COCHIN PORT TRUST

DISASTER MANAGEMENT PLAN

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I N D E X

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Part - 1

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I. PRELIMENERIES

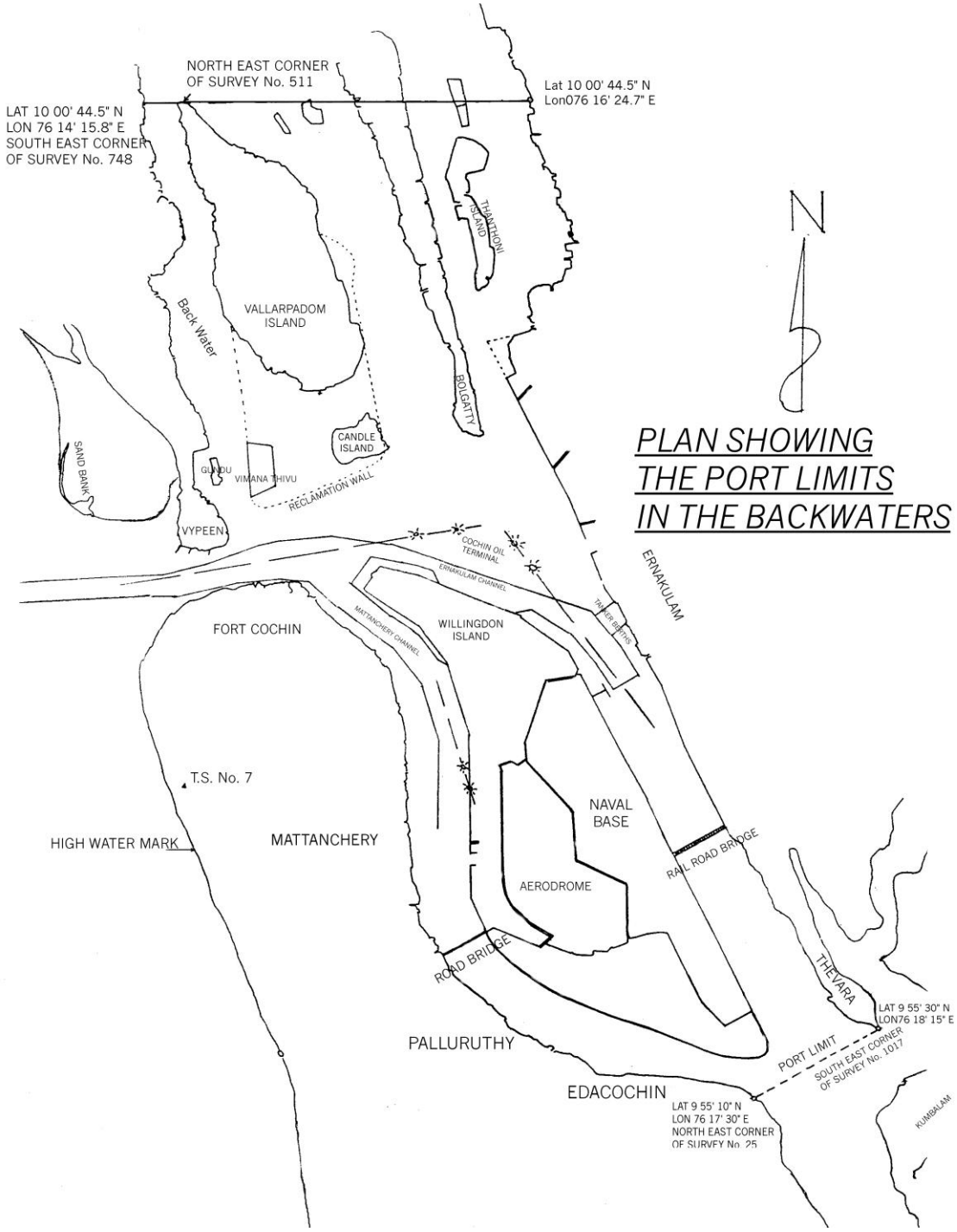
1.1 PROFILE

Cochin Port Trust (Latitude 09 deg 58 minutes, Longitude 076 degree 16 minutes) is situated in Cochin backwaters, the SW coast of India, Kerala State, referred as the "Queen of Arabian Sea". After the independence of India, Cochin was declared a major port in 1964 as per Indian Major Port Trust Act 1963 and the Administration was vested with the Board of Trustees. It's an all weather natural port, and located strategically close to the busiest international sea route. The port operates from two Islands: Willingdon Island and Vallarpadom Island. UTL berth, International Container Transhipment Terminal, LNG Terminal, SPM, Bunkering Terminal and LPG Terminal at Puthu Vypeen are the latest addition to the old port activities. The approach channel is dredged to 15.90 metres.

HISTORY

The Indian Ports Act 1908 was made by British. In 1920 when Lord Willingdon was the Governor of Madras Presidency, his aim was to quicken the life of the Presidency by pressing forward its industrial importance and the improvement of its ports and roadsteads. During the time, trade at Cochin had increased substantially. And the need to develop it was greatly felt. The port which was under the British rule since 1795 had seen little development, despite its illustrious maritime history. Lord Willingdon identified Cochin as a natural gateway for ships on the South West coast of India. For this purpose he summoned an excellent Admiralty Harbour Engineer named Robert Bristow from England. Bristow was assigned the charge of constructing an approach channel from the deep sea to the inner harbour. This would help the ships to enter the safety of inner harbour.

The challenge Bristow faced in his task, was the obstruction caused due to a rock like sand bar that guarded the entrance to the port. The new dredger 'Lord Willingdon' steamed safely over the sand bar at Cochin in May 1926. This dredger and another named Lady Willingdon were used exclusively for dredging and deepening the outer and inner channels of Cochin. The dredger was used to pump the silt for reclamation work of Willingdon Island which is flanked by Ernakulam and Mattancherry channels on either side. Around 3.2 Sq.km of land was reclaimed during the dredging process. For 21 years Bristow was involved with the construction of the port and succeeded in transforming Cochin as one of the safest harbours in the peninsula. On 30th March 1928 the sandbar became history as the dredger removed the last remains of it, witnessed by Bristow and his team. In May 1928 the steam ship Padma under the command of Capt. Bullen sailed calmly into the harbour against explicit signals from the Port Officer and became the first ship to enter the inner harbour. He proceeded to pick up every bale of cargo which the port could offer and which could be crammed into the vessel without sinking it. The modern port of Cochin was opened to the world.



FACILITIES

RESPONSIBILITY

CoPT is responsible for maintaining its own disaster plan as per the Ministry of Shipping Guidelines for the purpose of its own jurisdictional area and providing assistance to local state and National Authority.

RATIONALE

Disaster is defined as:

“A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.” (UNISDR 2016)

The effect of the disaster can be immediate and localized but is often widespread, often persisting for long after the event. The effect may challenge or overwhelm the capacity of a community or society to cope using the resources immediately and therefore may require assistance from external sources, which could include neighboring jurisdictions, or those at the national or international levels. Disaster is considered to be a result of the combination of many factors such as the exposure to hazards, the conditions of vulnerability that are present, and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injuries, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

The DM Act 2005 uses the following definition for disaster:

"Disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.”

The NDMP has provided a framework and direction to the government agencies for all phases of disaster management cycle. The NDMP is a “dynamic document” in the sense that it will be periodically improved keeping up with the global best practices and knowledge base in disaster management. It is in accordance with the provisions of the Disaster Management Act 2005, the guidance given in the National Policy on Disaster Management 2009 (NPDM), and the established national practices. Relevant agencies – central or state – are to carry out disaster management activities in different phases in the disaster-affected areas depending on the type and scale of disaster.

Within each state, the state government is primarily responsible for disaster. However, in situations where the resources of the state are inadequate to cope effectively with the situation, the State Government can seek assistance from the Central Government.

At local level Cochin Port Trust does liaising with Corporation of Cochin and Collector Ernakulam District.

Disaster Management Plan is implemented in a scalable manner over all phases of disaster management: a) mitigation (prevention and risk reduction), b) preparedness, c) response and d) recovery (immediate restoration to long-term betterment reconstruction

Plan is prepared to define role clarity for rapid mobilization of resources and effective disaster management by the Central and State Governments in India. While it focuses primarily on the situation and needs of the Port related agencies, it envisages all those involved in disaster management including communities and non-government agencies as potential users. Further it provides a well-defined framework for disaster management covering scope of work and roles of relevant departments of Cochin Port Trust as well as other agencies such as CISF, along with their responsibilities and accountability necessary to ensure effective mitigation, develop preparedness, and mobilize adequate response. Disaster Management Plan is a dynamic document, measures included are indicative and not exhaustive. Based on global practices and national experiences, the plan will incorporate changes during the periodic reviews and updates occurring after any learning experience.

Acceptable risk, or tolerable risk, is the extent to which a disaster risk is deemed acceptable or tolerable depends on existing social, economic, political, cultural, technical and environmental conditions. In engineering terms, acceptable risk is used to assess and define the structural and nonstructural measures that are needed to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or "accepted practice" which are based on known probabilities of hazards and other factors.

Residual Risk is the disaster risk that remains even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery, together with socioeconomic policies such as safety nets and risk transfer mechanisms,

as part of a holistic approach.

Cochin Port is abutting western part of Cochin City; hence probabilities of hazard have been taken into account while preparing the plan.

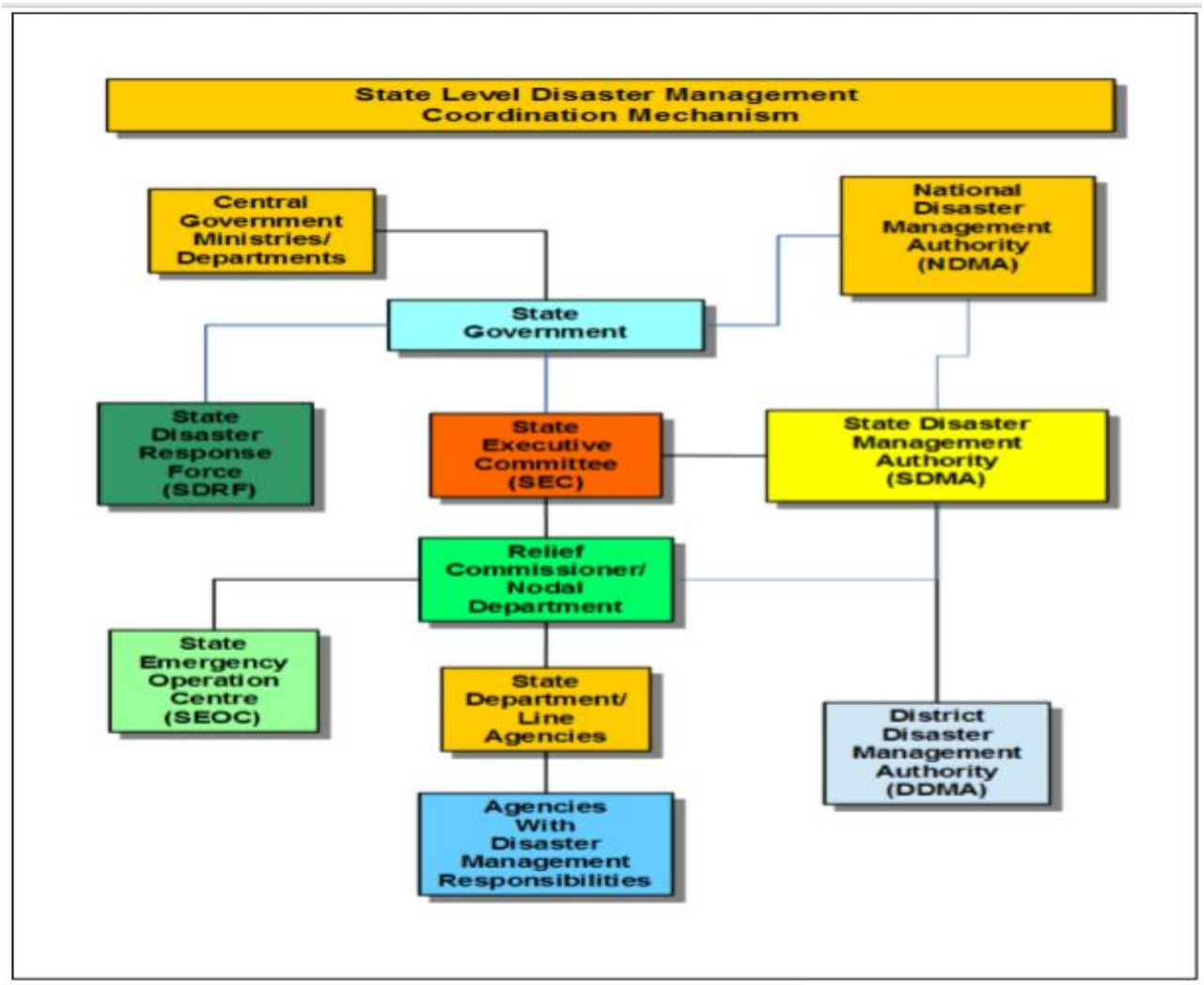
1.2.1 Paradigm Shift

The Disaster Management Act 2005 and the National Policy 2009 marks the institutionalization of paradigm shift in disaster management in India, from a relief-centric approach to one of proactive prevention, mitigation and preparedness. The Policy notes that while it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards becoming major disasters. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. The National Policy suggests a multi-pronged approach for disaster risk reduction and mitigation consisting of the following:

• Integrating risk reduction measures into all development projects

• Initiating mitigation projects in identified high priority areas through joint efforts of the Central and State Governments • Encouraging and assisting State level mitigation projects • Paying attention to indigenous knowledge on disaster and coping mechanisms • Giving due weightage to the protection of heritage structures

1.3 SCOPE OF PLAN



The Cochin Port Trust in recognition of the importance of safety and security of port area as first priority set up a core group committee for preparation of Disaster plan as per the recommendation of the National Disaster Management Plan. Our scope of plan covers the area of port and all the emergencies as per the

1.4 VISION

To maintain Cochin Port safer and disaster resilient by a holistic, pro-active, technology driven and sustainable operations that involves all stakeholders and port users so that a culture of prevention, preparedness and mitigation is imbibed"

Further to assist local, state and national authorities, so that Cochin Port's response complements that of authorities in providing assistance to affected populations during natural disasters.

