of Taluk Tahsildar, Special Tahsildars, Panchayat union commissioners specifying the area of operation are given in Table -7.2. During the monsoon period a control room has to be set up in the Taluk with the direct line telephone available in the BDO office and round the clock turn duty should be arranged to receive the messages of distress from the public as well as the messages received from higher authorities. a register of messages similar to the format of Divisional control room should be maintained in the all BDO offices.

The BDMC should inspect the proposed shelter homes and satisfy themselves that the buildings are not leaky and fit to be used as 'shelter home'. They should also appraise the owners of Thirumanamandapams or any private buildings that the buildings may have to be used as shelter homes at short notice.

The BDMC should see that the VHF sets available with the police and the Zonal Officers are used in transmitting urgent message.

No separate orders will be issued with regards to appointment of various Zonal Officers and they shall resume their duties as and when there is an emergency.

11.8 Corporation, Municipal and Town Panchayat Disaster Management Committee (ULB):

In respect of Corporation and municipal areas, the ULB Disaster Management Committee concerned as the relief officer and with the assistance of large contingent of man power available with them, they should be able to take immediate steps to handle the disaster. They should be in constant touch with the collector and should apprise him of all the steps taken by then and they should follow the instructions narrated below and arrange for the relief measures in their area. The Town Panchayat Disaster Management Committee (Town Panchayat) in the town Panchayats are the relief officers as indicated above. They are responsible for the relief operation in their areas. The public health section under their control should be kept alert against any epidemic and that they should ensure that the drinking water supply is free from contamination.

CHAPTER-12

RESPONSE PLAN – INCLUDING INCIDENT RESPONSE SYSTEM (COVERING RESCUE, EVACUATION AND RELIEF)

The disaster scenario offers a range of opportunities for affected communities to respond to the crisis, how community responds to a disaster and post disaster sets the tone for the transition from disaster to development". After Tsunami in Radhapuram Costal areas, people of that area started to monitor construction works, retrofitting of houses and behaved like "community construction watch dogs".

Disaster management is a multi faceted discipline that needs different mechanisms with diverse methodology. The action plan contains two approaches;

1) short term plan and 2) long term response plans. The district administration-DDMA Tirunelveli has to take pre-action on these two approaches to tackle a disaster scenario.

SHORT TERM RESPONSE PLAN

Short-term response plan contains the actions to be taken immediately after a disaster. Once an information has reached the district EOC or any of the Disaster Managers in the district either from authentic or unauthentic sources, it has to be verified soon for authenticity. Once the information is found correct, it has to be reported to the Incident Commander via fast communication system. The Incident Commander shall take the following actions.

1. Disseminate warning/alert to the potential victims
2. Disseminate information to vertical and horizontal EOCs
3. Disseminate information to vertical and horizontal Administrators and DMTs
4. Declare Disaster based on the severity/vulnerability

Rescue Operations:

Immediately after a disaster the Collector, Tirunelveli is incident commander and takes over disaster management. The Collector shall coordinate the rescue operations with the help of the Working Group for relief and rehabilitation and the Emergency Support Functions. Along with the rescue operations theIncident Commander shall do the following measures:

1. Activate the Incident Command System
2. Call meeting of Crisis Management Group
3. Coordinate the ESFs in disaster management
4. Set up Site/Onsite Operation Centers and activate relief camps.
5. Collect preliminary assessment report from the onsite EOCs

6. Activate the pre-contract vendors and collect relief materials for distribution

7. Brief the situation to the Higher authority as well as to the press/media people

8. Ensure basic logistic arrangements for disaster managers and the Operation Centers.

9. Mobilize resources/ call assistance from various stakeholders.

Besides there are large number of activities to be under taken by the Incident Commander inconsultation with the Crisis Management Group which are listed in the Disaster Management Act.

Relief Operations:

Once the rescue phase is over, the district administration shall provide immediate relief assistance either in cash or in kind to the victims of the disaster. The DDMA Tiruneveli shall enter in to pre-contract well in advance and procure materials required for life saving. The Collector is responsible for providing relief to the victims of natural & manmade disasters like fire, flood, drought, earthquakes, riots, terrorist attacks, accidents etc.

1) Fire & Other Accidents (caused by individual or natural calamities):

a) Death : Rs.4 lakhs in each case
c) Serious Injury : Rs.1 lakh in each case
d) Minor Injury : Rs.10,000/- in each case

2) Loss of Movable Property (in riots):

a) Animals (Source of Income / livelihood) : Rs.10000/- each

i) Farm Animals :Cows, Buffaloes, Sheep

ii) Cart Animals :Hoses, Oxen, Camel

3) Damage to uninsured commercial property / commercial articles (In riots / fire /natural calamities etc.):

50% of the loss up to a maximum of Rs.50,000/-.

4) Damage to residential unit (In riots / fire / natural calamities / other than jhuggies):

a) Total Damage : Rs.10,000/-
b) Substantial Damage : Rs.10,000/-
c) Minor Damage : Rs.5000/-

Rehabilitation:

In short term response rehabilitation is the final step. The incident Command System shall be deactivated as the rehabilitation phase is over. Thereafter the normal administration shall take up the remaining reconstruction works in the disaster-affected areas. These activities shall be performed by the Working Group for relief and rehabilitation under the direction of the DDMA, Tirunelveli.

LONG TERM RESPONSE PLAN:

The long-term response plans are related with Recovery and Reconstruction activities on one side and institutionalizing disaster management in district administration on the other side. The former one is given in detail in the coming chapter. There are Standard Operation Procedures (SOPs) for the Emergency Support Functions. In long term measures the following actions shall be undertaken duly.

1. Constitution of Emergency Support Functions, Disaster Management Teams, Quick Response Teams, Field Response Teams

2. Refresher trainings for all such teams in a regular interval of time and exercise of Mock Drills

3. Continuous awareness/sensitization programmes for the stakeholders and the general Public.

4. Getting pre-contract with vendors and merchant establishments to procure relief materials in times of disaster

Most of the Line Departments in the District, Autonomous Bodies and Organizations are part of the Emergency Support Functions. The action plans for ESFs for disaster management are discussed below. The DDMA Tirunelveli shall ensure that these actions plans are updated bi annually and practiced through mock drills in the district.

1. EARLY WARNING COMMITTEE

Sl.No	Designation		Contact No.
1.	District Collector, Tirunelveli	Chairman	9444185000
2.	District Revenue Officer, Tirunelveli	Vice Chairman	9445000928
3.	Project Director, DRDA, Tirunelveli	Secretary / Member	7373704228
4.	Executive Engineer, Thamirabarani Basin Division, Tirunelveli	Member / Nodal Officer (Nominated by CRA)	6380118599
5.	PA (G) to Collector, Tirunelveli	Member	9445008157
6.	Chief Educational Officer, Tirunelveli	Member	7373003071
7.	Public Relation Officer, Tirunelveli	Member	9498042447
8.	Director of Engineering, All India Radio, Tirunelveli	Member	9443160795
9.	Assistant General Manager, BSNL, Tirunelveli	Member	0462-2500999 9486100768 9868280066
10.	District Informatics Officer, National Information Centre, Tirunelveli	Member	9442132535
11.	Tahsildar (Cable TV) Tirunelveli	Member	9442386565
12.	Assistant Project Officer, (CBDRM) DRDA, Tirunelveli	Member	7402608514
13.	Superintendent Engineer, TANGDCO (TNEB) Tirunelveli	Member	9443155198

2. SEARCH & RESCUE COMMITTEE

Sl.No	Designation		Contact Number
1.	Superintendent of Police, Tirunelveli	Member	9498153000
2.	Divisional Fire Officer, Fire & Rescue Services, Tirunelveli	Member	9445086249
3.	Assistant Director (Fisheries) Tirunelveli	Member	9488291508
	Assistant Director (Fisheries) Radhapuram	Member	8248595054
4.	Regional Join Director of Animal, Husbandry Department, Tirunelveli	Member	9445001117
5.	Secretary, Indian Red Cross Society, Tirunelveli & Nanguneri	Member	9366725500 8754956122
6.	Deputy Director (Health) Tirunelveli	Member	9894989705
	Joint Director (Health), Tenkasi	Member	9444982683 9361011049
7.	Nehru Yuva Kendra, Tirunelveli	Member	9445662559
8.	Assistant Project Officer, (CBDRM) DRDA, Tirunelveli	Member	7402608514

3. EVACUATION COMMITTEE

Sl.No	Designation		Contact Number
1.	Superintendent of Police, Tirunelveli	Member	9498153000
2.	Divisional Fire Officer, Fire & Rescue Services, Tirunelveli	Member	9445086249
3.	Assistant Director (Fisheries) Tirunelveli	Member	9488291508
	Assistant Director (Fisheries) Radhapuram	Member	8248595054
4.	Regional Join Director of Animal, Husbandry Department, Tirunelveli	Member	9445001117
5.	Secretary, Indian Red Cross Society, Tirunelveli & Nanguneri	Member	9366725500 8754956122
6.	Ambulance Service, Tirunelveli	Member	108
7.	Deputy Director (Health) Tirunelveli	Member	9894989705
	Joint Director (Health), Tenkasi	Member	9444982683 9361011049
8.	Nehru Yuva Kendra, Tirunelveli	Member	9445662559
9.	Assistant Project Officer, (CBDRM) DRDA, Tirunelveli	Member	7402608514
10.	Regional Transport Officer, Tirunelveli	Member	9498042447

4. RELIEF CENTER / SHELTER COMMITTEE

Sl.No.	Designation		Contact No.
1.	District Collector, Tirunelveli	Chairman	9444185000
2.	District Revenue Officer, Tirunelveli	Vice Chairman	9445000928
3.	Project Director, DRDA, Tirunelveli	Secretary / Member	7373704228
4.	Assistant Director (Panchayat), Tirunelveli	Member	7402608423
5.	Assistant Director (Town Panchayat), Tirunelveli	Member	8925809231
6.	District Supply Officer, Tirunelveli	Member	9445000379
7.	Tahsildar (Disaster Management) Tirunelveli	Member	9384056217
8.	Secretary, Indian Red Cross Society, Tirunelveli & Nanguneri	Member	9366725500 8754956122
9.	Deputy Director (Health) Tirunelveli	Member	9894989705
	Joint Director (Health), Tenkasi	Member	9444982683 9361011049
10.	Assistant Project Officer, (CBDRM) DRDA, Tirunelveli	Member	7402608514
11.	Regional Join Director of Animal, Husbandry Department, Tirunelveli	Member	9445001117

CHAPTER-13

RECOVERY AND RECONSTRUCTION PLAN

Reconstruction and rehabilitation activities come under the post-disaster phase. Currently, the activities in this phase are primarily carried out by the local bodies (Gram Panchayats, District Taluk, Municipal Corporations and Municipalities etc.,) and various Government departments and boards. However, their activities in this phase shall be in accordance with the reconstruction and rehabilitation plans framed by TNSDMA, in conjunction with implementing authorities.