1.5 TIME FRAMES

EVENT SCENARIOS

Probability: Low-once 10-50yrs; Moderate=once 2-10yrs; High=once annually

Impact/Preparedness/Risk Threat: 0=Very Low / 1=Low / 2= Moderate / 3 = High

Event/Scenario Spectrum	Early warning	Probability of occurence	Duration Impact	Impact on property	Impact on People	Time to Restore Facilities	Risk Threat Probability
Cyclone	96- 12 hrs	Very Low	0	0	0	12- 24 hrs	Very Low
Floods	4-2 hrs	Very Low	1	1	2	12-36 hrs	Very Low
Earthquake	nil	Very Low	1	1	2	12-36 hrs	Very Low
Tsunami	6-1 h	Very Low	1	1	2	12-24 hrs	Very Low
Marine Accident							
Collision	< 1min	Low	<1hr	2	0	4 h	Moderate
Grounding	<1 min	Low	1-48h	2	0	1-48 hrs	Moderate
Fire/Explosion	< 1min	Low	0.5-12 h	2	1	1-96 hrs	Moderate
Oil Pollution	<5 mins	Low	1-72 h	1	1	1-30 d	Moderate
Transport Accident							
Road	< 1min	Low	< 5 min	0.1	0.1	< 2 h	Moderate
Rail	< 1min	Low	< 5 min	0.05	0.1	1-48 h	Low
Function Failure							
Elec sub station	< 1min	Mod	24 h	0	0	12-48 h	Low
Pipelines failure	< 1min	Mod	1-24 h	0	0	12-48 h	Low
Fire station failure	< 1min	Mod	1-24 h	0	0	12-48 h	Low
Water system	< 1min	Mod	1-24 h	0	0	12-48 h	Low

Communications	< 1min	Mod	1-24 h	0	0	12-48 h	Low
Medical facilities	< 1min	Mod	1-24 h	0	0	12-48 h	Low
Human related							
Labour Action/Strike	24 h	Mod	< 24 h	0	0	12-48 h	Low
Civil disturbance	< 12 h	Mod	< 24 h	0	0	12-48 h	Low
Terrorism & War							
State of War	< 48 h	Low	1- 10 d	2	2	12-96 h	Mod
Bomb Threat	< 1 h	Mod	1-3 d	2	3	12-96 h	High
Hostage Threat	< 1 h	Mod	1 – 3 d	1	3	12-48 h	High
Terrorist attack	Nil	Mod	1- 3 d	1	3	> 48 h	High

1.6 INSTITUTIONAL FRAMEWORK

The Cochin Port Trust in recognition of the importance of safety and security of port area as a first priority set up a core group committee to make recommendation on the preparation of Contingency plans, effective mitigation mechanisms and better security setup.

The contingency plans envisaged among other things, a holistic, coordinated and prompt response to any emergency/disasters. There is a Crisis Management Group (CMG) under the chairmanship of Chairman, Cochin Port Trust. The CMG has a clearly defined line of command and control. It is responsible for laying down policies, plans and guidelines for contingency/disaster management including mitigation and preparedness measures besides response.

CRISIS MANAGEMENT GROUP (CMG)

In the case of Cochin Port Trust, having a peculiar topography, vast operational area, its numero uno status as the state's financial hub, the Cochin Port trust authority established the "Crisis Management Group "for harbor area.

The composition, powers and jurisdiction of this Group (CMG) is as follows:

Chairperson	: Chairman/ Dy. Chairman.
Members	: Dy. Conservator
	: Traffic Manager, CoPT
	: Chief Fire Officer, CoPT
	: Sr. Commandant CISF

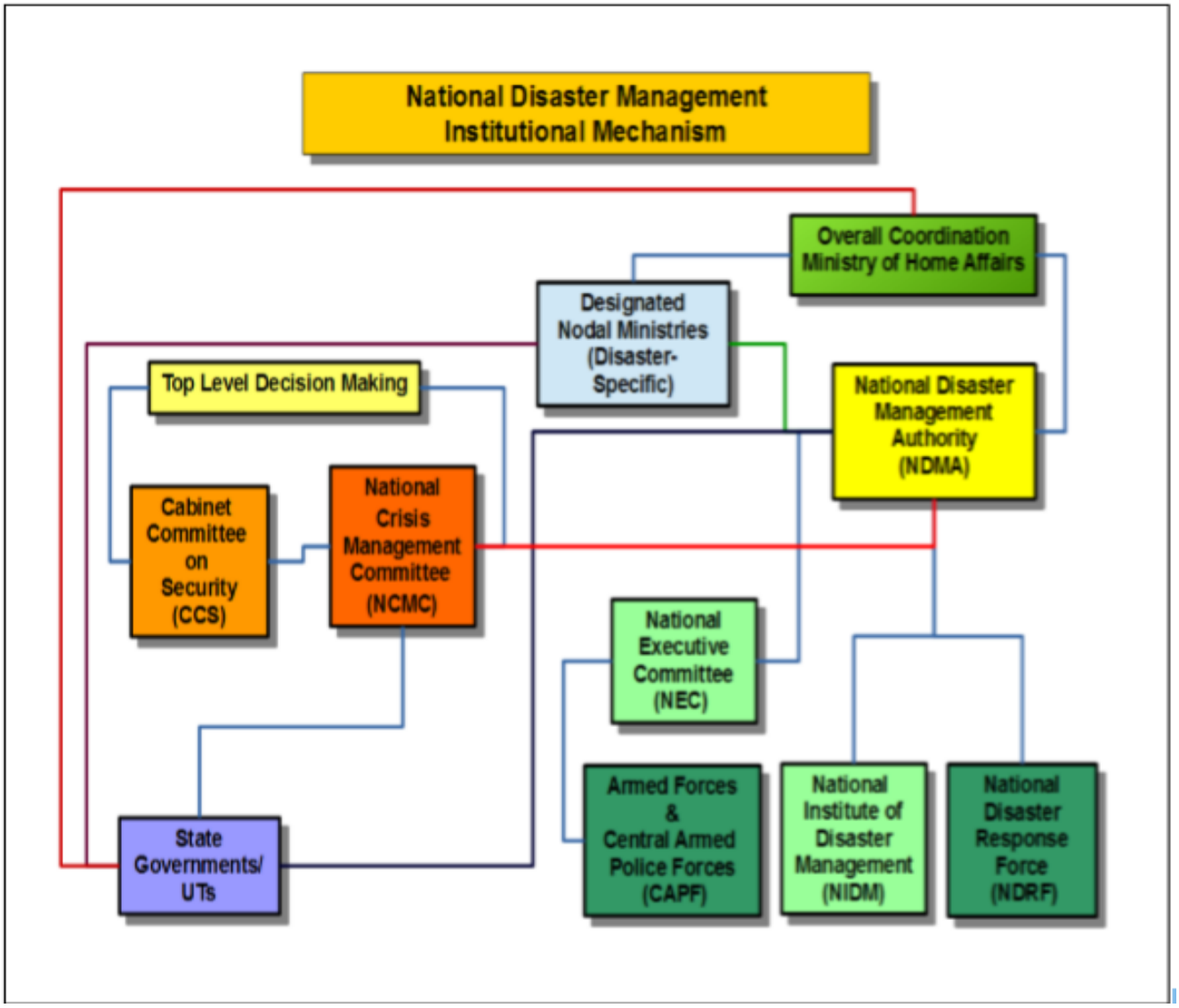
The following officials will be special invitees of this Group (CMG).

1. Secretary, Relief & Rehabilitation, State Government of Kerala,
2. Collector/Deputy Collector, Ernakulum
3. Safety Inspector, Dock Labour Board
4. Sr. Officer from Indian Meteorological Department
5. Flag Officer, Commander in Chief, Southern Naval Command, Indian Navy
6. DIG – Coast Guard, DHQ-4
7. Principal Secretary (Ports) Govt. Of Kerala
8. SI, Coastal Police
9. Chief Fire Officer, Cochin Fire Brigade.

The Cochin Port Trust (Disaster Management Control Room) has connectivity with local agencies/departments to respond to any emergency/disasters.

Other Agencies/departments have direct connectivity to Cochin Port Trust (Disaster Management Control Room, CISF) in case of any emergency/disasters.

National Level



National- level disaster management- basic institutional framework

Note: This represents merely the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command.

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 regarding disaster management. The NDMA is the agency responsible for the approval of the NDMP and the execution of DM functions at the national level. Above figure provides a schematic view of the basic institutional structure for DM at national level. The figure represents merely the institutional pathways for coordination, decision making and communication for disaster management and does not imply any chain of command.

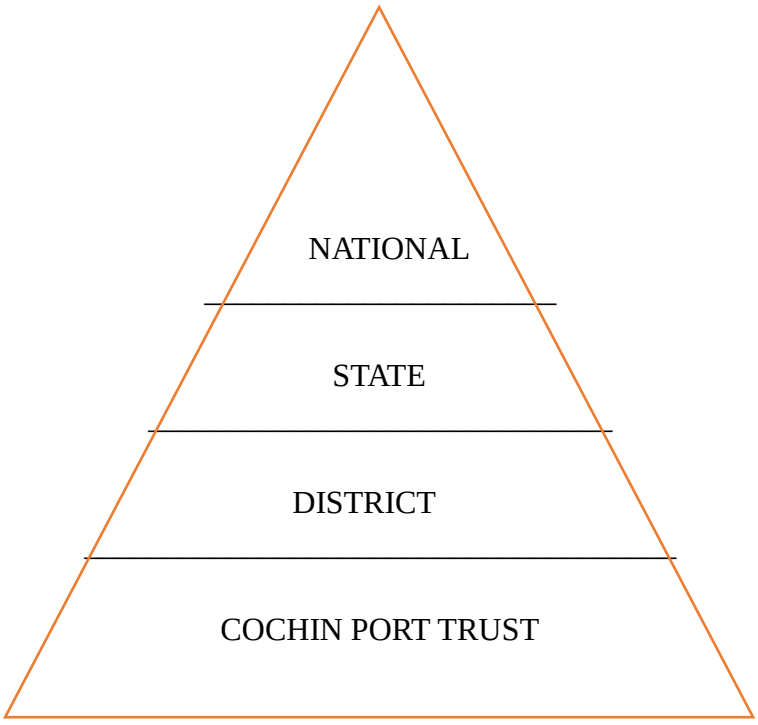
The DM Act does not have any provisions for notifying any disaster as a ‘national calamity’ or a ‘national disaster’. In most cases, state governments will be carrying out disaster management with the central

government playing a supporting role. Generally, the central agencies will participate on the request from the state government. Within each state, there is a separate institutional framework for disaster management at the state-level. The DM Act of 2005 provides for the setting up of NDMA at national level, and, the SDMA at the state level.

State Level - Disaster Management – Institutional Framework

District Disaster Management Authority (DDMA)

As per provisions in Chapter-IV of the DM Act, each State Government shall establish a District Disaster Management Authority for every district in the State with such name as may be specified in that notification. The DDMA will be headed by the District Collector, Deputy Commissioner, or District Magistrate as the case may be, with the elected representative of the local authority as the Co-Chairperson. The State Government shall appoint an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner of the district to be the Chief Executive Officer of the District Authority. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA. It will, inter alia, prepare the DM plan for the District and monitor the implementation of the all relevant national, state, and district policies and plans. The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness, and response measures laid down by the NDMA and the SDMA are followed by all the district-level offices of the various departments of the State Government.



Cochin Port Trust Disaster Management Plan is approved by the District Disaster Management Authority.

2.1 Hazard, Risk, Vulnerability & Capacity Analysis

2.2 Disaster Risks, Vulnerabilities and challenges.

COCHIN PORT – AREA VULNERABILITY & THREAT MATRIX

X = Slightly Vulnerable, XX = Moderately Vulnerable, XXX = Highly Vulnerable

Threats	Vessel Accidents Collision Grounding	Fire Explosion on board vessel/ashore	Fire & Explosion Manifold Pipeline, Tank farm	Oil & Chemical Pollution	Personnel injury: Accident Rail, Road, On board ship
Respondent Agencies	D.C. Cochin Port Trust DG Shipping Min. of Shipping	Cochin Port Trust Fire Service Cochin Fire Brigade Mutual Aid Response Group Police, Min. of Shipping	Cochin Port Trust Fire Service Oil Companies Cochin Fire Brigade Mutual Aid Response Group Police Min. of Shipping	Cochin Port Trust (MMPC, CFO) VTMS Contol Room Oil Companies, Coast Guard, Cochin Corporation, Distt. Collector Min. of Shipping	C.M.O, Cochin Port Trust Police,
Vulnerable Areas					
Vessel Movement	----	------	-----	------	-------
Channel	xxx	xx	----	xxx	x
At Berth	x	xx	xx	xxx	xx
Storage-	----	----	----	----	----

Transfer					
Oil Transfer	---	xx	xx	xx	x
Cargo Transfer	----	----	----	----	----
Trucks, Trains	----	---	----	x	xx
Crane-Shore/Ship	----	xx	----	x	xx
Services	----	----	---	---	----
Access Gates	----	x	x	x	x
Emergency Generators	----	x	---	---	x
Electric Substations	----	x	---	---	x
Train siding Locos, Wagons,	---	----	---	---	xx
VTS station	----	----	----	---	---
Fire station	----	----	---	----	----
Port tugs, crafts,	x	x	---	x	x
Administration Building & Parking	---	---	---	---	---
Customs Area	---	----	---	---	x
Port Employees' Quarters	----	x	----	---	---

Threats	Terrorism Bomb, War, Arson	Technical Failures Power, Transport Communicatio n Infrastructure	Occupational Accidents Strikes	Cyclone Floods	Tsunami Earth Quake
Respondent agencies	Cochin Port Trust CISF, Police, Coast Guard, Navy, GoM Control Room Min. of Shipping	Cochin Port Trust Tata Power/ BEST	Cochin Port Trust, CISF Police, Min.of Shipping	Cochin Port Trust, MCGM, Dist. Collector, GoM Control Room, Min. of Shipping	Cochin Port Trust, Distt Collector, GoM Control Room Min. of Shipping
Vulnerable Areas					
Vessel Movement					
Channel	xxx	--	--	xx	x
At Berth	xx	x	x	xx	x
Storage-Transfer					
Oil Transfer	xxx	x	x	xx	--
Cargo Transfer					
Trucks, Trains	xxx	x	xx	xx	--
Crane-Shore/Ship	x	x	xx	xx	--
Services					

Access Gates	xxx	xxx	xx	xx	--
Emergency Generators	xx	x	--	x	--
Electric Substations	xx	x	--	xx	--
Train siding Locos, Wagons,	x	x	x	x	--
VTS station	--	x	--	x	--
Fire station	--	x	--	x	--
Port tugs, crafts,	x	x	x	xx	--
Administration Building & Parking	x	x	--	x	--
Customs Area & Weigh Bridge	--	x	--	x	--
Port Employees' Quarters	x	x	--	x	--

Understanding Disaster Risks

EVENT SCENARIOS

Probability: Low-once 10-50yrs; Moderate=once 2-10yrs; High=once annually

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Fire/Explosion	< 1min	Low	0.5-12 h	2	1	1-96 hrs	Moderate
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Terrorism & War							
State of War	< 48 h	Low	1- 10 d	2	2	12-96 h	Mod
Bomb Threat	< 1 h	Mod	1-3 d	2	3	12-96 h	High
Hostage Threat	< 1 h	Mod	1 – 3 d	1	3	12-48 h	High
Terrorist attack	Nil	Mod	1- 3 d	1	3	> 48 h	High

3 Hazard specific prevention and Mitigation Measures

3.1 Background

The Disaster Management Act, 2005 and the National Policy, 2009 marks the institutionalization of paradigm shift in disaster management in India, from a relief-centric approach to one of proactive prevention, mitigation and preparedness. The Policy notes that while it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards becoming major disasters. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. The National Policy suggests a multi-pronged approach for disaster risk reduction and mitigation consisting of the following:

- Integrating risk reduction measures into all development projects
- Initiating mitigation projects in identified high priority areas
- Paying attention to indigenous knowledge on disaster and coping mechanisms
- Giving due weightage to the protection of heritage structures

The concept and practice of reducing disaster risks involve systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. While both the terms “Disaster Reduction” and “Disaster Risk Reduction” are widely used, the latter provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

Mitigation consists of various measures required for lessening or limiting the adverse impacts of hazards and related disasters. The DM Act 2005 defines "Mitigation" as measures aimed at reducing the risk, impact, or effects of a disaster or threatening disaster situation. “Goal of mitigation is to minimize risks from multiple hazards and the threats from individual hazards need not always occur in isolation. At times, a hazardous event can trigger secondary events. In addition, demographics, nature of human settlements, and effects of global climate change can magnify the vulnerability of the communities at risk. The DM Plan, therefore, focuses on enhancing the mitigation capabilities for multiple hazards, their likely cascading effects. The effectiveness in disaster risk reduction will depend on coordination mechanisms within and across sectors and with relevant stakeholders at all levels. For each hazard, the approach used in this plan incorporates the four priorities

1. Understanding Risk
2. Inter-Department / District Coordination
3. Investing in DRR – Structural Measures
4. Investing in DRR – Non-Structural Measures

5. Capacity Development

For each of these thematic areas for action, a set of major themes have been identified for inclusion in the planning framework.

3.1.1 Understanding Risk

This thematic area for action focuses on understanding disaster risk, the Priority-1 in the Sendai Framework integrates into it numerous actions needed for strengthening disaster resilience. The major themes for action are:

a) Observation Networks, Information Systems, Research, Forecasting,

b) Monitoring and Warning Systems,

c) Hazard Risk and Vulnerability Assessment (HRVA), and

d) Dissemination of Warnings, Data, and Information.

Having adequate systems to provide warnings, disseminate information, and carry out meaningful monitoring of hazards are crucial to disaster risk reduction, and improving resilience. They are also an integral part of improving the understanding of risk.

3.1.2 Inter-Department Coordination

Inter-Department coordination is a key component of strengthening the disaster risk governance - The major themes for action required for improving the top level inter departmental coordination are a) Overall disaster governance b) Response c) Providing warnings, information, and data and d) Non-structural measures. The central ministries and agencies mentioned are those vested with hazard-specific responsibilities by the Govt. of India or those expected to play major roles in the thematic areas given in the matrix.

3.1.3 Hazard-wise Responsibility Matrices for Disaster Risk Mitigation

For the DM plans to succeed, it is necessary to identify various stakeholders/agencies and clearly specify their roles and responsibilities. At all levels - from local to the Centre - the relevant authorities must institutionalize programmes and activities at the ministry/department levels, and increase inter-ministerial and inter-agency coordination and networking. They must also rationalize and augment the existing regulatory framework and infrastructure. For each hazard, in the subsections that follow, themes for action are presented in a separate responsibility matrix for each of the five thematic areas for action. It must be noted that the role of the central agencies is to support the disaster-affected State or the UT in response to requests for assistance. However, the central agencies will play a pro-active role in disaster situations. In the domains of DM planning, preparedness, and capacity building, the central agencies will constantly work to upgrade Indian DM systems and practices as per global trends. This section covers the hazards listed below:

1) Cyclone and Wind
2) Flood
3) Toxic gas / Gas leak
4) Oil / Chemical spill
5) War / Terrorism
6) Earthquake
7) Vessel Accident / collision
8) Fires

	HAZARD	MITIGATION	Major Theme	RESPONSIBILITY-ACTION
1	CYCLONE AND WIND	*Understanding Risk*	Monitoring cyclone	Undertake Hazard Risk Vulnerability Assessment as a part of preparing and periodic revision of DM plans, and for development planning.
			Dissemination of warnings, data, and information	Dissemination of warnings to all (including fishermen), down to the last mile – remote, rural or urban; Regular updates to people in areas at risk. •Deployment of communication equipment •Warnings using all types of options, types of technologies, and media
		Inter Department coordination	Overall disaster governance	Preparation and implementation of DM plans and ensure the functioning of all departments and agencies with DM tasks.
	SOP 5.1		Response	Organising the immediate response of Marine, Civil Defence CISF, Traffic, CME, and other department as per DM and seek assistance of District administration.
		Structural Measures	Cyclone shelters	•Identification of safe buildings and sites to serve as temporary shelters for people and livestock evacuated from localities at risk. •Proper maintenance of drainage systems and flood embankments
			Hazard resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure	Collaboration with technical agencies and implementation
		Capacity Development	Training	Training and orientation programme for all the concerned and incorporating disaster response, search and rescue and mitigation.

			Awareness Programme	Carry out mass media campaign, promote the culture of disaster risk assessment, mitigation and management. Promote use of insurance and risk cover.
			Mock drills and exercises	Conduct joint exercises and drills regularly with the inter-departments and external agencies as required by the DM
2	FLOOD	*Understanding risk*	Dissemination of warnings, data, and information	Dissemination of warnings to all (including fishermen), down to the last mile – remote, rural or urban; Regular updates to people in areas at risk. Probability only during the high water combined with rains and blockade of drains.
	SOP 5.2	*Inter Department coordination*	Overall disaster Governance	District administration takes over the charge of flood and assistance to be provided with our team as required.
		Structural Measures	Drainage system	CME to ensure the system in order. Dewatering pumps in readiness. Identification of safe buildings and sites to serve as temporary shelters for people and livestock evacuated from localities at risk.
		*Nonstructural mea*sures	• Wetland conservation and restoration • Catchment Area Treatment/Afforestation	Discourage reclamation of wetlands, natural depressions • Action plan managing wetlands and natural drainage systems for flood moderation • Implementation of watershed management including catchment area treatment and afforestation programmes
			Encroachment laws	Implement land use norms of coastline areas. Prevent and remove the encroachment along the coastline and drainage.
		Capacity Development	Training	Training and orientation programme for all the concerned and incorporating disaster response,

				search and rescue and mitigation.
			Awareness Programme	Carry out mass media campaign, promote the culture of disaster risk assessment, mitigation and management. Promote use of insurance and risk cover.
			Mock drills and exercises	Conduct joint exercises and drills regularly with the inter-departments and external agencies as required by the DM
3	Toxic Gas/Gas leak	*Understanding risk*	Dissemination of warning	The information received from terminal manager or vessel through VTSS to be immediately disseminated to mutual aid partners, district, and national agencies. Immediately stop cargo ops and action to be taken by Site group as per the DM.
		Inter Department coordination	Overall disaster governance	Dy. Conservator reports from the action group to crisis management group. Ensure functioning of all departments and agencies as per the DM.
	SOP 4.13		Response	Organising the immediate response and seeking assistance ofo external and district agencies
			Warnings, Information, Data	GA to issue of warnings to all, down to the last mile – remote, rural or urban; Regular updates to people in areas at risk from updates as received from crisis management group.
		Structural measures	PPE, Evacuation	Onsite Group to initiate all actions as per SOP
		*Non Structural Me*asures	SOPEP, Air Laws	All vessels to ensure the compliance of maritime laws of pollution and air emission. Loading master and oil companies ensure the compliance
		Capacity Development	Training	The ship staff and the staff handling are already trained and regular refresher course conducted by DG.

			Awareness	The operation is clearly marked and posters displayed. The new handling personals familiarized on regular basis.
			Mock Drills	Fire service along with the terminal representatives and the staff as well as the CWG conducts such drills on regular basis. Further Briefing and Debriefing done.
4	Oil and Chemical Spill			As per Sec 4.11,4.12 of part II
5	War and Terrorism			As per Sec 6.1,6.2,6.3,6.4 and 6.5 of part II
6	Earthquake			As per Sec 5.3 of part II
7	Vessel Accident / collision			As per Sec 4.10 of part II
8	Fires			As per Sec 4.1 to 4.8 of part II

MAINSTREAM DRR

- The DM Plan will come into force as soon as any of the disaster alert is received. OR, when the Port organization has gathered enough data to forecast the alert to any threat.

- The Naval Control Room will come into operation at Venduruthy. The Staff Officer, Naval Control Room will be in charge.

- Storm warning will be broadcasted through VHF.