The reconstruction and rehabilitation plan is designed specifically for the worst case scenario. It is activated in case of a disaster in which the capacity of State and District authorities have been overwhelmed and require assistance from the Central Government for re-establishing normalcy in the State.

Once the response process is in place the recovery process is activated by resorting to the following actions.

- Providing and erecting temporary housing to the victims and displaced persons.
- Facilitating and providing claims and grants as per the relief manual.
- Providing counselling to the victims.
- 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.
- Initiating the process of reconstruction by adapting improvised technologies for safe construction.

The approach to the reconstruction process will be aimed at converting adversity into opportunity. Incorporating disaster resilient features to "Build-Back-Better" will be the guiding principle. The choice of technology will be based on its likely impact on physical, social-cultural or economic environment of the communities in the affected areas or in their neighborhood.

The key activities in this phase are as below:

13.1 Detailed damage assessment

While a preliminary damage assessment is carried out during disaster phase, a detailed assessment will be conducted before commencing reconstruction and rehabilitation activities. The relevant

government departments and local authorities will initiate detailed assessment at their respective level for damages sustained in housing, industry / services, infrastructure, agriculture health / education assests in the affected regions.

13.2 Assistance to restore houses and dwelling units

The GoTN may, if needed, will formulate a policy of assistance to help the affected to restore damaged houses and dwellings in commensurate to the nature and quantum of damages. This will neither be treated as compensation for damage, nor as an automatic entitlement.

13.3 Relocation

The GoTN believes that need-based considerations and not extraneous social factors drive relocation of affected community. The local authorities, in consultation with the affected communities and under the guidance of TNSDMA, will determine relocation needs taking into account criteria relevant to the nature of the calamity and the extent of damage.

- Relocation efforts will include activities like:
- Gaining consent of the affected population
- Land acquisition
- Urban / rural land use planning
- Customizing relocation packages

13.4 Finalizing reconstruction & rehabilitation plan

TNSDMA will approve reconstruction and rehabilitation projects based on:

- Identification of suitable projects by relevant departments;
- Project detailing and approval by the relevant technical authority.

13.5 Funds Generation

Reconstruction & rehabilitation projects are fairly resource intensive. GoTN shall finalise the fund general mechanism, including the convenants and measures that govern fund inflow and disbursement and usage. This includes:

- Estimation of funds required based on detailed damage assessment reports and consolidation of the same under sectoral and regional heads.

- Contracting with funding agencies and evolving detailed operation procedures for fund flow and corresponding convenant.

13.6 Funds disbursement and audit

The funds raised from funding agencies are usually accompanied by stringent disbursement and usage restrictions. TNSDMA shall monitor disbursal of funds by prioritizing resource allocation across approved projects.

CHAPTER-14

MAINSTREAMING OF DISASTER MANAGEMENT IN DEVELOPMENT PLANS

The Zonal Officer to Supervise all development schemes in a Sub-Divsion:

Sl.No	Name of the Division	Name of the Nodal Officer
1	Tirunelveli	Revenue Divisional Officer, Tirunelveli
2	Cheranmahadevi	Sub-Collector, Cheranmahadevi

Zonal Officers to Supervise Revenue Department programmes in one Taluk:

Sl.No	Taluk Name	Name of the Nodal Officers
1	Tirunelveli	Revenue Divisional Officer, Tirunelveli
2	Palayamkottai	Special Deputy Collector (SSS), Tirunelveli
3	Manur	Special Deputy Collector (Revenue Court) Tirunelveli
4	Cheranmahadevi	District Inspection Cell Officer, Tirunelveli.
5	Ambasamudram	Sub-Collector, Cheranmahadevi.
6	Nanguneri	District Supply Officer, Tirunelveli
7	Radhapuram	District Backword Welfare Officer, Tirunelveli
8	Tisaiyanvilai	Assistant Commissioner (Excise), Tirunelveli.

14.1 Coastal Disaster Risk Reduction Project (CDRRP):

As savings were anticipated from the funds assisted by World Bank under ETRP and with a view to utilize the savings, the ETRP was restructured to include the reduction of vulnerability of coastal communities. Though there were some works pending, the ETRP was closed on 31.12.2011 Simultaneously, all the erstwhile ETRP are being continued under State Fund vide G.O.Ms.No 179 Revenue (DM 4.1) Department, dated 29.05.2012. In order to take up risk reduction initiatives, a new Coastal Disaster Risk Reduction Project has been proposed with the intention to include the capacity building initiatives in risk reduction / mitigation and the unfinished works of ETRP with World Bank assistance for a period of five years. Additionally laying underground of electricity cables of TANGEDCO in the most vulnerable coastal Districts of Cuddalore and Nagapattinam and Vellankanni has been included. The appraisal of the project was held in March and the agreement with World Bank signed in June 2013.

The Project encompass the components, viz, Vulnerability Reduction through infrastructures such as permanent houses, evacuation shelters and routes, and resilient electrical networks, Sustainable Fisheries, Capacity building in Disaster Risk Management, Implementation Support and Contingency Emergency Response and the project components are at variors stage of progress.

14.2 Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS):

Utilisation of MGNREGS funds to reduce the vulnerability of Panchayat as against natural hazards such as landslide, drought, forest fire, cloudburst, flash floods, earthquake and others: Giving priority to works which reduce the vulnerability of areas over works which enhance the vulnerability of the area to natural hazards; Identifying works that are available taking into account the hazard profile and offering continuous employment opportunities in the event of disasters to ensure livelihood security.

14.3 ADB-Climate Change Adaptation Scheme:

Disasters have also negative impacts on environment as they affect natural resources. Therefore, considering society, economy and environment as three main components of sustainable development, disasters have negative impacts on them and hence negative impact and delay on sustainable development. Sustainable development and use of new technologies will be a must in the implementation of this plan. Priority would be given for promoting of climate change adaptation strategies, energy efficiency and natural conservation.

CHAPTER-15

LINKAGES / CO-ORDINATION WITH OTHER

AGENCIES FOR DISASTER MANAGEMENT

The initial response to a disaster is usually provided by the emergency services supported by local authority, but many agencies can become involved. The emergency services have to maintain a state of readiness so that they can provide a rapid response and alert local authorities and other services as soon as possible. All organizations that need to respond quickly to a disaster should have arrangements which can be activated at short notice. These arrangements should be clearly established and promulgated.

Although involvement of different emergency services like Police, Fire Brigade and Hospital services is inevitable, some other Public Utility Services, such as local bodies, Railways, Air Lines etc., have to be involved also in most cases for dealing with the situation effectively. All such agencies are very different organizations, with different hierarchies and chains of command and responsibility, all taking different languages with different areas of expertise and priorities. If rescue and recovery work is to be effective, all these different agencies have to work together in a co-ordinated way. All these agencies, therefore, have to be aware of each other's areas of responsibility and systems of working. Comprehensive discussion and agreement among these agencies in the planning stage and communication of the decisions down the chain of command to the lowest functionary of each agency and their training is therefore, of utmost importance so that they know as to who is responsible for that and are aware of their roles and responsibility and can appreciate the need for Multi-Service involvement in such a situation.

CHAPTER-16

BUDGET AND OTHER FINANCIAL

ALLOCATION – OUTLAYS OF MAJOR SCHEMES

16.1 Fourteenth Finance Commission:

The Fourteenth Finance Commission has acknowledged the present arrangements as regards to financing of Disaster Management with reference to the National Calamity Contingency Fund and the Calamity Relief Fund and the funds envisaged in the Disaster Management Act, 2005 (Act 53 of 2005) and has recommended that up to 10 percent of the funds available under the SDRF can be used by a State for occurrences

which State considers to be "Disasters" ,within its local context and which are not in the notified list of disasters of the Ministry of Home Affairs. The FFC has also recommended to expedite the development and scientific validation of the Hazard vulnerability and Risk Profiles of States.

16.2 State Government Funding:.

As stated in the section (48) of the DM Act 2005, the State Government shall establish for the purposes of the Act the following funds:

a) State Disaster Response Fund: This fund will be constituted and made available to the SEC for meeting the expenses for emergency response, relief and rehabilitation

b) District Disaster Response Fund: This fund will be constituted and made available to the District Disaster Management Authority for meeting the expenses for emergency response, relief and rehabilitation.

c) State Disaster Mitigation Fund: This fund will be constituted and made available to the SEC for meeting the expenses on mitigation activities.

d) District Disaster Mitigation Fund: This fund will be constituted and made available to the District Disaster Management Authority for meeting the expenses on mitigation activities.

16.3 Central Government Funding:

The National Disaster Response Fund (NDRF) have been made available to the National Executive Committee (NEC) to be applied towards meeting the expenses for emergency response, relief and rehabilitation in accordance with the guidelines laid down by the Central Government in consultation with the National Authority.