- Sr. VHF Operator VTMS will inform Naval Controller, Deputy Conservator/ HM telephonically the status of worsening weather conditions.

- All the departmental Control Rooms will be made functional in their respective offices.

- The Naval Control Room will be in constant touch with the District and Local Administration for rescue and relief operation.

- Disaster co-ordination centre and control rooms will function round the clock and will be closed only after obtaining the necessary orders from the Chairman. Press reports will be released through the chairman's office.

- The Heads of Departments may use Cell telephones to get information. Precautionary measures will

have to be taken by each department immediately after the receipt of the warning signal (details as follows)

- The following steps shall be immediately taken:

- All leave of pilots and marine personnel stands cancelled

MARINE DEPARTMENT

The HM or any of his Pilots will make 6 hourly, or if required make frequent, visit to the VTMS station and will apprise the cyclone station of the developments. If the storm is observed on the radar screen, the visiting officer will inform the HM and cyclone station. The HM will liaise with the DC at all times. Hourly weather fax pictures will be obtained directly or through a vessel in port with SATCOM.

Under the overall supervision of the HM, the specific duties of marine personnel will be as given below:

Manager (MPC) / Dock master

- He will keep in touch with the Harbour Master who will be responsible for the operation of the Cyclone Station and will issue necessary standing orders for the purpose.

- He will keep close liaison with P & T Department, Radar Station, Police Wireless Station, Coast Guard HQ, and Ships in Port in regard to the likely weather conditions in the near future using SATCOM weather fax.

- He will prepare special signals and promulgate them to the Masters of the vessels, dredgers, tugs and any other crafts in Port. He will inform the Masters of all vessels at the berths to double the moorings, put out insurance wires and to keep engine ready to proceed out to sea if situation warrants. Decision regarding sending ships to the anchorage will be taken depending on the strength of the wind likely to be encountered and number of vessels in the Port.

- He will maintain a close liaison and co-ordination with the Dy.CME for arranging the staff for manning the Port Crafts.

VTMS STATION

Sufficient number of staff will be detailed in accordance with the HM's instructions.

- They will keep in close touch with the man signal station. The staff of signal station/port office will remain on duty until they are relieved by next shift staff or till alternative arrangements are made or till

the storm has passed and the HM releases them.

- Every two hourly barometer reading will be recorded after cyclone warning signal from a vessel in port.

- One 'Aldis' lamp with battery will be kept ready at VTMS room.

- The VTMS station will maintain a continuous watch on channel 16. VTS station will keep Civil Defence Control Room informed of all the messages received by telephone, VHF sets or by messenger.

- VTMS station will inform the MMPC / Sr. Pilot on duty any buoys or crafts are seen adrift or any Port installation is seen or informed to be in danger.

- The staff on duty will have sufficient provisions to stay on duty for a period ranging from 24 hours to 48 hours.

- VTMS station will receive weather facsimile report from New Delhi or any other station and pass on to the HM and Traffic Manager for information.

MMPC/ DOCK MASTER

- He will detail one shore gang consisting of minimum one Serang, and 5 Lascars to remain on duty as emergency duty squad unit being relieved by the next shift staff.

- He will take all necessary steps for the safety of the Port crafts. It will be ensured that all other crafts are placed at safe place and properly secured excepting one pilot launch and one stand by launch used for inspection and emergency duties.

- He will ensure all barges will be secured at safe place along with emergency squad will make frequent round (minimum two hourly) to check the safety of Port Crafts.

- He along with emergency squad will make frequent round (minimum two hourly) to check the safety of Port Crafts.

- Fender and extra lengths of ropes/wires will be kept ready so as to attend to any craft whose moorings may part.

- Sufficient provision food will be kept as staff may have to stay for 24 to 48 hours.

MASTER OF TUG/PILOT LAUNCHES AND OTHER LAUNCHES

- Masters of respective crafts will notify their staff to remain on board until they are relieved by next shift staff or Senior Duty Pilot releases them from duty.

- Masters will shift their respective crafts at suitable places as directed by the HM/Traffic Manager and will secure them suitably with additional moorings. Masters of respective crafts will be responsible for proper securing and safety.

- Masters will keep the engines of their crafts ready to proceed at short notice as per the instructions of the HM / Manager Marine Pollution Control.

- Extra fenders will be kept ready on board the Tug for use as required.

- Master will see that sufficient provision is kept for staff on board as period of stay may range from 24 to 48 hours.

- If any craft is seen adrift or any other port installation is seen in danger, the Master of the crafts will immediately inform the VTMS.

CIVIL ENGINEERING DEPARTMENT

The cyclone mitigation team shall be headed by Chief Engineer in co-ordination with the Executive Controller Civil Defence. The Chief Engineer will be the head of the Team.

ALLOCATION OF DUTIES

- The head of the field units shall intimate the Civil Defence Control Room about formation of their team by name with accountability. The field units may include assistance as required by them including their names in the formation of the team.

- On completion of the task, the head of the field unit shall fill up the check list and intimate the CD control room and on getting clearance from the control room, the field unit shall disperse.

The Field Units COMPOSITION will be as follows:

Chief Eng.	- 1	Asst. Ex.Eng'r ID & PV, ND, MOT	- 3
Dy. CE,	- 1	Dy. CME, Electrical	- 1
SE, `	- 2	Dy. CME, Mechanical	- 1
Ex.E,	- 1	Marine Engineer	- 1

PRECAUTIONARY MEASURES

- Cyclone warning signals shall be communicated to all field units from Civil Defence Control Room.

- The field units shall communicate the signal to all the staff of the Divisions. Individual workers shall be intimated through special messenger/loud speakers/public address system, if possible.

GENERAL FUNCTIONS OF FIELD UNITS

- All the outside installations and equipment shall be properly secured.
- Safety of workmen on duty shall be given priority during action and all efforts shall be made to evacuate departmental held up workmen.
- Operator's cabin doors of all the equipment and vehicles shall be kept shut.
- Doors and windows of permanent buildings must be properly shut.
- Important documents/files/records must be stored well above the floor vessel.
- Power supply to be switched off before leaving the building.

4.1.3 SPECIFIC DUTY

The duties of task force shall be as follows:

Mechanical & Electrical Engineering Department

Superintending Engineer, (M) / Executive Engineer / Asstt. Executive Engineer, Elec Section to ensure the following

- All the mobile cranes to be brought to a safe place, booms of the cranes to be lowered and jacked. Cabin doors and panels to be closed.
- All wharf cranes to be properly anchored on the rail, slewing to be blocked and booms to be placed at the highest position and to be retained by two turn buckles. End stops on the rail must be checked. Booms will remain in the direction of the track, so that more distance is kept between the ship at the berth and the cabin of the wharf crane.
- Rolling and slewing movement of all cranes must be blocked.
- Forklifts and all heavy equipment shall be parked inside the shed.

Superintending Engineer (Mechanical)

- Electrical Sub-stations will be manned during the cyclone.
- Food and drinking water to be provided to all points, which are to be manned during the cyclone.
- One emergency vehicle shall be providing to Electrical Engineer, Electrical power for attending to various duties.

- CME to delegate a skeletal staff to attend to vehicle breakdown.
- Six nos. 24 volt batteries, one self-starter and one dynamo to be kept as standby for emergency use. Emergency spares to attend to vehicle breakdowns shall be retained by Auto Workshop.
- All the unused vehicles shall be parked inside the shed.
- Executive Engineer, Workshop Division will have a temporary advance if required to meet POL and food requirement and other contingency.

CME's- Workshop

- The Workshop shall be manned by one set of staff consisting of one Machinist, one Fitter, one Welder and three Helpers to attend to emergency requirement.
- Power supply to all the machinery and equipment to be shut off.
- Doors and windows to be kept shut.

Chief Engineer's Department-Civil Works

- The Dy. Chief Engineer OCT ID shall identify 3 to 4 local contractors and keep them as stand by to meet emergency requirements such as requirement for manpower, equipment etc.
- The Contractors, if any, already engaged in some site works shall be intimated about the cyclone warning and directed to take necessary precautionary measures to prevent loss of life and damage to machinery /equipment and Port Trust's assets.
- Temporary building roofs will be checked carefully and any missing or loose A.C. sheets or 'J' hooks will be changed, if necessary.
- Any crack in cement parapets on buildings will be adequately repaired.
- The hinges and closing appliances of all the doors and windows will be checked.
- All the drains and obstructions in the creeks/culverts should be cleaned for easy discharge of sludge water.
- One Section Officer will be posted for each of the above jobs who will also take up immediate repair to roads, breaches and buildings, clearance of roads and water logging and other jobs which may crop up during and after the cyclone will be responsible for above jobs.
- The Supdt. Engineer (MOT) will post one Asst. Engineer exclusively to look after Navigational aids, fenders; transit shed doors and roofs etc. along with necessary staff.
- The Supdt. Engineer (OCT ID & PV) deploys one Asst. Engineer along with necessary staff to look after the sea wall maintenance and nourishment. Wherever breach is noticed alongside the sea-wall, immediate steps shall be taken to close it.
- For the above purpose he shall keep ready 3,000 to 4,000 empty cements bags to be used as sand bags.

- All measures to be taken to minimise uprooting of trees.

Chief Engineer's Department (Water Supply)

- During cyclone, each pump house shall be manned by a team headed by at least one Assistant Engineer.
- Diesel engines for raw water and clean water, all pump house equipment and all generator sets meant for water supply shall be tried out and kept ready.
- The point to the Railway Shed Line to be blocked.
- The diesel pumping sets are to be kept in running condition to meet the demand in case of power failure.
- Sufficient quantities of bleaching powder, alum etc. is kept for water treatment during the period.
- As soon as the contingency plan is made operational all the water tanks should be filled up and standby arrangement for supply of water to be made with special provision for the hospital.

INCLUSIVE DRR

General

- After receiving the cyclone warning, different site-in-charge of Engineering Department will alert the firms/contractors executing the projects to take necessary steps for safety of the workmen/equipment/ materials.
- Door and window fittings of the Administrative building should be checked up by Engineer-in-charge to ensure closing of the same during cyclone.

TRAFFIC DEPARTMENT

Traffic Manager will take the following measures:

- All loading/unloading operations to cease-hatches closed-cranes secured
- All the cargoes under Port's custody, lying outside and likely to get damaged, will be shifted to Transit Sheds/Ware Houses.
- Doors of the sheds will be closed and properly secured.
- He will visit the site and inspect the arrangements.

ACCOUNTS DEPARTMENT

- All the departments may inform the Financial Adviser & Chief Accounts Officer the amount of cash required by them so that the same can be kept in the chest and can be disbursed by one of the Officers of the Finance & Accounts Department as per need.

MEDICAL DEPARTMENT

- Ambulances have to be kept manned and standby at all times at Port Trust Hospital.

- Mobile medical facility, if required, may be made available.

STORES DEPARTMENT

- The Sr. Dy. Materials Manager will ensure the following:
- During cyclone season sufficient stock of stores like AC sheets, 'J' Hooks, screw hinges, gunny bags, tarpaulins, ropes and wires for Port Crafts, diesel oil, kerosene oil, hurricane lantern, petromax lamps, torch lights with batteries and bulbs, electrical items etc. are kept.
- All the materials which are likely to get damaged with rain are covered with tarpaulin.
- One Store Keeper and the other minimum staff required to issue materials including POL are kept during emergency.

SECURITY SECTION

CISF Dy. Commandant will make arrangement for the following:

- To keep extra vigil on the all stores/buildings which are likely to be affected by the Cyclone.

- Till normally is restored, arrangement will be made for thorough checks on all out-going vehicles to guard against pilferage.

POST THREAT DUTIES

- All the Heads of the Departments are required to assess the damage and submit a detailed report indicating the estimate to the Dy. Chairman. For this, a team may be formed comprising Harbour Master, Traffic Manager, Chief Engineer, Chief Mechanical Engineer and assistant with one representative from the Finance Department. The preliminary report is to be submitted within 3 hours and detailed report within three days.
- Hydrographical survey to be conducted to assess the channel condition and shipping to resume as early as possible.
- In case of any small craft sunk or grounded, the same to be removed to make the channel/berth safe for navigation. HM will detail a salvage party headed by MMPC for this purpose.
- Mobile medical service, if required, to be provided by the Medical Department. Preventive measures for epidemics to be taken care of.
- All the operating systems to be attended urgently and made operational as early as possible on war footing basis to resume operation.
- Water supply and electricity to be given priority. The electrical cabling network to be checked area-wise.
- All damaged temporary roofed houses in the port premises will be attended to.
- The Sr. Dy. Materials Manager will nominate a team for the procurement and supply of essential materials for repair of various structures and equipment as reported.
- To assess the progress of repair works, Heads of Departments meeting will be held daily till normalcy is restored.

6. Coherence of Disaster Risk Management across Resilient Development and Climate Change Action

- As an influence upon hazards, the Earth's climate has always changed throughout humanity's and the planet's history, including long-term trends, shifts in the state and baseline, variability, and cycles. Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. First is the anthropogenic release of greenhouse gases such as methane and carbon dioxide that trap heat and increase the global mean temperature. Second are anthropogenic changes to the Earth's surface, which reduce absorption of the greenhouse gases emitted by human activities. One prominent land use change is deforestation, since trees are an excellent source of uptake for and storage of carbon dioxide.
- Sea levels rising due to climate change—as water warms it becomes less dense, so its volume expands leading to an increasing sea level—are impacting some low-lying islands, through worsening floods, erosion, and water salinisation. Climate change's projected impacts on disaster risk are not confined to the hazard side, but also encompass vulnerability. Climate change drives vulnerabilities by changing local environmental conditions so rapidly that local environmental knowledge cannot keep pace with and is less applicable to, for example, local food and water resources along with pest management, especially where new species enter an ecosystem due to the changing environment. The development, strengthening and implementation of relevant policies, plans, practices and mechanisms need to aim at coherence, as appropriate, across sustainable development and growth, food security, health and safety, climate change and variability, environmental management and disaster risk reduction agendas
- Cochin Port Trust is committed for the clean and green earth. Many Forestation programmes are continual developments. Compliance of all the maritime pollution laws such as air Pollution, Water Ballast Management is strictly followed as per the DG Shipping Directives. Regular updates and implementation of any development in regards to climate change is incorporated in all its procedures.

7. Capacity Development

- Capacity development is a theme in all the thematic areas for action. The capacity development includes training programs, curriculum development, large-scale awareness creation efforts, and carrying out regular mock drills and disaster response exercises. The capabilities to implement, enforces, and monitor various disaster mitigation measures has to be improved at all levels from the local to the higher levels of governance. It is also strengthening the DRR governance at all levels to better manage risk and to make the governance systems more responsive.

7.1 Capacity Development Background

- Capacity development covers strengthening of institutions, mechanisms, and capacities at all levels of all stakeholders. The United Nations International Strategy for Disaster Reduction (UNISDR) defines

'Capacity Development' for DRR as follows: “The process by which people, organisations and society systematically stimulate and develop their capability over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions – within a wider social and cultural enabling environment.” (UNISDR, 2009) It is an important component of investing in disaster risk reduction. In the domain of disaster risk management, the Cochin Port Trust emphasizes the need for enhancing the technical, financial, and administrative capabilities of our departments and organisation to deal with the identified risks at different levels. The framework calls for reinforcing the capacity to implement, and enforce risk reduction measures. Capacity development commonly refers to a process that is driven from the inside and starts from existing capacity assets. Investing in capacity development for DRR will be a continuing process to enhance the capability of individuals, agencies, and communities to improve the

- Performance of their DM functions. The process of capacity building includes elements of human resource development, i.e., individual training, organizational development such as improving the functioning of groups, and the strengthening of organizations, regulations, and institutions. Involving stakeholders through participatory approaches is essential to establish ownership and commitment. Cochin Port Trust conducts training and awareness programmes periodically. The sustainability of capacity development initiatives increases in direct relation to the level of participation and ownership of the internal partners. In order for capacity development for disaster risk reduction to be effective, activities on various levels, i.e. legal and institutional frameworks, systems of organisations, organisation and human and material resources, are addressed on short and long term. The reason for this is that changes at one level often require changes at other levels too, as the levels are interdependent.

7.2 Communication Strategies

- Chain of commands and responsibilities are laid out clearly in Section 3, Disaster Management Plan and Response plan. The communication is well known and thus the same is familiarised in the Training and executed in exercises and drills.

General Administration:

1. Liaison with external agencies like fire brigade, hospitals, blood banks, private transports, press, Local-Govt.- statutory authorities, neighbouring industries. Get external aid as per the site requirement.

2. Ensure correct accounting of persons for head count & give feedback to CDC.

3. In consultation with CDC release the emergency details.

4. Ensure only authenticated information release to avoid confusion.

5. Ensure that relatives of victims are informed

Telephone operator:

1. On receipt of inform of emergency communicate with important persons like

   CDC, safety, services, administration. etc.

2. Keep the lines free / don't keep them engage for use if situation demand.

3. In case of fire/toxic leakage/spill is discovered and reported but no emergency siren is operated, he shall ensure the information about the location of the fire/emergency incident from the person discovered/ notices the above and communicate to different Key Personnel immediately with clear message.

4. Control use of all telephone facilities.

8. COORDINATION

All the coordinators are responsible for coordination of emergency activities based on the requirement of the situation.

General duties of all the Coordinators:

1. Be in touch with CDC & keep on giving periodic feed back to him.
2. Keep list of employees in their section ready, for necessary deployment.
3. Keeping track of the employees involved in emergency handling.

Specific duties of various co-ordinators:

Traffic:

1. Act as a link between site & CDC.
2. Take/implement decision related to isolation, resources deployment, rescue, despatch etc.
3. Liaise with other dept. like safety, fire, Engg, services for effective & smooth coordination of activities.

4. Control / stop all loading unloading operation in the section, if required.
5. List out all available ambulance with all information. If required, pre-contract with private ambulance owners.
6. Ensure smooth transportation links at all level.
7. Arrange transportation of resources needed for emergency.
8. To provide necessary man power, equipments, material and logistic support to all concerned dealing with emergency.
9. To provide support for requirement not specifically identified. It addresses the effort and activity necessary to evaluate, locate, procure and provide essential material/resources including excess and surplus.

Marine:

1. To control/stop shipping movement as required.
2. To combat and control water, soil and air pollution. Liaise with KSPCB.
3. To Keep manpower, equipment readily available for shipping movement at any time.
4. To carry out disposal of any waste, formed during emergency with help of CE & KSPCB.
5. To ensure conservation of Port.

Safety: Assist the emergency operation.

1. Advise to avoid escalation of situation.
2. Extent technical help based on The National Institute for Occupational safety and Health (NIOSH) guidelines and hazards of chemicals, etc.

Fire:

1. Depute fire-fighting squad with resources for their optimum utilization.
2. Develop strategy with SC, IC & Safety coordinator for the fire-fighting, emergency containment & rescue operation.
3. Directs and control operations regarding fire prevention, detection, fire suppression, rescue and hazardous material incidents.
4. Extinguish fire. Be in readiness for additional firefighting assignments as there is a possibility of secondary fire incidents.
5. Advise / assist the rescue operation & handling of casualties.
6. Establish search & rescue operation.
7. Prioritize the operation to ensure that maximum lives are saved.
8. To provide life and property saving assistance to manage fire incidents following emergencies.
9. To provide personnel. Equipment and supplies during fire fighting operation.
10. Co-ordinate and call for mutual aid members to assist emergency operation. Keep record

C.I.S.F.:

1. Control gates, allow only essential men and vehicles. Allow exit for men & vehicles with permission of CDC. Keep record of the persons & vehicles going out.
2. Control traffic to avoid road chocking. Regulate vehicle movement.
3. Depute manpower to cordoning off the affected area.
4. Arrange CISF Staff/ QRT for patrolling in the area to maintain law & order situation.
5. Cordon off the area, Control and disperse crowd, if required.
6. Regulate and Control personnel evacuation.

Telephone operator:

1. On receipt of inform of emergency communicate with important persons like CDC, safety, services, administration. etc.
1. Keep the lines free / don't keep them engage for use if situation demand.
2. In case of fire/toxic leakage/spill is discovered and reported but no emergency siren is operated, he shall ensure the information about the location of the fire/emergency incident from the person discovered/ notices the above and communicate to different Key Personnel immediately with clear message.

3. Control use of all telephone facilities.

Mechanical & Electric Engg.: Meet any immediate break down condition viz. equipment failure, fire line failure etc.

1. Liaise Traffic, Safety & utility coordinators to extend assistance in emergency handling by releasing manpower.
2. Meet electrical requirement like power isolation, temporary power connections, requirement of emergency supply like DG, UPS etc. for essential equipments& emergency operation from CME. Man MCC, PCC stations.
3. Liaise with KSEB for requirement of power etc.
4. Release manpower to help in emergency operation, if required.
5. Ensure functioning of wireless sets.
6. Help in handling break down condition like failure of process logic, fail-safe operation of instruments etc.
7. Restore/provide communication facilities.
8. Restore/provide electric supply, lighting equipment, etc.

Civil Engg.:

1. Meeting emergency needs like barriers / bund to contain leak, demolition of some / part / total structure for effective emergency operation.
2. Release manpower to help in emergency operation, if required.
3. Quick restoration/provision of water supply and drainage system.
4. Keep essential utilities running like water for fire water and their pumps as per demand.
5. Restoration of roadways, if required.
6. Arrange water supply through mobile water tankers.
7. Clearance of debris, if any.
8. Demolish unsafe structure, if any & construction of safe structures.

Stores:

1. Man the store during emergency for prompt delivery.
2. Keep inventory of items handy for quick delivery.
3. Keep safety items ready for issue.
4. If require in coordination with accounts arrange for essential local purchase.

Medical:

1. Keep all ambulances ready.
2. Keep the antidote & other medicines in stock with sufficient quantity of drugs, Surgical equipments ready in hospital/dispensary.
3. Activation of Medical facilities with all manpower, supplies and equipments.
4. Keep medicine in reserve with mobile medical team on rotational basis.
5. Set up trauma counselling desks.
6. Perform medical evaluation and treatment as needed.
7. Maintain patient tracking and record of their treatment.

8. Keep reserve beds in hospital.

Civil Defence Resources: (Auxiliary Unit for Training & Awareness)

1. Activation of Civil Defence Control Room by Dy. Chairman/CME
2. Release manpower of volunteers as per requisition of Disaster Management Control Room.

3. Send Mobile First Aid/rescue etc. team at the site as quickly as possible.
4. Send Quick Response Team at sites and establish temporary medical camps.
5. To maintain inventory of, and to take optimal use of available resources of CoPT volunteers.

General Administration:

1. Liaison with external agencies like fire brigade, hospitals, blood banks, private transports, press, Local-Govt.- statutory authorities, neighbouring industries. Get external aid as per the site requirement.
2. Ensure correct accounting of persons for head count & give feedback to CDC.
3. In consultation with CDC release the emergency details.
4. Ensure only authenticated information release to avoid confusion.
5. Ensure that relatives of victims are informed.

Welfare:

1. Arrange for food, refreshment for the people-fighting emergency.
2. Make arrangements for their rest/shelter.
6. Coordinate to bring manpower available in company colony.

Finance:

1. Ensure that cash is made available at any time during emergency.
2. Give authorization of purchase to concerned in consultation with CDC and maintain records thereof.
3. Liaise with insure company for information. Coordinate their visit, if required.
4. With prod., services & stores coordinator carryout preliminary assessment of damage. Ensure that vital evidences are undisturbed from insurance purpose.

Emergency procedure in case of emergency: In general course is as under,

Identification: On noticing the fire or leak the observer will do following based on the resources available,

- Shout as Help - emergency / fire / leak.
- On phone or through cell phone contact immediately to your Sectional Officer and giving his detail in brief will tell type of emergency, location, etc.

9 . PREPAREDNESS AND RESPONSE

9.1 Background

Response measures are those taken immediately after receiving early warning from the relevant authority or in anticipation of an impending disaster, or immediately after the occurrence of an event without any warning. The primary goal of our response to a disaster is saving lives, protecting property, environment, and meeting basic

needs of human and other living beings after the disaster. CoPT focus is on rescuing those affected and those likely to be affected by the disaster. The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

In Preparedness, CoPT has SOPs for all the emergencies, hazards and risks on the basis of vulnerability in the port. The knowledge and capacities are developed by training as well as governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions as a part of the training. Based on the preparedness, the response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the disaster is declared to be over. It is conducted during periods of high stress in highly time-constrained situations with limited information and resources. It is considered as the most visible phase amongst various phases of disaster management.

Response includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and temporary shelters, but also rapid mobilization of various systems necessary to coordinate and support the efforts. For effective response, all the stakeholders have been briefed about hazards, its consequences, and plans of action as per SOPs are implemented during the mock drills. It is ensured that the entire concerned are versed with their roles and responsibilities as per our DMP.

Any emergency requires a quick response to save lives, contain the damage and prevent any secondary disasters. In most cases, first responders such as members of Incident Response Teams such as vessels, Port Fire services, Port Hospitals and other agencies (medical fire, police, civil supplies, CISF) manage emergencies immediately at the local level. If an emergency escalates beyond their capabilities, the local crisis management group seeks assistance from the district administration and/or the State Government.

9.1.1 Institutional Framework

Section 2 and Section 3 provides an overview of the institutional arrangements covering all aspects of disaster management. There are specific tasks, roles and responsibilities in the domain of response, which is mentioned in section 4. This section summarizes the function and responsibilities of individuals, departments and agencies that have a key role to play in disaster response as per current guidelines. The plan will be updated periodically to reflect any changes in the key roles envisaged to particular individual, department or agencies. No single agency or department can handle a disaster situation of any scale alone. Different departments have to work together to manage the disaster with an objective to reduce its impact.