16.4 Fund Assistance for Natural Calamities 2015-16:

Apart from the above specified, there are a number of funds that may be generated by means of:

- Project funds from Government of India
- State special funds
- State Development Fund
- Departmental specific project funds
- Project fund / soft loans from International Agencies.

CHAPTER-17

MONITORING AND EVALUATION

a. Hon'ble Ministers, b. Monitoring Officers,

c. Inter Departmental Zonal Team (IDZT)

17.1 PREPARATION AND UPDATION OF DDMP

District Disaster Management Plan for Tirunelveli district is a public document. It is neither a confidential document nor restricted to any particular section or department of administration. The underlying principle of disaster management is that it has to be part of all departments and none can fold fingers against it.

The District Disaster Management Plan is the sum and substance of the *Horizontal and the Vertical* disaster management plans in the district.Horizontal plans included plans prepared by line departments such as Police, Fire Service, Irrigation and Flood Control, Department of Food and Civil Supplies, Public Works Departments etc where as the Vertical plan includes Sub Divisional Plans, Community Plans, School/Hospital plans and all other logical units" plan at the lower level and State disaster management plans and National disaster management plans at the higher level.

Preparation of plan is the ultimate responsibility of the District Disaster Management Committee DDMA.

The same procedure is to be followed in updating of the plan document. The District plan is to be updated annually by the District Disaster Management Committee. In order to update the document, all Vertical and Horizontal plans shall be collected and incorporated to the District Plan.

17.2 REGULAR UPDATION OF DDMP

Besides the above said procedure of updation of the DDMP, a regular data collection system shall be set up at district EOC. The EOC in-charge, under the supervision of the DDMA Chairman shall enter the collected data to an online system or shall be documented properly

17.3 POST DISASTER EVALUATION MECHANISM

Disasters are always unexpected. Each disaster causes huge loss of human lives, live stocks and property as well. It is said that, every disaster repeats after a particular interval. Also, lessons learnt from a particular disaster will help to plan for another potential hazard.

The DDMA Chairman shall make special arrangements to collect data on a particular disaster irrespective of size and vulnerability. This post disaster evaluation mechanism shall be set up with qualified professionals and researchers and the collected data shall be thoroughly crosschecked and documented in the EOC for further reference.

17.4 MEDIA MANAGEMENT

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

1. Along with information dissemination to the vertical and horizontal agencies, press people also shall be called and given preliminary data based on assessment. This shall reduce the guesswork of the media people.

2. Only the state owned electronic, print media should be taken to the site. More people mean more confusion and hazard in disaster management.

3. In every one hour or so the Incident commander shall give press release in order to control false information to the outside world.

4. No media shall be allowed to air or print pictures of dead bodies with worst condition. There is a tendency to do so by the media to make sensitivity.

In a disaster situation, only the incident commander or his assignee in district level will communicate with the media and provide brief, no other parallel agency or ESF or voluntary agency involved in the disaster management shall give any sort of press briefings.

CHAPTER-18

RISK COMMUNICATION STRATEGIES (TELECOMMUNICATION / VHF / MEDIA / CDRRP ETC.,)

Communication activities are necessary to convey to the larger community the scope and nature of the proposed reconstruction and rehabilitation effort so as to increase the stakeholder awareness and buy-in for the ongoing activities. Hence, TNSDMA and relevant Government departments, district administration and local authorities shall undertake:

Media Management /Public relations: To ensure accurate communication of the reconstruction and rehabilitation measures being taken to various stakeholder.

Community Management: This includes communicating to the affectedcommunities with a view to apprising them of the efforts being made for their relocation / rehabilitation / reconstruction.

Feedback Mechanisms: Using the communication network to get feedbackon reconstruction and rehabilitation measures.

CHAPTER-19

IMPORTANT GOVERNMENT ORDERS

ABSTRACT

SL	G.O. and Date	Details
1	G.O Ms.No 579. Revenue (DM.III(2)) Dept. Dt.09.12.2023	Disaster Management – Grant of Financial - Grant of Financial assistance to the victims of Natural Calamities namely cyclone, flood, drought, earthquake, fire, Tsunami and hailstorm, Sea Erosion, Lightning, Thunder, Whirl Wind, Gale wind & Pest attack in severe nature - From the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) – Revised Norms of Government of India – Adopted – Orders issued.
2	G.O Ms.No 50. Industries (MMC.1) Dept. Dt.27.04.2017	Industries -Mines and Quarries – Minor Minerals – Amendment to Rule 12(2) and 12(2-A)(a) to the Tamil Nadu Minor Minerals concession Rules, 1959 – Notification – Issued.

ABSTRACT

Disaster Management – Grant of Financial Assistance to the Victims of Natural Calamities namely Cyclone, Flood, Drought, Earthquake, Fire, Tsunami and Hailstorm, Sea Erosion, Lightning, Thunder, Whirl Wind, Gale Wind & Pest attack in severe nature from the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) – Revised Norms of Government of India – Adopted – Orders issued.

REVENUE AND DISASTER MANAGEMENT DEPARTMENT
DISASTER MANAGEMENT WING, D.M.III (2) SECTION

G.O. (Ms).No. 579 **Dated : 09.12.2023**
சோபகிருது வருடம், கார்த்திகை 23
திருவள்ளுவர் ஆண்டு, 2054
Read:

1. G.O.(Ms).No.380, Revenue [DM.III(2)] Department, dated 27.10.2015.
2. G.O.(Ms).No. 246, Revenue & Disaster Management Department, dated: 03.08.2017.
3. G.O.(Ms).No. 212, Revenue & Disaster Management Department, dated: 03.07.2019.
4. From the Ministry of Home Affairs, (Disaster Management Division), Government of India letter F.No.33-03/2020-NDM-I, dated 11.07.2023.
5. From the Additional Chief Secretary / Commissioner of Revenue Administration & State Relief Commissioner, Lr. No. NC I(1)/706/2022, dated 05.12.2022, 08.08.2023 and 14.11.2023.

*****

ORDER:

In the Government order first read above, the Government have issued orders adopting the revised norms of Government of India which envisage granting of enhanced relief to the victims of natural calamities under State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) in the form of financial assistance for loss of lives, loss of limb or eyes, grievous injuries, loss of crops, loss of cattle, damages to the houses etc., to mitigate the suffering and loss caused.

2. Based on the norms of assistance under State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) communicated by the Government of India, Ministry of Home Affairs, the Government of Tamil Nadu have issued several Government orders

adopting the norms of financial assistance of Government of India from State Disaster Response Fund (SDRF) on various occasions.

3. In the letter fourth read above, the Government of India have revised norms of financial assistance from the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) and stated that the revised list of items and norms for assistance from SDRF and NDRF will be effective from the financial year 2023-2024.

4. In the letter fifth read above, the Additional Chief Secretary/Commissioner of Revenue Administration & State Relief Commissioner has sent the approved list of items and norms of Assistance from State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) based on the report of Ministry of Home Affairs, Government of India and sought the approval of the Government for adopting the revised norms of Government of India for sanction of relief from the State Disaster Response Fund (SDRF) / National Disaster Response Fund (NDRF).

5. The Government after careful consideration, accept the recommendations of the Additional Chief Secretary/Commissioner of Revenue Administration & State Relief Commissioner and direct that the revised norms of Government of India or the existing State Government norms whichever are more beneficial be adopted. Accordingly, the revised consolidated scale of relief assistance under SDRF and NDRF effective from the Financial year 2023-2024 is annexed to this order.

(By order of the Governor)

V. RAJARAMAN
SECRETARY TO GOVERNMENT

To

The Additional Chief Secretary/
Commissioner of Revenue Administration &
State Relief Commissioner,
Chepauk, Chennai-600 005.
The Director, Disaster Management,
Tamil Nadu Disaster Risk Reduction Agency,
Chepauk, Chennai-600 005.
The Joint Secretary,(DM Division)
Ministry of Home Affairs, Government of India,
New Delhi 110001.
The Commissioner of Agriculture, Chennai-600 005.
The Commissioner of Horticulture, Chennai-600 005.
The Director of Animal Husbandry and Veterinary Services
Chennai-600 006.
The Commissioner of Fisheries, Chennai-600 006.
The Director of Public Health & Preventive Medicine
Kilpauk, Chennai-600 010.
The Director of Medical Education, Chennai-600 010.
The Director of Handloom, Chennai-600 008.
The Director of Treasuries and Accounts, Chennai-600 015.
The Accountant General (A & E), Chennai-600 018.
The Pay and Accounts Officer (East), Chennai-600 009.
The Resident Audit Officer, Secretariat, Chennai-600 009.

Copy to:
The Office of the Hon'ble Chief Minister, Chennai-600 009.
All Departments of Secretariat, Chennai-600 009.
All District Collectors
All Heads of Departments/Boards/Corporations
The Special Personal Assistant to Hon'ble Minister for
Revenue & DM, Chennai-600 009.
The Special Personal Assistant to Hon'ble Minister for
Agriculture & Farmers' Welfare, Chennai-600 009.
The Special Personal Assistant to Hon'ble Minister for
Finance & H.R.M, Chennai-600 009.
The Additional Chief Secretary,
Water Resources Department,Chennai-600 009.
The Additional Chief Secretary to Government,
Highways and Minor Ports Department, Chennai-600 009.
The Additional Chief Secretary to Government,
Health and Family Welfare Department,
Chennai-600 009.
The Principal Secretary to Government,
Home, Prohibition and Excise Department,
Chennai-600 009.
The Principal Secretary to Government,
Finance Department, Chennai-600 009.
The Principal Secretary,
Public Works Department, Chennai-600 009.
The Personal Assistant to Chief Secretary to Government,
Secretariat, Chennai-600 009.
The Senior Principal Private Secretary to
Secretary to Government, Revenue and
Disaster Management Department, Chennai-600 009.
The Finance (Revenue/ BG-I) Department,
Chennai - 600 009.
The Revenue and Disaster Management (O.P.II, DM-I,II & DM-IV)
Department,
Chennai-600 009.
Stock File/Spare Copy.

// Forwarded by Order //

9.12.2022

SECTION OFFICER

ANNEXURE-I

Enclosure to G.O.(Ms) No.579, Revenue & D.M. [D.M.-III(2)] Department, Dated 09.12.2023

Revised List of Items and Norms of Assistance from State Disaster Response Fund (SDRF) and National Disaster Response Fund(NDRF) (From the financial year 2023-2024)

S. No.	Items	Norms of Assistance
1.	**Gratuitous Relief**	
	a)Ex-Gratia payment to families ofdeceased persons.	**Rs.4.00 lakh** per deceased person, including those involved in relief operations or associated in preparedness activities, Subject to certification regarding cause of death from appropriate authority.
	b) Ex-Gratia payment for loss of a limb or eye(s).	**Rs.74,000/-** per person, when the disability is between 40% and 60%. **Rs.2.50 lakh** per person, when the disability is more than 60%. Subject to certification by a doctor from a hospital or dispensary of Government, regarding the extent and cause of disability.
	c)Grievous injury requiring hospitalization	**Rs.16,000/-** per person requiring hospitalization for more than a week. **Rs.5,400/-** per person requiring hospitalization for less than a week. **Note**: Injured persons getting treatment under the 'Ayushman Bharat' Yojna, will not be eligible for relief under this item.
	d)Clothing and utensils/ household goods for families, whose houses have been washed away / fully damaged/ severely inundated for more than two days due to a natural calamity.	**Rs.2,500/-** per family, for the loss of clothing. **Rs.2,500/-** per family, for loss of utensils/ household goods.
	e)Gratuitous relief for families whose livelihood is seriously affected.	Gratuitous Relief (GR) for families, whose livelihood is seriously affected will be provided to two adults members of the affected family as per actual rate of MNREGA per day or average rate of all States / UTs per day, whichever is lower. For this purpose, notification issued by Ministry of Rural Development from time to time, is to be referred for calculating average rate. The relief amount should be disbursed through DBT / cash (In case of exigency of the situation only) or the State Government may provide this relief in kind. State Govt. will certify that identified beneficiaries are not housed in relief camps, during the period GR is provided. Further the State Govt will provide the basis and process for arriving at such beneficiaries district-wise. Period for providing gratuitous relief will be as per

		assessment of the State Executive Committee (SEC) and the Central Team (in case of NDRF). The default period of assistance will be upto to 30 days, which may be extended upto 60 days in the first instance, if required, and subsequently upto 90 days in case of drought/ pest attack. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit. Provided that expenditure on this account in no case, should exceed 30% of SDRF allocation under this window (Response & Relief) for the year. However, in case of drought, in no case, should exceed 50% of SDRF allocation under this window (Response & Relief) for the year. Further, to ensure transparency, the list of persons to whom Gratuitous Relief is provided, should be uploaded on the website of the State Government. The State Government shall notify the basis and proof for the identification of beneficiaries in a transparent manner.
2.	**Search & Rescue Operations**	
	a) Cost of search and rescue measures/ evacuation of people affected/ likely to be affected	As per the actual cost incurred, assessed by SEC and recommended by the Central Team (in case of NDRF). By the time the Central Team visits the affected area, these activities may be already over. Therefore, the SEC and the Central Team can recommend actual / near-actual costs.
	b) Hiring of boats/essential equipments for carrying immediate relief and saving lives.	As per actual cost incurred, assessed by SEC and recommended by the Central Team (in case of NDRF). The quantum of assistance will be limited to the actual expenditure incurred on hiring boats and other essential equipment required for rescuing stranded people and thereby saving human lives during a notified natural calamity.
3.	**Relief Measures**	
	a)Provision for temporary accommodation, food, clothing, medical care, Gen-set etc. for people affected/ evacuated and sheltered in relief camps.	A package of 10 KG rice, one saree and one dhoti, one litre of kerosene and **Rs.1,000/-** to the families evacuated from their houses and moved to shelters. As per actual cost incurred, and assessed by SEC and recommendation by the Central Team (in case of NDRF), for a period upto 30 days. The SEC would need to specify the number of camps, their duration and the number of persons in camps. In case of continuation of a calamity like drought, or widespread devastation caused by earthquake or flood etc., this period may be extended to 60 days. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit. Provided that expenditure on this account, in no cases, should exceed 30% of SDRF allocation under this window (Response & Relief) for the year. Medical care to be provided from National Health Mission (NHM).
	b)Air dropping of essential supplies and rescue by Air Force	As per actual cost incurred, assessed by SEC and recommendation by the Central Team (in case of NDRF). The quantum of assistance will be limited to actual amount raised in the bills by the Ministry of Defence for airdropping of essential supplies and rescue operations only.

	c) Provision of emergency supply of drinking water.	As per actual cost, based on assessment of need by SEC and recommended by the Central Team (in case of NDRF. up to 30 days, which may be extended upto 90 days in case of drought. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit. Provided that expenditure on this account, in no case, should exceed 30% of SDRF allocation under this window (Response & Relief) for the year.
4.	**Clearance of Affected Areas**	
	a) Clearance of debris in public areas.	As per actual cost, for a period upto 30 days from the date of start of the work, based on assessment of need by SEC for the assistance to be provided under SDRF and as per the assessment of the Central team for assistance to be provided under NDRF.
	b)Draining off flood water in affected areas	As per actual cost within 30 days from the date of start of the work based on assessment of need by SEC for the assistance to be provided under SDRF and as per assessment of the Central team (in case of NDRF).
	c)Disposal of dead bodies/ Carcasses	As per actual cost, based on assessment of need by SEC and recommendation of the Central Team (in case of NDRF).
5.	**Agriculture**	
(i) A.	**Assistance to Small and Marginal Farmers having Landholding Upto 2 Hectares Assistance For Land and other Loss**	
	a)De-silting of agricultural land (where thickness of sand/ silt deposit is more than 3", to be certified by the competent authority of the State Government.)	**Rs.18,000/-** per hectare for each item. Above is subject to a minimum assistance of not less than **Rs.2,200**/- per farmer. (subject to the condition that no other assistance/ subsidy has been availed of by/ is eligible to the beneficiary under any other Government Scheme)
	b)Removal of debris on agricultural land in hilly areas	
	c)De-silting/ Restoration/ Repair of fish farms	
	d)Loss of substantial portion of land caused by landslide, avalanche, change of course of rivers	**Rs.47,000/-** per hectare to only those small and marginal farmers whose ownership of the land is legitimate as per the revenue records. Above is subject to a minimum assistance of not less than **Rs.5000/-** per farmer.
B.	**Input subsidy (where crop loss is 33% and above)**	
	a)For agriculture crops, horticulture crops and annual plantation crops	**Rs.8500/-** per hectare for crops other than paddy in rainfed areas subject to a minimum assistance of not less than **Rs.1,000/-** per farmer and restricted to sown areas. **Rs.17,000/-** per ha. for crops in assured irrigated areas subject to a minimum assistance of not less than **Rs.2,000**/- per farmer and restricted to sown areas.

	b) Perennial crops/ Agro forestry (Plantation in own farmland)	**Rs.22,500/-** ha. for all types of perennial crops / Agro forestry (Plantation in own farmland), subject to a minimum assistance of not less than **Rs.2,500**/- per farmer and restricted to sown areas.
	c) Sericulture	**Rs.7,410/-** per ha. for Eri, Mulberry, Tussar **Rs.7,500/-** per ha. for Muga. Above is subject to a minimum assistance of not less than **Rs.1,000/-** per farmer and restricted to sown areas.
	d) Paddy	**Rs.17,000/-** per ha. subject to a minimum assistance of not less than **Rs.2,000/-** and restricted to sown areas.
(ii)	**Input subsidy to farmers having more than 2 Ha. of landholding**	**Rs.8,500/-** per ha. other than paddy in rainfed areas and restricted to sown areas. **Rs.17,000/-** per ha. for crops in assured irrigated areas and restricted to sown areas. **Rs.17,000/-** per ha. for Paddy crop and restricted to sown areas. **Rs.22,500/-** ha. for all types of perennial crops / Agro forestry (Plantation in own farmland) and restricted to sown areas. Assistance may be provided where crop loss is 33% and above, subject to a ceiling of 2 ha. per farmer.
6.	**Animal Husbandry - Assistance to Small and Marginal Farmers and Landless Livestock Owners**	
	i) Assistance for the loss of milch animals, draught animals or animals used for haulage.	**Milch animals** **Rs.37,500/-** Buffalo/cow/camel/yak/ Mithun etc. **Rs.4,000/-** Sheep/ Goat/ Pig **Draught animals** **Rs.32,000/-** Camel/ horse/ bullock, etc. **Rs.20,000/-** Calf/ Donkey/ Pony/ Mule/Heifers **Poultry:-** Poultry @ **100/-** per bird. **Note:** Relief under these norms is not eligible if the assistance is available from any other Government Scheme, e.g. loss of birds due to Avian Influenza or any other diseases for which the Department of Animal Husbandry has a separate scheme for compensating the poultry owners.
	ii) Provision of fodder / feed concentrate including water supply and medicines in cattle camps.	Large animals- **Rs.80/-** per day. Small animals- **Rs.45/-** per day. Period for providing relief will be as per assessment of the State Executive Committee (SEC) and the Central Team (in