The institutional arrangements for the response system consist of the following elements:

a) Chief Disaster Controller (CDC) with complete charge for any emergency control and coordination of the response and mobilization of all the necessary resources.

b) Site Controller (SC) Core Group/ On Site Group/ is responsible for assessing magnitude of situations on the Early Warning Systems and alerts.

c) Incident Controller is the responsible person for the place of occurrence.

There will be Traffic department under the under the CDC which will be connected to the following site controllers and / or departments:

- Marine / Fire & Safety
- Medical / Welfare
- CISF / Civil Defence Resources

• Civil Engineering / Welfare
• Mechanical & Electric Engg.
• General Administration / Finance

National Early Warning System

9.2.1 Central Agencies Designated for Natural Hazard-Specific Early Warnings

The Government of India has designated specific agencies (Table 3-1) to monitor the onset of different natural disasters, set up adequate Early Warning Systems (EWS), and disseminate necessary warnings/ alerts regarding any impending hazard, for all those hazards where early warning and monitoring is possible with the currently available technologies and methods. These agencies provide inputs to the MHA, which will issue alerts and warnings through various communication channels. Our DMP ensures the actions on reception of such alerts and warnings and maintains equipment in proper functioning order and conducts drills and trainings to test their efficacy.

Table 9-1: Central Agencies Designated for Natural Hazard-Specific Early Warnings

	Hazard	Agencies
1	Cyclone	Indian Meteorological Department (IMD)
2	Drought	Ministry Of Agricultural and Farmers Welfare (MoAFW)
3	Earthquake	Indian Meteorological Department (IMD)
4	Epidemics	Ministry of Health and Family Welfare (MoHFW)
5	Floods	Central Water Commission(CWC)
6	Tsunami	Indian National Centre of Oceanic Information Services (INCOIS)

On their part Cochin port Trust disseminates such alerts and warnings on the ground through all possible methods of communications and public announcements and action in conformance with the SOP.

9.2.2 Role of Central Agencies/ Departments

The National Emergency Operations Centre (NEOC) will act as the communication and coordination hub during this phase and it will maintain constant touch with early warning agencies for updated inputs. It will inform State Emergency Operations Centre (SEOC) and District Emergency Operations Centre (DEOC)

through all the available communication channels and mechanisms. The DM Division of the MHA will communicate and coordinate with designated early warning agencies, various nodal Ministries, and State Governments. It will mobilize reinforcements from the NDRF, Armed Forces and the CAPFs and put together transportation plans for moving resources. The NDMA will support the overall coordination of response as per needs of MHA. The NDMA will be providing general guidance, and take decisions for the deployment of the NDRF. The NDRF will be deployed as required depending on the request from State Government. They will keep the force in operational readiness at all times.

9.3 Hazard specific Response Plan

As per the SOP section 4 of part II.

9.4 Activation of Response Plan

At the national level, the Central Government has assigned nodal responsibilities to specific Ministries for coordinating disaster-specific responses (Table 3-2). NEC will coordinate response in the event of any threatening disaster situation or disaster. The State Government will activate the IRTs at State, District, or block level and ensure coordination with the SEOC. The SDMA will provide the technical support needed to strengthen the response system. It is essential that the first responders and relief reach the affected areas in the shortest possible time. Often, there are inordinate delays due to real constraints imposed by the location, nature of disaster and, most regrettably, due to inadequate preparedness. In many situations, even a delay of six to twelve hours will prove to be too late or unacceptable. To make matters worse, relief tends to arrive in a highly fragmented or uncoordinated form with multiple organizations acting independently of each other without a cohesive plan, without mechanisms to avoid overlaps and without proper prioritization of different aspects of relief such as shelter, clothing, food, or medicine. From an operational perspective, the challenges are similar across most hazards. The NDMA has formulated IRS Guidelines for the effective, efficient, and comprehensive management of disasters. The implementation of NDMA's IRS Guidelines by the States will help National Disaster Management Authority in standardization of operations; bring clarity to the roles of various departments and other agencies, which are common to most disaster response situations.

Table 3-2: Central Ministries for Coordination of Response at National level

	Disaster	Nodal Ministry/ Dept./ Agency

1	Biological Disasters	Min. of Health and Family Welfare (MoHFW)
2	Chemical Disasters and Industrial Accidents	Min. of Environment, Forests and Climate Change (MoEFCC)
3	Cyclone, Tornado, and Tsu	Min. of Home Affairs (MHA)
4	Drought, Hailstorm, Cold V and Frost, Pest Attack	Min. of Agriculture and Farmers Welfare (MoAFW)
5	Earthquake	Min. of Home Affairs (MHA)
6	Flood	Min. of Home Affairs (MHA)
7	Nuclear and Radiological Emergencies	Dept. of Atomic Energy, Min. of Home Affairs (DAE,MHA)
8	**Oil Spills**	**Min. of Defence/ Indian Coast Guard (MoD/ICG)**
9	Rail Accidents	Min. of Railways (MoR)
10	Road Accidents	Min. of Road Transport and Highways (MoRTH)
11	Urban Floods	Min. of Urban Development (MoUD)

Sites for establishment of various facilities as required for providing various services during the response are established. The administration widely disseminates and publicizes the information about these arrangements as mandated in the SDMP and DDMP. Since disaster response operations are multifaceted, time sensitive, extremely fast-moving, and mostly unpredictable, it requires rapid assessment, close coordination among several departments, quick decision-making, fast deployment of human resources and machinery as well as close monitoring. In order to prevent delays and to eliminate ambiguities with regard to chain of command, the SDMP and DDMP clearly spells out the response organisation as per SOP/ IRT. These plans clearly identify the

personnel to be deputed for various responsibilities in the IRT at various levels of administration along with proper responsibility and accountability framework. Provision for implementation of unified command in case of involvement of multiple agencies such as District administration, CISF, oil companies, Civil defence Resources are spelt out in the SDMP. From time to time, the DM plan must is tested and rehearsed by carrying out mock exercises.

9.5 Fire and Emergency Services

Port has its own Fire fighting Department. Port fire services is designated for any Fire and Emergency Services. The primary role of Fire and Emergency Services is of responding to fire incidents. However, besides fire fighting, FES attends to other emergencies such as building collapse, road traffic accidents, human and animal rescue, and several other emergency calls. FES also takes part in medical emergencies. The role of FES has become multi-dimensional. The role of FES extends to the domain of prevention. FES is an integral part of the group of agencies responding to disaster situations. FES is one of the first responders during the Golden Hour after a National Disaster Management Plan disaster and plays a vital role in saving lives and property. Therefore, it is adequately equipped and developed to the capacities. Further, continuous training is also be provided to the fire staff in using and maintaining the equipment. FES is a key element in the emergency response system. It comes under the 12thschedule of the Constitution dealing with municipal functions. FES is under the jurisdiction of Municipal Corporations. With regard to the scaling of equipment, the type of equipment, or the training of their staff it is as per the state fire act.

9.5.1 Responding to Requests for Central Assistance from States

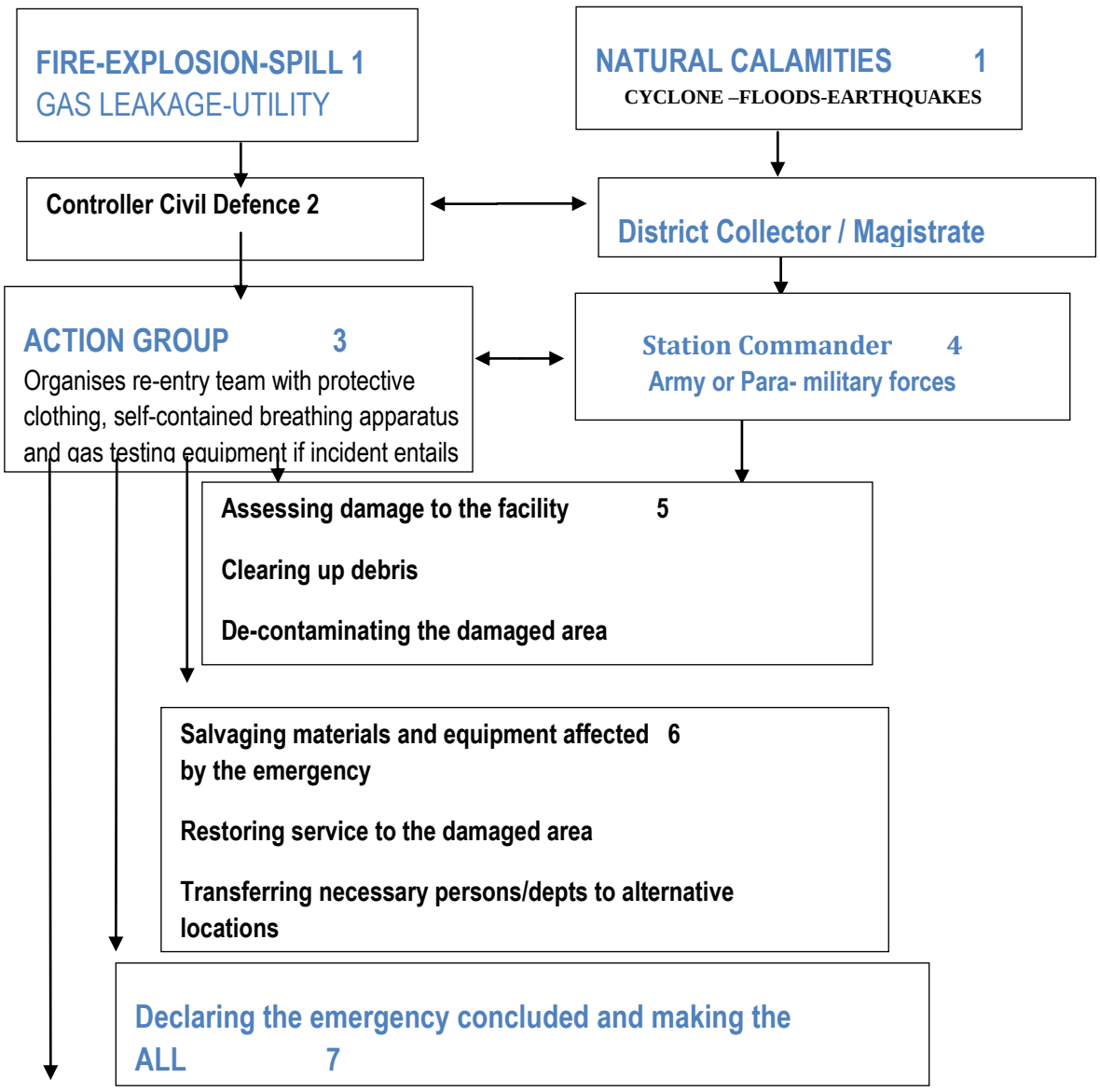
Catastrophic disasters like earthquakes, floods, cyclones and tsunami result in a large number of casualties and inflict tremendous damage on property and infrastructure. The Government of India has established a flexible response mechanism for a prompt and effective delivery of essential services as well as resources to assist a State Government or Union Territory severely hit by a disaster. Disaster management is considered as the responsibility of the State Governments, and hence the primary responsibility for undertaking rescue, relief and rehabilitation measures during a disaster lies with the State Governments. The Central Government supplements their efforts through logistic and financial support during severe disasters as requested by the State Governments. Responding to such emergencies stretches the resources of district and State administration to the utmost and they may require and seek the assistance of Central Ministries/ Departments and agencies like the NDRF, Armed Forces, CAPF, and Specialized Ministries/ Agencies.

9.5.2 Management of Disasters impacting more than one State

At times, the impact of disasters occurring in one State may spread over to the areas of other States. Similarly, preventive measures in respect of certain disasters, such as floods, etc. may be required to be taken in one State, as the impact of their occurrence may affect another. The administrative hierarchy of the Country is organized in to National, State and District Level Administrations. This presents challenges in respect of disasters impacting more than one State. Management of such situations calls for a coordinated approach, which can respond to a range of issues quite different from those that normally present themselves – before, during and after the event. The NCMC will play a major role in handing such multi-state disasters.

10. Recovery and Reconstruction

ACTION PLAN



Note:
For natural calamities etc. at the District level, the District collector or District Magistrate will make the necessary initiative through the paramilitary group.

The Port Chairman or Dy. Chairman may also request Para military Personnel to assist when the accidents have originated at the port premises.

11. Budgetary Provision

Cochin Port being operation centric organization, budgetary provision is made to keep in continuous readiness Firefighting equipment and staff, Oil Pollution Response equipment and staff and also to tackle natural disasters such as Floods and Cyclone etc.

12 PLAN MANAGEMENT

12.1 Background

Regular maintenance is critical to ensure the relevance and effectiveness of the DM plans. Plan maintenance is the dynamic process. The plan will be periodically updated to make it consistent with the changes in Government / Organizations policies, initiatives, and priorities as well as to incorporate technological changes and global experiences. Evaluating the effectiveness of plans involves a combination of training events, exercises, and real-world incidents to determine whether the goals, objectives, decisions, actions, and timing outlined in the plan led to a successful response. We make aware of lessons and practices from various parts of India as well as lessons from across the world. The trainings, mock drills and exercises are carried out for evaluating the operational aspects of the plan, rectify gaps, and improving the efficiency of the plan. The likelihoods of emergencies and actual occurrences are also used for evaluating the plan, making innovations, and for updating the plan, SOPs and guidelines. Further, changes of jurisdiction over is as well incorporated.

These key stakeholder agencies are required to train their personnel, so that they have the knowledge, skills and abilities needed to perform the tasks identified in the plan. Each agency shall assign nodal officers for DM and prepare adequate training schedule. Each nodal agency for DM must hold, in accordance with a mandatory timetable, training workshops with regular mock drills, at least twice a year. These drills will be organized to test their readiness to deploy within the shortest possible time following the DMP activation. They shall be

conducted in a manner similar to that of the drills carried out firefighting department or the army units. These workshops and drills must be held at the pre-designated locations or base camps under the guidance of the designated incident commanders and associated departmental heads. The objective of all these trainings and drills would be to both familiarize the teams with the DMP and to increase their operational efficiencies. The workshops and drills will also provide an opportunity to practice SOPs. These workshops would also give the teams an opportunity to develop all the stakeholders into a cohesive response unit.

12.2 Testing the Plan and Learning to Improve

Evaluating the effectiveness of a plan involves a combination of training events, exercises and real-time incidents to determine whether the goals, objectives, decisions, actions and timings outlined as above Maintaining and Updating the Plan. Regular exercises and drills is to promote preparedness by testing the plan with equal participation of all relevant stakeholders. The process of evaluation and remedial actions will identify, illuminate, and correct problems with the DMP. This process must capture information from exercises, post-disaster critiques, self-assessments, audits, administrative reviews, or lessons-learned processes that may indicate that deficiencies exist. Members of the planning team should reconvene to discuss the problem and to consider and assign responsibility for generating remedies across all mission areas. Remedial actions may involve revising planning assumptions and operational concepts, changing organizational tasks, or modifying organizational implementing instructions (i.e., the SOPs/SOGs). Remedial actions may also involve reassessment of capabilities, revisiting assumptions made in the DMP, and finding solutions to overcome the deficiencies. Nodal officers assigned for tracking and following up on the assigned actions.

12.3 REVISE / UPDATE

Cochin Port Trust focuses on adding the information gained by exercising the plan to the lessons learnt while executing, and start the planning cycle all over again. All the relevant stakeholders should establish a process for reviewing and revising the plan. Reviews should be a recurring activity. DM plan must be reviewed at least once in a year. It will also be reviewed and updated as indicated below:

- Major review and revisions after each major incident

- After significant change in operational resources (e.g., policy, personnel, organizational structures, management processes, facilities, equipment)

- Subsequent to any notification or formal update of planning guidance or standards

- After every case of plan activation in anticipation of an emergency
- After the completion of major exercises
- A change in the demographics or hazard or threat profile
- Enactment of new or amended laws or ordinances. In exceptional circumstances where the magnitude of the incidence or the situation demands/ needs extra measures to be taken, If appropriate authority makes necessary amendments.

COCHIN PORT TRUST

PART II

EMERGENCY CONTINGENCY PLAN

PART- II

Emergency Contingency and Business Continuity Plan

SECTION - 1

INTRODUCTION

Cochin Port, lies south (Latitude 09° 58' N, Longitude 076° 16' E) on the West coast of India on the backwaters of Vembanad lake. Its an all weather natural harbour and a major port located nearest to ther International sea route, being only 11NM from the Gulf to Singapore route and 76NM from the Suez Canal – Far East route. The outer channel is dredged and maintained to 15.95M. The harbour opens to the Arabian Sea to the west.

The port is administered by the **Cochin Port Trust** (CoPT), an autonomous body wholly owned by the Government of India.

Traditionally designed as a general cargo port it is today a multipurpose port with facilities for handling petroleum products, chemicals, Containers, dry bulk and break-bulk cargoes. The port is a natural harbor dredged to desired depth.

HISTORY

Cochin Port has been used by ships and boats for centuries. It was used by Portuguese, Dutch and British colonial ships. The port has been named the Queen of Arabian sea. The present port was constructed by Sir. Robert Bristow, an English Harbour Engineer in 1920. The manmade Island formed by the dredged material is called Willingdon Island.

FACILITIES

Cochin Port has 4 tanker berths handling refined products and chemicals. COT, NTB, STB and Q4. There is also an LNG terminal. The LPG terminal is built but not yet commissioned. DP world is operating the ICTT on a lease from CoPT. A pilot is mandatory for all vessels of over 150 GRT.

CISF is deployed at all the gates inside the port and a boat is on 24 hrs surveillance in the harbour waters.

MANPOWER DEPLOYEMENT AS OF APRIL 2019

Data to be filled.

SECTION -2

THE STEERING WHEEL

The Cochin Port Trust in recognition of the importance of safety and security of port area as a first priority set up a core group committee to make recommendation on the preparation of Contingency plans, effective mitigation mechanisms and better security setup.

The contingency plans envisaged among other things, a holistic, coordinated and prompt response to any emergency/disasters. There is a Crisis Management Group (CMG) under the chairmanship of Chairman, Cochin Port Trust. The CMG has a clearly defined line of command and control. It is responsible for laying down policies, plans and guidelines for contingency/disaster management including mitigation and preparedness measures besides response.

CRISIS MANAGEMENT GROUP (CMG)

In the case of Cochin Port Trust, having a peculiar topography, operational area, its numero uno status as the state's financial hub, the Cochin Port trust authority established the " Crisis Management Group " for Entire Port area including Tanker berths, Q 10, Ernakulam and BTP, NCB, Mattancherry wharves, LNG, ICTT, UTL berths etc.

The composition, powers and jurisdiction of this Group (CMG) is as follows:

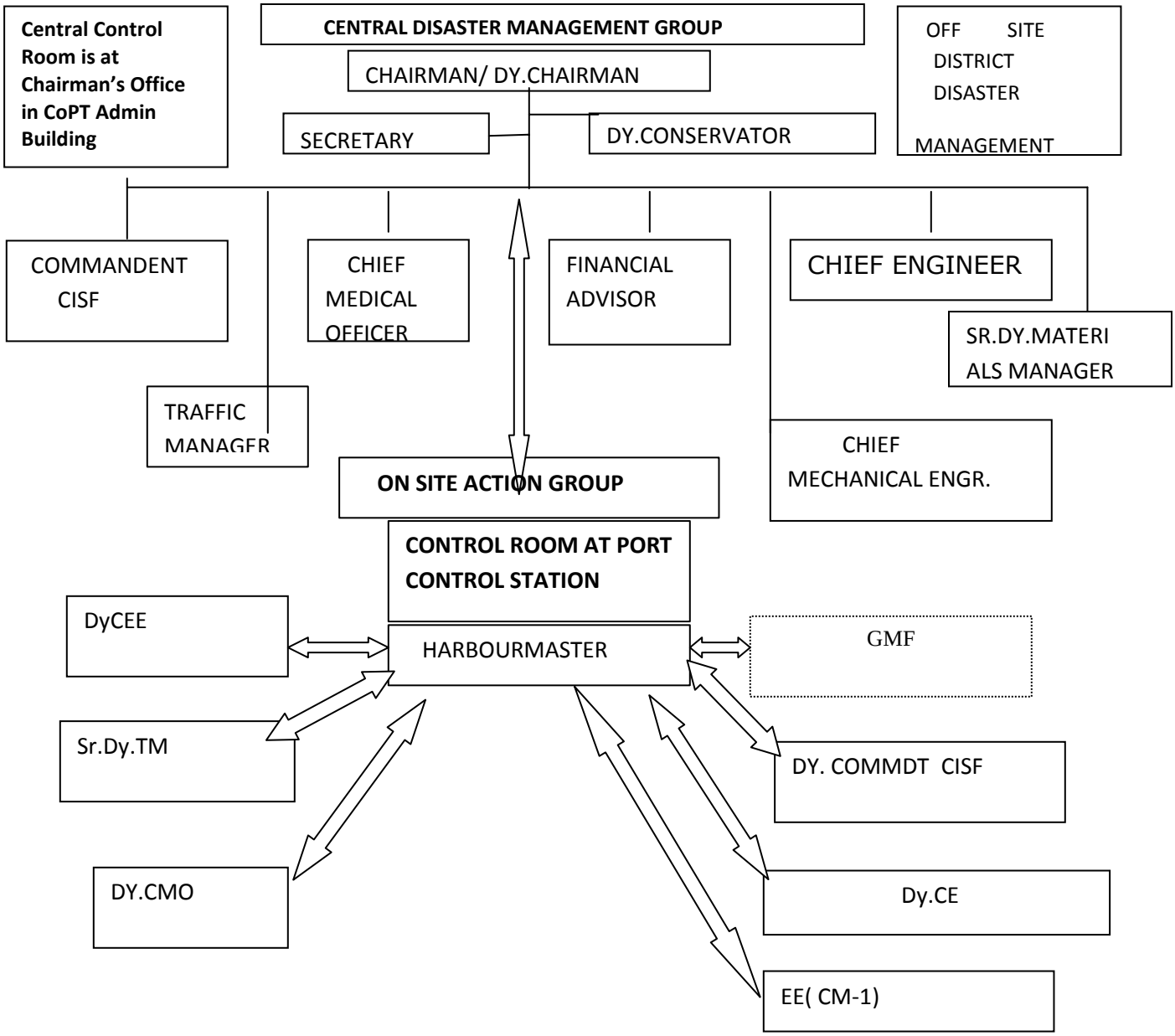
Chairperson	: Chairman/ Dy. Chairman.
Members	: Dy. Conservator
	:Traffic Manager,
	:Chief Fire and Safety Officer, CoPT
	: Dy. Commandant CISF

The following officials will be special invitees of this Group (CMG).

1. Secretary, Relief & Rehabilitation, State Government of Kerala,
2. General manager, BPCL
3. Director, Industrial Safety and Health
4. Deputy Director General, India Meteorological Department
5. Flag Officer, Southern Naval Command, Indian Navy
6. DIG – Coast Guard DHQ 4
7. Officer Commanding, Kerala, Indian Army

8. Commandant, State Reserve Police/NCC/home Guards/Civil defence
9. Chief Fire Officer, Cochin Fire Brigade.
10. Commissioner Cochin City Police.

The Cochin Port Trust (Disaster Management Control Room) has connectivity with 12 other agencies/departments to respond to any emergency/disasters.



Other Agencies/departments have direct connectivity to Cochin Port Trust (Disaster Management Control Room, (CISF) in case of any emergency/disasters.

The Cochin Port Trust (CoPT) is divided into 03 administrative sectors in case of any emergency/disasters.

1. Sector A: Ernakulam, Mattancherry wharfs, BTP, NCB, UTL, Tanker Jetties, Fertilizer berth, ICTT and LNG.

2. Sector B: LNG, LPG area

3. Sector C: SPM area

COCHIN PORT TRUST DISASTER MANAGEMENT ACTION PLAN

INDEX OF CONTENTS

4	**Main Streaming DM plan in developmental projects**		
5	**Preparedness**		
6	**Response**		
7	**Recovery**		

PART-II	**Hazard Specific Incident Action (IAP)**		
01	**CARGO RELATED ACCIDENTS**		
	AMMONIA GAS LEAK		
	CHEMICAL/ACID SPILLAGE		
	FIRE & EXPLOSION		
	OIL SPILL		
02	**VESSEL ACCIDENTS**		
	COLLISION		
	FIRE-EXPLOSION		
	BUNKERS OVER FLOW/ SPILL		
	GROUNDING-SINKING		
03	**NATURAL CALAMITIES**		
	CYCLONES		
	FLOODS		
	EARTHQUAKE/I		
	TSUNAMI		
04	**SECURITY THREATS**		
	BOMB THREATS		
	WAR ALERT		
05	LOCAL STRIKE CONTINGENCY PLAN		
	APPENDICES		
A	TEL NOS OF GOVT CONTACTS-OFF-SITE		
B	SAFETY DATASHEET AMMONIA		
C	SAFETY DATASHEET PHOSPHORIC ACID		
D	STORM SIGNALS		
E	TERMS & DEFINITIONS		

RECORD OF AMENDMENTS & SUPPLEMENTS

Sl. No	Amendment/ Supplement number	Details Amendment/ Supplements	Authority	Date	Name and signature of person who carried out amendment/supplement

DISTRIBUTION LIST

COPY NO.	COPY HOLDER	COPY NO.	COPY HOLDER
1	Chairman		
2	Dy. Chairman		
	GEN ADMINISTRATION DEPT		
3	Secretary		
	MARINE DEPT		
4	Deputy Conservator		
5	Harbour Master		
	TRAFFIC DEPT		
6	Traffic Manager		
	MECHANICAL DEPT.		
7	Chief Mechical Engineer		
	CIVIL ENGINEERING DEPT		
8	Chief Engineer		
	FINANCE DEPARTMENT		
9	FA&CAO		
	MEDICAL DEPT		
10	CMO	``	
11	**CISF**		
	Commdt CISF		

12	**FIRE SERVICE**		
	CFO		

SECTION 1	**INTRODUCTION**		

INTRODUCTION

Introduction-Maritime transport, by its nature gives rise to many hazardous situations, including shipping accidents, such as collisions, grounding and sinking, accidents arising from the handling and storage of dangerous goods including bulk chemicals, gas and petroleum.