		case of NDRF). The default period for assistance will be for the period of calamity upto 30 days, which may be extended upto 60 days in the first instance and in case of severe drought upto 90 days. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit. Provided that expenditure on this account, in no case, should exceed 30% of SDRF allocation under this window (Response & Relief) for the year. Based on assessment of need by SEC and recommendation of the Central Team, (in case of NDRF) consistent with estimates of cattle as per Livestock Census and subject to the certificate by the competent authority about the requirement of medicine and vaccine being calamity related.
	(iii) Transport of fodder to cattle outsidecattle camp	As per actual cost of transport during notifed calamity based on assessment of need by State Executive Committee and recommendation of the Central team (in case of NDRF) consistent with estimates of cattle as per Livestock Census.
7.	**Fishery**	
	i)Assistance to Fisherman for repair / replacement of non-mechanized boats and damaged/lost nets (This Assistance will not be provided if the beneficiary is eligible or has availed of any subsidy/assistance, for the instant calamity under any other Government Scheme).	**i)**Replacement of fully damaged/lost wooden catamaran – **Rs.50,000/-** per unit (inclusive of net) **ii)**Repair/rebuilding of partially damaged Catamaran **Rs.15,000/-** per unit **iii)**Replacement of fully damaged /lost wooden /FRP Vallam (35% to 50% assistance of the total cost subject to maximum subsidy of **Rs. 1 lakh)** calculated at a unit cost **of Rs.2.00 lakh** (inclusive of engine and net) **iv)**Partially damaged FRP Vallam **Rs.30,000/-** per unit **v)**Replacement of fully damaged /lost mechanised fishing boats (35% of the total cost, restricted to a maximum subsidy of **Rs.7.5 lakh** per boat) **vi)**Repairs of partially damaged mechanised fishing boats (60% of the assessed value of the damages restricted to a maximum subsidy of **Rs.4 lakh** per boat) **vii)Rs.15,000/-** for replacement of fully damaged net **viii)** Repair of OBM/IBE Engines – **Rs.7500/-** per engine.
	ii) Input subsidy for fish seed farm to Small and Marginal Farmers	**Rs.10,000/-** per hectare. (This assistance will not be provided if the beneficiary is eligible or has availed of any subsidy/ assistance, for the instant calamity, under any other Government Scheme, except the one time subsidy provided under the Scheme of Ministry of Fisheries, Animal Husbandry & Dairying.)
8.	**Handicrafts/Handloom Assistance to Artisans**	
	i)For replacement of damaged main functional tools / equipments	**Rs.5,000/-** per artisan for equipment. subject to certification by the competent authority designated by the Government about damage and its replacement.

	ii) For loss of raw material / goods in process / finished goods	**Rs.5,000/-** per artisan for raw material. subject to certification by the competent authority designated by the State Government about damage and its replacement
9.	**Locust Control**	
	Hiring of vehicles, tractors, with spray equipments for spraying of plant protection chemicals for pest control, hiring of water tankers and purchase of plant protection chemicals for locust control.	As per the actual cost, based on the assessment of need by the SEC and recommended by the Central Team (in case of NDRF). The quantum of assistance will be limited to the actual expenditure incurred on hiring vehicles, tractors with spray equipments for spraying of plant protection chemicals for locust control during locust attack. However, expenditure on this account, in no cases, should exceed 30% of SDRF allocation under this window (Response & Relief) for the year.
10.	**Housing**	
	a)Fully damaged/destroyed houses and severely damaged houses **i)**Pucca house	**Rs. 1,20,000/-** per house, in plain areas.
	ii) Kutcha House	**Rs. 1,30,000/-** per house, in hilly areas.
	b) Partially Damaged Houses (Other than huts) where the damage is at least 15% **i)**Pucca house	**Rs.6500/-** per house
	ii) Kutcha House	**Rs.4000/-** per house
	c)Damaged / destroyed huts	**Rs. 8,000/-** per hut 10.Kg rice for each case of damaged huts (Hut means temporary, make shift unit, inferior to Kutcha house, made of thatch, mud, plastic sheets etc. traditionally recognized as hut by the State/ District authorities.)
	d)Cattle shed attached with house	**Rs.3,000/-** per shed.
11.	**Infrastructure** [Repair/restoration(of immediate nature) of damaged infrastructure]	
	(1)Roads & bridges, which may include the following activities: **i)**Filling up of breaches and potholes, use of pipe for creating waterways, repair and stone pitching of embankments. **ii)**Repair of breached culverts. **iii)**Providing diversions to damaged / washed out portions	**Assessment of requirements:** Based on assessment of need, as per States' notified schedule of rates for repairs by SEC and recommendation of the Central Team (in case of NDRF). In case of repair of roads, assistance will be given based on the notified Ordinary Repair (OR) and Periodical Renewal (PR) of the State. In case OR & PR is not available, then assistance will be provided as per rate prescribed in this item. However, in any case, the assistance will be provided at the rate whichever is lower. Prescribed rate are as under:- Repairs of State Highways, Major District Roads (MDR)

	of bridges to restore immediate connectivity. **iv)**Temporary repair of approaches to bridges / embankments of bridges, repair of damaged railing bridges, repair of causeways to restore immediate connectivity, granular sub base, over damaged stretch of roads to restore traffic.	In normal areas -- @ Rs.1.0 lakh / km; In hilly areas -- @ Rs.1.25 lakh / km; Repairs of Rural / village Roads with culverts In normal areas -- @ Rs.60,000/- km; In hilly areas -- @ Rs.75,000/-km; Repairs of RCC Culverts/ Bridges In normal areas -- @ Rs.60,000/- per culvert; In hilly areas -- @ Rs.75,000/- culvert;
	(2)Drinking Water Supply Schemes, which may include the following activities:- **i)**Repair of damaged platforms of hand pumps / ring wells / spring-tapped chambers / public stand posts, cisterns. **ii)**Restoration of damaged stand posts including replacement of damaged pipe lengths with new pipe lengths, cleaning of clear water reservoir (to make it leak proof) **iii)**Repair of damaged pumping machines, leaking overhead reservoirs and water pumps including damaged intake-out take structure, approach gantries / jetties.	Damaged drinking water supply schemes will be eligible for assistance as per actual, subject to a ceiling of **Rs.2.00 lakh** per damaged scheme. Cleaning of Community drinking water wells as per actual, subject to a ceiling of **Rs.10,000/-** per Well.
	(3)Minor Irrigation Schemes, which may include the following activities: **i)**Immediate repair of damaged canal structures and earthen / masonry works of tanks and small reservoirs with the use of cement, sand bags and stones. **ii)**Repairs of weak areas such as piping or rat holes in dam walls / embankments. **iii)**Removal of vegetative material / building material / debris from canal and drainage system. **iv)**Repair or embankments of minor irrigation projects.	In case of repairs of minor irrigation works, assistance will be given as per the schedule of rates (SOR) for repairs notified by the concerned State. In case SOR is not available, assistance for irrigation scheme / canal will be provided as per actuals, subject to the ceiling of **Rs.2.00 lakh** per damaged minor scheme. Note: However, in any case, the assistance will be provided at the rate whichever is lower. Assistance for restoration of damaged embankment of minor irrigation projects will be at par with the case of similar rural roads, subject to the stipulation that no duplication would be done with any ongoing schemes.

	(4)Power (only limited to immediate restoration of electricity supply in the affected areas): Damaged Poles / conductors and transformers upto 11 KV.	Regarding repair of damaged power sector, assistance will be given for the damaged conductors, poles and transformers upto the level of 11 KV and LT lines with bare conductor, as per details hereunder: The rate of assistance will be: **Rs.5000 /** pole; **Rs.0.50 lakh** per km for repairing of damaged LT lines; **Rs.1.00 lakh** for replacement of one damaged distribution transformer. (Note: The above assistance will not be applicable for those items which can be reused)
	(5)Schools Repairs of damaged schools building	As per actual, subject to a ceiling of **Rs.2.00 lakh** per school.
	6)Primary / Community Health Centres Repair of Primary / Community Health Centres	As per actual, subject to a ceiling of **Rs.2.00 lakh** per unit.
	(7)Community Assets Owned by Panchayat Temporary repair of Mahila Mandal, Yuva Kendra, Panchayat Ghar, Community Hall, Anganwadi, etc.,	As per actual subject to a ceiling of **Rs.2.50 lakh** per unit.
12.	Procurement of essential search, rescue and evacuation equipments including communication equipments, etc. for response to disaster.	Expenditure from the preparedness and capacity building window will be governed by the Guidelines issued separately by the Ministry of Home Affairs for the Preparedness & Capacity Building window of SDRF / NDRF. **(Guidelines for Preparedness and Capacity Building enclosed as Annexure III)**
13.	Capacity building.	
D.	**State Specific Disasters**	
	State specific disasters within the local context in the State, which are not included in the notified list of disasters eligible for assistance from SDRF/ NDRF, can be met from SDRF within the limit of 10% of the annual funds allocation of respective window of the SDRF.	Expenditure is to be incurred from SDRF only (and not from NDRF), as assessed by the State Executive Committee (SEC). The norm for various items will be the same as applicable to other notified natural disasters, as listed above. or In these cases, the scale of relief assistance against each item for 'local disaster' shall not exceed the norms of SDRF. The flexibility is to be applicable only after the State has formally listed the disasters for inclusion and has notified transparent norms and guidelines, with a clear procedure for identification of the beneficiaries for disaster relief for such local disasters with the approval of SEC (provision of relief assistance to local disasters to be sanctioned as per norms and guidelines notified by GoTN).

		(Sea Erosion, Lightning, thunder, whirl wind, gale wind & Pest Attack in severe nature have been notified as State Specific disasters vide **G.O.Ms.No.246, R&DM Dept, dated 03.08.2017 & G.O.Ms.No.212, R&DM Dept, dated 03.07.2019** and the norms of assistance have also been issued. As per the revised norms of assistance of Government of India 2023, the norms for various items will be the same for specific disasters as applicable to other notified natural disasters and the scale of relief assistance against each item for 'local disaster' shall not exceed the norms of SDRF. Hence, the norms of assistance for natural disasters may be adopted for specific disasters also as notified by GoI.)

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ANNEXURE –II

Items Not Covered Under SDRF/NDRF

a) Colleges and other educational institutions buildings

b) Major / medium Irrigation Schemes

c) Flood control and anti Erosion Protection work

d) Hydro Power Project / HT Distribution systems/ Transformers and sub stations

e) High Tension Lines (above 11 kv)

f) State Govt. Buildings viz., departmental / office building, departmental/ residential quarters, religions structures, patwarkhana, Court premises, play ground, forest bungalow property and animal / bird sanctuary etc.,

g) Long term / permanent restoration work

h) Procurement of equipments / machineries under NDRF

i) National Highways

j) Sectors such as Telecommunication and Power (except immediate restoration of power supply), which generate their own revenues, and also undertake immediate repair / restoration works form their own funds / resources, are excluded.

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ANNEXURE – III

Guidelines on Constitution and Administration of Preparedness and Capacity Building Funding Window under National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF)

Introduction: -

1. The Fifteenth Finance Commission (XV-FC) while recommending Disaster Management Grants has inter-alia allocated 10% of the State Disaster Risk Management Fund (SDRMF) and the National Disaster Risk Management Fund (NDRMF) for Preparedness & Capacity Building (P&CB) Sub-window to support the critical institutional, functional and technological components of the disaster management system. XV-FC has further recommended that a separate set of guidelines be developed for Preparedness & Capacity Building (P&CB) funding window.

2. Therefore, in pursuance to the recommendations of XV-FC, following guidelines are hereunder issued under Sections 46(2), 48(1)(a) and Section 62 of the Disaster Management Act, 2005 for the operationalisation of the P&CB grants under the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF). These guidelines will be operative for the award period starting from the financial year 2021-22 to 2025-26.

Preparedness and Capacity Building Measures:

3. The Disaster Management (DM) Act, 2005 empowers the National, State and District Disaster Management Authorities to take measures for the prevention of District Disaster Management Authorities to take measures for the prevention of disasters, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disasters.

4. As per Section 2 (m) of the Disaster Management (DM) Act, 2005, preparedness is the "state of readiness to deal with a threatening disaster situation or disaster and the effects thereof."

5. Further, as per Section 2 (b) of the DM Act, 2005, Capacity Building includes-

- Identification of existing resources and resources to be acquired or created;
- Acquiring or creating resources identified under above sub-clause;
- Organization and training of personnel and coordination of such training for effective management of disasters.

Resource Allocation and Earmarking of funds from NDRF / SDRF

6. Under NDRF:- As recommended by the XV-FC, the aggregate size of the P&CB funding window for the award period commencing from 2021-22 to 2025-26 would be Rs. 6,846 crore. Out of this amount, Rs. 5000 crore is earmarked for 'Expansion and Modernization of Fire Services'. Year-wise allocation from P&CB funding window is as under:

Yearwise Allocation	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**Total for the award period 2021-22 to 2025-26 (Rs in crore)**
Amount (Rs in crore)	1,239	1,301	1,366	1,434	11506	6,846

7. Under SDRF:- The aggregate size of the P&CB funding window commencing from 2021-2022 to 2025-2026 would be Rs.16,014 crore as recommended by the XV Finance Commission.

Year wise allocation from P&CB funding window is as under :

Year wise Allocation	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**Total for the award period 2021-22 to 2025-26 (Rs in crore)**
Amount (Rs in crore)	2,898	3,043	3,196	3,355	3,523	16,015 (10% of yearwise allocation of both Union and State Share of SDRMF taken together

8. NDRF would receive 80 per cent of the total NDRMF. Within the NDRF, there would be three sub-allocations (i) Response and Relief (40 per cent), (ii) Recovery and Reconstruction (30 per cent) and (iii) Preparedness and Capacity Building (10 per cent). While the funding windows of NDRF and NDMF are not inter-changeable, there could be flexibility for re-allocation within the three sub-windows of NDRF for that financial year subject to the condition that earmarked allocation shall not exceed 10 per cent of the amount earmarked for the sub-window.

9. The SDRF would receive 80 per cent of total SDRMF. Within the SDRF there would be three sub-allocations (i) Response and Relief (40 per cent), (ii) Recovery and Reconstruction (30 per cent) and Preparedness and Capacity Building (10 per cent). While the funding windows of SDRF and SDMF are not inter-changeable, there could be flexibility for re-allocation within the three sub-windows of SDRF for that financial year

10. The funds for earmarked allocations for 'Expansion and Modernization of Fire Services' will be provided to the State Governments in the next five years (2021-2026). There shall be no spill-over for the liabilities committed for any of the projects sanctioned against earmarked allocation beyond the award period (2021-2026) of the XV-FC.

Scope of Preparedness and Capacity Building Funding Window under NDRF / SDRF :-

11.1 As recommended by XV-FC:-

- At Central level, this funding window is made available within the NDRF which will largely be used to support national agencies. However, State Government may also seek assistance, if the State Government concerned, has insufficient fund available under P&CB window of SDRF,

- At State level, P&CB funding window is meant to support preparedness and capacity building of State Disaster Management Authorities (SDMAs), State Institutes of Disaster Management (SIDM), training and capacity-building activities, and emergency response facilities. State Governments would not use these resources for personnel support.

11.2 In the light of the recommendations made by XV-FC and the provisions contained in the DM Act, 2005, the P&CB funding window shall support and provide funds to the following type of projects from NDRF / SDRF:-

(i) NDRF:-

Category - A

Projects / Proposals of the following types to be implemented by the Central Ministries / National Agencies / Institutes / Entities:

(a) Projects aimed at preparedness for hazards which are to be implemented in an area, which cuts across more than one State,

(b) Projects aimed at setting up / strengthening national level "Early Warning Systems" or promote disaster awareness through intervention of updated technologies or otherwise including strengthening of "Emergency Operations Centres" and preparedness and response mechanisms across the States,

(c) Projects aimed at preparedness and capacity building including hazard specific if front-line disaster mitigation / response forces, frontline workers and Government functionaries at various levels in the disaster management.

Category B

Under this category, projects / proposal of the following type shall be considered for funding from P&CB funding window of NDRF:-

(a) Projects of the State Government(s) related to hazard preparedness, disaster awareness, early warning systems, emergency operations centres, training and capacity building. However, the projects for funding from P&CB funding window of NDRF will be considered only if the State Government concerned has exhausted the funds available under P&CB window of SDRF or the proposed project cost is more than the available balance in the P&CB window of SDRF,

(b) Projects for 'Expansion and Modernization of Fire Services' including setting up of new fire stations / upgradation of existing fire stations and procurement of fire-fighting and rescue vehicles and equipment.

(ii) SDRF:

(a) Projects aimed at preparedness for a specific-hazard which is to be implemented within a State,

(b) Projects aimed at promoting disaster awareness in the disaster-prone areas of the State through intervention of updated technologies or otherwise preparedness and response mechanisms within the State,

(c) Projects aimed for preparedness and capacity building including hazard-specific training of front-line disaster mitigation / response forces / local body members / selected volunteers.

11.3 There shall be no State share in the Projects / Proposals covered under Category A above. For all Projects / Proposals under Category B above for which assistance is sought by any State Government from P&CB funding window, as recommended in XV-FC, the concerned State Government shall contribute 10% in case of projects upto Rs. 250 Crore, 20 per cent in case of projects above Rs. 250 Crore and upto Rs. 500 Crore and 25 per cent in case of projects exceeding Rs. 500 Crore. However, for the projects / proposals under the earmarked allocation of 'Expansion and Modernization of Fire Services' through the P & CB Funding Window, State Governments shall contribute 10 per cent of the total cost of such projects / proposals.

12. **Exclusions for utilization of P&CB funding window. of NDRF / SDRF**

(i) Resources under P&CB funding window cannot be used towards establishment expenditure such as salaries, office expenditure, etc. to be incurred by the Disaster Management Authorities or other entities except for payment of remuneration to technical staff included in the project costs. Such payments will be as per the General Financial Rules, 2017 and the extant Government of India guidelines,

(ii) Resources under P&CB funding window shall not be used for outsourcing the routine and regular activities of the national agencies / State Governments to any consultancy firm including any international agency,

(iii) P&CB funding window shall not be used to support construction-based projects and procurement of large / heavy equipment, except setting up of new fire stations / upgradation of existing fire stations and procurement of fire-fighting and rescue vehicles and equipment as envisaged under Category (B) (b) of para 6.2 (i) above. Further, this funding window shall also not be used for maintenance and upkeep of any structure or engineering measure aimed at mitigation,

(iv) P&CB funding window shall not be used as a source of funding for existing government programmes / ongoing schemes etc. which are under implementation,

(v) P&CB funding window must have a predominant focus on multi-hazard preparedness and capacity development and should not be used for general environmental improvement, plantations, afforestation or landscape beautification without a clear, logical and direct linkage to hazards.

(vi) All preparedness and capacity building activities would need to be undertaken and completed within the time-frame as specified in the approved proposal. Cost and time-frame for such proposals should ideally not be revised barring, some exceptional circumstances.

13. **Technical Guidelines**

Projects to be undertaken from NDRF / SDRF must have verifiable and measurable outcomes. NDMA will advise implementing authorities in the projects launched / being implemented under the preparedness and capacity building window including prescribing specific format for seeking information / project proposals etc. In addition, for the guidance of Implementing Partners / State Governments etc. for the wide range of activities within the broad framework of preparedness and capacity building, NDMA will also issue technical guidelines separately, with the concurrence of MHA. Further, detailed procedures for project execution will continue to be issued by NDMA from time to time in consultation with MHA.

14. **Implementing Partners**

Following agencies / entities may act as Implementing Partners for Preparedness and Capacity Building funding window:

For NDRF:

i) National Disaster Management Authority (NDMA) and National Institute of Disaster Management (NIDM).

ii) First Responder Organizations within the Central Government such as National Disaster Response Force.

iii) Ministries / Departments / National Agencies within the Central Government for preparedness & capacity building activities and execution of projects in the States.

iv) Central Research and Academic institutions in Disaster Management through the National Agencies including NDMA, NIDM and NDRF.

v) Government supported Organizations e.g. Bharat Scouts & Guides, National Cadet Corps (NCC), National Social Service (NSS) and National Yuva Kendra Sangathan (NYKS) through National Agencies including NDMA, NIDM and NDRF.

For SDRF:

i) State Disaster Management Authorities (SDMAs).

ii) District Disaster Management Authorities (DDMAs).

iii) First Responder Organizations within the State Governments such as Stat Disaster Response Force, Fire Services and Civil Defence.

iv) Ministries/ Departments /Institutions within the State Government fo preparedness & capacity building activities.

V) State Research and Academic institutions in Disaster Management through Stat Agencies like SDMA and SIDM.

vi) State Government supported Organizations e.g. Bharat Scouts & Guides, NCC NSS & NYKS through State Agencies like SDMA and SIDM.

vii) Urban Local Governments/ Zilla Parishad / Gram Panchayats.

Administrative Mechanism for processing of funding proposals Under NDRF:-

15. NDMA will constitute an Appraisal Committee headed by a member of NDMA with representatives from the line-Departments, State Government concerned and subject matter experts (if required) for appraisal of proposals received from national agencies/entities, Central Ministries and State Governments.

16. Projects/proposals submitted by the State Government for funding under PACB funding window of NDRF should be approved by the State Executive Committee (SEC).

17. State Government(s), Central Ministries, and National Agencies/Entities shall submit the projects for which central assistance from the P&CB funding window of NDRF is sought to Ministry of Home Affairs. MHA will forward the same to the Appraisal Committee constituted under the Chairmanship of Member, NDMA for appraisal/evaluation of the proposed project.

18. The Appraisal Committee will make its recommendations to the MHA for placing the same before the Sub-Committee of the National Executive Committee (SC- NEC) for consideration. SC-NEC will have the power to approve proposals up to Rs. 100 Crore.

19. Proposals above Rs. 100 Crores will be placed before High Level Committee (HLC) along with the recommendations of SC-NEC. The HLC will approve the proposals for undertaking Preparedness and Capacity Building activities.

Under SDRF:-

20. SDMA will constitute a committee to be headed by a member of SDMA with members from line Departments of the State Government and State agencies/ entities for appraisal/evaluation of the proposals / projects under P&CB funding window of SDRF/NDRF.

21. The Departments of the State Government and the agencies/institutes who wish to take up projects from P&CB funding window of SDRF will submit the projects to the State Government Department dealing with Disaster Management which in turn will refer the project to the committee headed by a member of SDMA as mentioned above.

22. The recommendations of the committee shall be placed before the SEC for consideration and the procedure in place for incurring expenditure from SDRF shall continue to apply mutatis-mutandis for P&CB funding window of SDRF/NDRF including all modalities.

23. SEC constituted by the State Government under the provisions of the DM Act, 2005, shall decide on all matters connected with the administration of P&CB funding window of SDRF.

Release of funds

24. Upon the approval of SC-NEC / HLC, Department of Expenditure, Ministry of Finance will release assistance from P&CB funding window of NDRF to the concerned State Governments based on the recommendations of the MHA.

25. For the projects covered under Category 'A', of NDRF; upon the approval of SC- NEC / HLC, and based on the recommendations of MHA, Department of Expenditure, Ministry of Finance will issue a Letter of Authorization (LOA) to the MHA or National Agencies (NDMA/NIDM/NDRF), as the case may be, so as to enable them to provide funds to the implementing agencies of approved projects.

26. Upon sanctioned by SEC, funds will be released to the States from PaCB Funding window under SDRF. Procedure as in vogue in the State for the release of funds under SDRF shall apply for preparedness and capacity building funding window.

Supervision of Projects

27. NDMA / SDMAs need to identify specific disasters and evaluate preparedness for the same, prepare plans for the deficiencies observed either in preparedness or capacity building/ training so that disasters can be responded effectively. Such plans need to specify measures required to be taken to strengthen the capability / capacity of first responders to hazard specific disasters.

28. NDMA shall supervise and monitor the implementation of the preparedness and capacity building projects and in this process can seek progress / performance reports from the Implementing Partners. NDMA shall submit progress report to MHA and Department of Expenditure. In case of any shortfall in the progress of the preparedness and capacity building project, NDMA may take special measures, if required, for smooth and timely implementation of the project.

29. SDMA shall assist and provide technical advice to the State Government / Line Ministries / Departments from conceptualization to completion of the preparedness and capacity building proposals under SDRF.

30. SDMA shall supervise and monitor the Preparedness and capacity building projects/works and submit completion certificate as well as actual benefits achieved from it including population benefitted/ nature of risks reduced/impact analysis etc. to State Government and NDMA.

Disbursements

31. After the project is approved, the funds would be disbursed in the installments as specified in the proposal. The disbursement of funds would be linked to the deliverables and Utilization Certificates. The unspent balance in the preparedness and capacity building funding window under SDRF account as at the end of a financial year 2021-22 shall be the opening balance of said account of the successive financial year. The Central Government will communicate the modalities for handling any balances available at the end of 2025-26 in P&CB funding window under SDRF of the State.

Procurement

32. All the procurements made by government agencies for implementing the proposal would be in accordance with the General Financial Rules (GFR) and from GeM portal, as applicable. The implementing agencies would ensure that the project is implemented in a fair and transparent manner. In the entire implementation process, the DMAs need to ensure that there is no conflict of interest. Appropriate GFR will be followed by States and Government supported Organizations.

Project Database

33. A disaster database should be developed to help assess the impact of expenditures on different aspects of disaster management. All the project-related processes would be digitized. NDMA will maintain a national portal of all the preparedness and capacity-building projects that have been implemented through the NDRF / SDRF. This portal will contain a specific component for capacity building plans. NDMA will also monitor the database by holding periodic review.

Release, Accounting and other procedures

34. The detailed funding pattern, release of funds, investment of funds, accounting & auditing procedures, progress monitoring, savings and cost of maintenance / implementation etc. in respect of the projects initiated under P&CB Funding Window would be same, as envisaged in the primary guidelines issued by MHA on NDRF / SDRF for such purposes. The composition of HLC and SC-NEC will also be same as envisaged in the primary guidelines issued by MHA for NDRF / SDRF.

Interpretation and Amendment

35. In case of any difficulty in interpretation of any of these guidelines, the matter shall be referred to the Disaster Management Division, MHA whose decision in consultation with Department of Expenditure shall be final. Any amendment in this guideline will be issued by MHA in consultation with Department af Expenditure, Ministry of Finance.

V. RAJARAMAN
SECRETARY TO GOVERNMENT

//True Copy//

9.12.2022
SECTION OFFICER

ANNEXURE – IV

GENERAL

(i) Ex-Gratia payment of Rs.50,000/- per deceased person, to next of kin of the deceased person, including those involved in the relief operations or associated in the preparedness activities, subject to the cause of death being certified as COVID – 19, as per the guidelines jointly issued by the Ministry of Health and Family Welfare and the Indian Council of Medical Research on 3rd September, 2021, will be given as per guidelines on minimum relief issued by the National Disaster Management Authority (NDMA) dated 11.09.2021. This ex-gratia assistance will be applicable from the date of first COVID-19 case reported n the country and will continue till de-notification of COVID-19 as a disaster or till further orders, whichever is earlier, to next of kin of the deceased due to COVID-19.

(ii) The State Government are to take utmost care and ensure that all individual beneficiary – oriented assistance is necessarily / mandatorily disbursed through Direct Benefit Transfer in the bank account of the beneficiary.

(iii) The scale of relief assistance against each item for all notified disaster including 'local disaster' should not exceed the norms of SDRF / NDRF. Any amount spent by the State for such disasters over and above the ceiling, would be borne out of the resources of the State Government and not from SDRF.

V. RAJARAMAN
SECRETARY TO GOVERNMENT

//True Copy//

9.12.2021

SECTION OFFICER

Department has suggested for modifying the rule 12(2) of Tamil Nadu Minor Mineral Concession Rules 1959.

4. The Commissioner of Geology and Mining has further stated that in the meeting convened on 24.4.2017, the matter was discussed by the Principal Secretary of Industries Department with the concerned departments.

5. Based on the outcome of the discussion, the Commissioner of Geology and Mining has sent a proposal to the Government for amending Rule 12 (2) and 12(2-A)(a) of Tamil Nadu Minor Mineral Concession Rules, 1959.

6. The Government have examined the above amendment proposal of the Commissioner of Geology and Mining and have decided to amend rule 12(2) and 12(2-A)(a) to the Tamil Nadu Minor Mineral Concession Rules, 1959 and ordered accordingly. Further, the Government order that for desilting of tanks, reservoirs and other water bodies in Chennai, Tiruvallur and Kancheepuram Districts, concerned departments (PWD and RD&PR) will issue appropriate instructions not to operationalize the above amendments to these districts.

7. The Notification appended to this Order will be published in the Tamil Nadu Government Gazette Extraordinary. The Works Manager, Government Central Press, Chennai-79 is requested to supply 25 copies of the Notification to this department, Commissioner of Geology and Mining, Chennai-32 and to all District Collectors.

8. The Director, Tamil Development and Information (Translation) Department is requested to send the Tamil Translation of the Notification appended to this Order to the Works Manager, Government Central Press, Chennai-79 for publishing in the Tamil Nadu Government Gazette and to the Collectors of all Districts for publishing it in the District Gazettes immediately.

(BY ORDER OF THE GOVERNOR)

ATULYA MISRA
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Works Manager,
Government Central Press, Chennai-79.
The Director,
Tamil Development & Information (Translation) Department, Chennai-9.
The Additional Chief Secretary to Government,
Rural Development & Panchayat Raj Department, Chennai-9.
The Principal Secretary to Government , Public Works Department, Chennai-9.
The Principal Secretary to Government, HHT&K Department, Chennai-9.
The Agriculture Production Commissioner/Principal
Secretary to Government, Agriculture Department, Chennai-9.
The Commissioner of Geology and Mining, Guindy, Chennai-32.
The Chief Executive Officer, Khadi and Village Industries Board, Chennai-108.
All District Collectors.
The Accountant General, Chennai-18.
Copy to:
O/o. Hon'ble Minister (Industries), Chennai-9.
The Law Department, Chennai-9.
All Sections in Mining Wing, Industries Department, Chennai-9.
The Industries (OP.II) Department, Chennai-9.
SF/SCs.

// Forwarded / By order //

Under Secretary to Government

APPENDIX

NOTIFICATION

In exercise of the powers conferred by sub-sections (1) and (1-A) of section 15 of the Mines and Minerals (Development and Regulations) Act, 1957 (Central Act 67 of 1957), the Governor of Tamil Nadu hereby makes the following amendments to the Tamil Nadu Minor Mineral Concession Rules, 1959, namely:-

AMENDMENT

In the said Rules, in rule 12, --

(1) for sub-rule (2), the following sub-rule shall be substituted, namely:-

"(2) (a) Notwithstanding anything contained in these rules, for quarrying clay, silt, savudu and gravel from the beds of tanks, channels and reservoirs in the State (except Chennai, Kancheepuram and Tiruvallur Districts) under the control of Public Works Department or Rural Development and Panchayat Raj Department, the Executive Engineer, Public Works Department or the Executive Engineer of the Rural Development and Panchayat Raj Department, as the case may be, shall prepare the list of tanks, channels and reservoirs and submit their proposal to the District Collector for removal of clay, silt, savudu and gravel from the beds of tanks, channels and reservoirs with demarcation of eligible areas and the estimation of quantum of such mineral to be removed in respect of each area along with the conditions to be stipulated for removal of such mineral from the tanks, channels and reservoirs. The District Collector shall notify the said list in the District Gazette.

(b) Any person engaged in the making of pots or any registered Pottery Labourers Co-operative Society registered under the Tamil Nadu Co-operative Societies Act,1983 (Tamil Nadu Act 30 of 1983) for making pots, the public for bonafide domestic purpose and the farmers for agriculture purpose be allowed to quarry clay, silt, savudu and gravel, on free of charges from the beds of tanks, channels and reservoirs under the control of the Public Works Department or Rural Development and Panchayat Raj Department which are notified by the District Collector in the *District Gazette* under this rule after obtaining permission from the District Collector for quarrying:

Provided that the dwelling place or agricultural land of the person concerned and the quarrying place shall be in the same revenue village or in the adjoining revenue village. For removal of the above said minerals by any person for agricultural purpose shall produce a certificate issued by the Village Administrative Officer to the effect that they are holding lands in their name or a cultivating tenant as per Adangal Register:

Provided further that the quantity of silt and clay proposed to be removed for agricultural purpose from the beds of tanks, channels and reservoirs shall not exceed 75 Cubic meters per acre (185 Cubic meters per Hectare) for wet lands and a quantum not exceeding 90 Cubic meters per acre (222 Cubic meters per Hectare) for dry lands once in two years. The quantity of earth, savudu and gravel proposed to be removed for other domestic purposes shall not exceed 30 cubic meters. The quantity of clay proposed to be removed for making pots shall not exceed 60 cubic metres:

Provided also that prior permission shall be obtained from the District Collector for removal of such quantity of minerals from the tanks, channels and reservoirs and the period of permission shall not exceed 20 days :

Provided also that quarrying shall be permitted only in the area demarcated by the Public Works Department or Rural Development and Panchayat Raj Department, as the case may be, and the minerals shall be loaded in the vehicles brought by the applicant by the Public Works Department or Rural Development and Panchayat Raj Department, as the case may be.

(c) Any removal of mineral from these lands shall be subject to the following restrictions, namely :—

(i) Pits shall be at a distance of at least twice the height of the bund from the toe of the bund and they shall not be more than one metre in depth (the depth shall be less, if pits one metre deep are likely to expose porous strata) ;

(ii) Clay, silt, savudu and gravel shall not be carted along the tank bund unless the bund is a recognized road or cart-track ;

(iii) Bunds shall not be cut to enable to pass ;

(iv) Clay, silt, savudu and gravel removed should not be stacked on tank beds, sluice or any other masonry works of the tanks and causeways or slopes of the bunds ; and

(v) Vehicles and carts shall not touch any portion of the revetment, sluice or any masonry works of the tanks and cause damage to them."; and

(2) in sub-rule (2-A), in clause (a), for the expression "30 cubic meters", the expression "222 cubic meters" shall be substituted".

ATULYA MISRA
PRINCIPAL SECRETARY TO GOVERNMENT

//True Copy//

27/4/17
Under Secretary to Government

Tirunelveli District

Water Budget Calculation

1 **Water Availability**

a) Area of the District : 390700 Ha
b) Annual average Rainfall : 752mm
c) Yield from Rainfall : 3907000000 x 0.752 x 1000 litres

: 29380640 lakh litres

This quantity of water gets converted as below

i) **Ground Water @ 10%** : **2938064 lakh litres**

ii) **Surface Water @ 20%** : 5876128 lakh litres

Remaining 70% water absorbed in soils, trees and plants

iii) From surface water, Tanks and ponds get filled up as below

1) WRD Tank (60% of the capacity 329.116 MCM) : 1974696.000 lakh litres

2) Panchayat UnionTank (60% of the capacity 80.399 MCM) : 48.2394 lakh litres

1974744.239 lakh litres

Total Water stored in Water Bodies (1+2) : 1974744.239 lakh litres

After filling up of the water bodies, the surplus of surface water leaves the village after recharging the ground water

iv) Recharge to Ground water by Surface @ 20% : (5876128- 1974744.239) x 0.20

: **780276.7521 lakh litres**

v) Quantity of water given directly by the Channel under Thambraparani system 3096809 Lakh Litre

vi) Supply for drinking water from Thamirabarani river 1324512 Lakh Litre

Total Water Availability : 2938064 + 1974744.239+ 780276.7521+3096809

: **10114405.992 lakh litres**

VI. Water Budget

II **Water Requirement**

a) for Domestic purpose

i) Human Being (Population 3251632: @ 135 litres / person / day)

3251632 x 135 x 365 / 100000 = 1602241.668 lakh litres

ii) Cattle: (160898 @ 60 litres / cattle / day)

160898 x 60 x 365 / 100000 = 35236.662 lakh litres

Buffaloes: (4983 @ 60 litres / Buffaloes / day)

4983 x 60 x 365 / 100000 = 1091.277 lakh litres

Sheep: (134164 @ 15 litres / Sheep / day)

134164x 15 x 365 / 100000 = 7345.479 lakh litres

Goat: (246020 @ 15 litres / goat

246020 x 15 x 365 / 100000 = 13469.595 lakh litres

Pig: (2244 @ 4.2 litres / goat

2244 x 4.2 x 365 / 100000 = 34.40052 lakh litres

1659419.082 lakh litres

Total Annual Water Requirement (Human + Animals)

= 1659419.08 lakh litres

b) **For Agriculture Crop**

Sl. No	Type of Crop	Extent (Ha) (P)	Crop Water Requirement		
			mm (Q)	Lakh Litre P*Q*0.1	
1	Paddy	52719	1250	6589875	Lakh Litre
2	Millets	613	650	39845	Lakh Litre
3	Sugarcane	31	1275	3952.5	Lakh Litre
4	Oilseeds	741	450	33345	Lakh Litre
5	Pulses	10151	400	406040	Lakh Litre
6	Cotton	747	700	52290	Lakh Litre
Grand Total		65002		7125347.5	Lakh Litre

Water requirement for agricultural crop= 7125347.50 lakh litres

c) **For Horticulture Crop**

Sl. No	Type of Crop	Extent (Ha) (P)	Crop Water Requirement		
			mm (Q)	Lakh Litre P*Q*0.1	
1	Brinjal	8283	650	538395	Lakh Litre
2	Banana	2	1500	300	Lakh Litre
3	Grape	1	900	90	Lakh Litre
4	Guava	365	1100	40150	Lakh Litre
5	Mango	642	1100	70620	Lakh Litre
6	Pomegranate	34	932	3168.8	Lakh Litre
7	Acid lime	273	700	19110	Lakh Litre
8	Sapota	679	150	10185	Lakh Litre
9	Lemon	6261	1000	626100	Lakh Litre
10	Coconut	306	100	3060	Lakh Litre
11	Cucumber	12	500	600	Lakh Litre
Grand Total		**16858**		**1311778.80**	**Lakh Litre**

Water requirement for Horticulture Crops = 1311778.8 lakh litres

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Total water requirement (a) + (b)+(c) = 10096545.38 lakh litres

III) **WATER BALANCE**

Total water availability = 10114405.99 Lakh Litre

Total water requirment = 10096545.38 Lakh Litre

WATER BALANCE = Total water availability - Total water requirment

WATER BALANCE = 10114405.99-10096545.38

Excess 17860.61 lakh litres

Executive Engineer,WRD
Thamiraparani Basin Division,
Tirunelveli.

*Required Particulars received from Agriculture Department,Horticultre,Animal Husbandry,DRDA,AD Panchayat,TWAD,Statictics and also downloaded from website.

DATE OF APPROVAL OF DDMP BY DDMA CHAIRMAN

மாவட்ட பேரிடர் மேலாண்மை ஆணையம்
திருநெல்வேலி மாவட்டம்

DISTRICT DISASTER MANAGEMENT AUTHORITY,
TIRUNELVELI DISTRICT

www.tirunelveli.nic.in