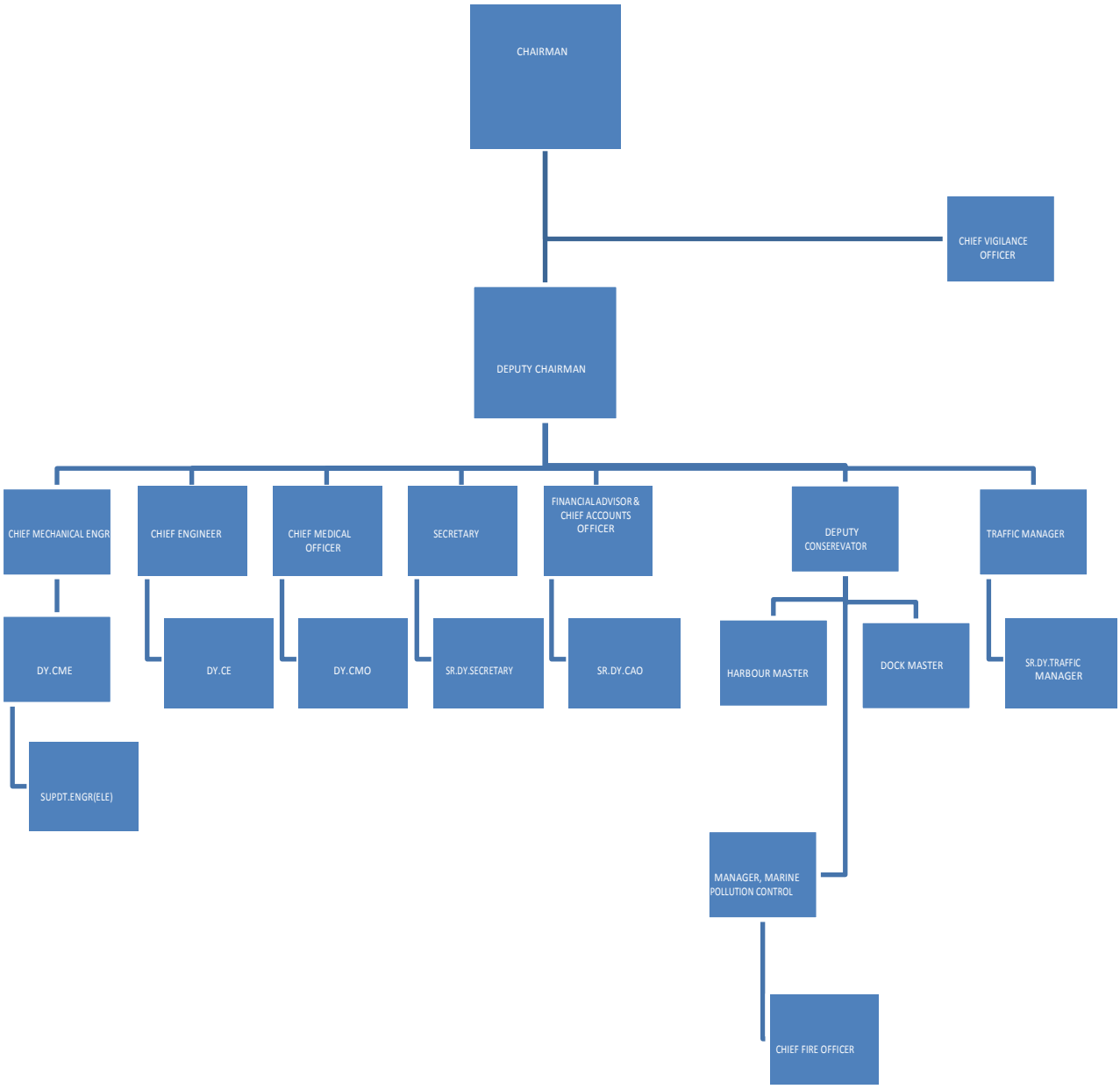
It has long been recognized that port areas represent a complex interface between land and sea, between human activities and the natural environment and between different transport nodes. Due to a port's geographical location, it is also exposed to natural disasters like cyclones, floods, earthquakes, Tsunamis etc. The compliance requirements of the ISPC Code and the Dock Workers Regulations are an ongoing process to promote safety and security in the port.

Port areas usually have a large number and range of potentially hazardous activities going on in close proximity to each other. Port areas are often built up areas that are close to housing and other community facilities and some times adjacent to important fisheries, wild life habitats and recreation areas. An incident in one part of the port may well affect the surrounding community and environment, as well as other port facilities. Incident Prevention by Preparedness, response and mitigation backed up with sufficient resources are the key elements for attaining the objectives of these Disaster Management Action plans.

SECTION 1.1	**OVERVIEW OF CoPT**	**REV DATE**	**PAGE:**

OVERVIEW OF THE COCHIN PORT TRUST

Organisation chart



SECTION 1.2	PURPOSE OF THE PLAN		

PURPOSE OF THE PLAN

*The enclosed document entitled "**COCHIN PORT TRUST DISASTER MANAGEMENT PLAN"** is prepared with the objective of defining the functions and responsibilities of all concerned Cochin Port Trust managerial,*

operational and departmental personnel with respect to preparedness, detection and effective implementation of the Disaster Management plan.

The plan objectives are as follows:

1. *Rapid response, control and containment of a hazardous situation*
2. *Mitigation of the risk and impact of the event or accident to life, property and the environment.*
3. *Effective temporary rehabilitation of the affected persons during the period of crisis.*

The elements of this plan are

- *Reliable and early detection of an emergency such as Fire, explosion, toxic gas leakage, oil / chemical leakage / spillage, natural calamities like cyclones, floods,tsunami,earthquake, vessel related accidents such as collisions, grounding,sinking, fire and security related incidents.*
- *The alertness and preparedness status.*
- *The availability of port owned appropriate resources for handling emergencies and sourcing of additional resources and logistical support from govt. agencies*
- *Appropriate emergency response actions at port, and coordination at district and national level when required*
- *Effective communication channels and facilities*

SECTION 1.3	**SCOPE OF THE PLAN**		

`

SCOPE OF THE PLAN

The on-site plan deals with emergencies which originate and are contained within the port area whereas the off-site plan addresses the impact of disasters spreading outside from the port boundary and those from outside impacting into the port area.

Offsite plans also address the following:

Co-ordinating with other response agencies

- *Interact with other emergency response agencies*
- *Co ordinate emergency plans and procedures*
- *Mutual aid assistance*
- *Open lines of communication- information sharing*
- *Joint education and training- common problem solving*

With Local Government

- *Provide a safe community*
- *Ensure the well being of all residents and transients within the community*
- *Establish public safety programmes*
- *Coordinate port/ community emergency response forces during drills and emergencies*
- *Consider training, drills and exercises with other response agencies within the community, are and state.*

SECTION 1.4	**AUTHORITIES, CODES, POLICIES**		

- **Authorities**

Cochin Port Trust

District / State Administration Ministry of Shipping, Govt. of India

- **Codes**

MARPOL 73/78 regulations (as amended) of IMO.

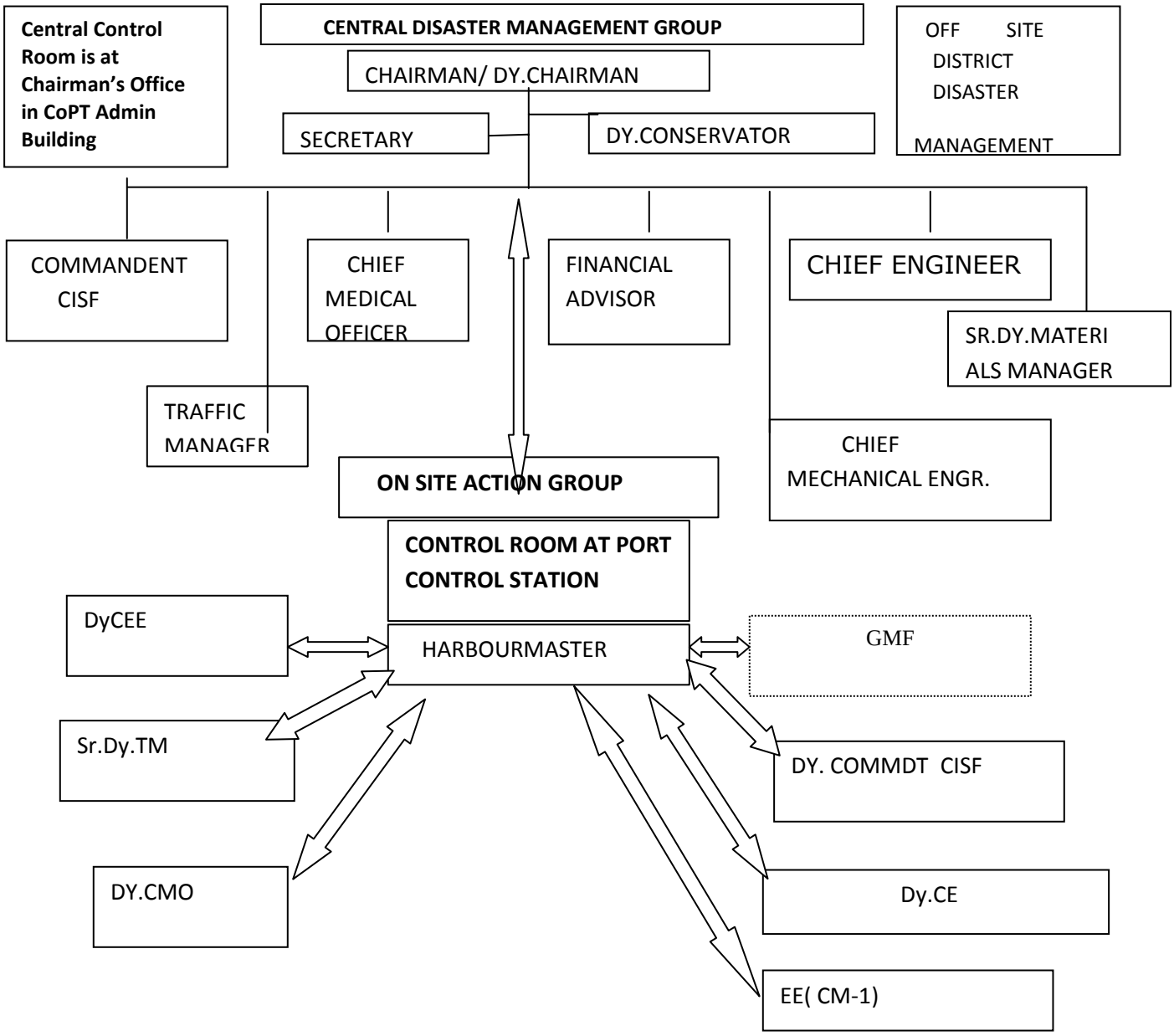
International Tanker safety Guide for oil tankers and terminals(ISGOTT) Environment Protection Acts of Govt of India.

Cochin Port Trust Rules & Regulations Merchant Shipping Act 1958

Major Port Trust Act 1963 Indian Ports Act 1908

SECTION 1.5	**INSTITUIONAL ARRANGEMENT FOR DISASTER MANAGEMENT**		

INSTITUTIONAL ARRANGEMENT OF DISASTER MANAGEMENT ORGANIZATION



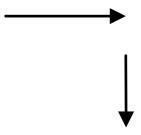
SECTION 2	**HAZARD, RISK AND VULNERABILITY MAPPING**		

PORT RISK HAZARDOUS PRODUCTSS STORAGE FACILITIES

COMPANY	**LOCATION**	**NO OF TANKS**	**CAPACITY**	**PRODUCTS HANDLED**
BPCL-KR	**STF PUTHUVYPEEN**	**5**		**CRUDE OIL**
PETRONET LNG	**PUTHU VYPEEN**	**2**		**LNG**
FACT	**W/ISLAND**	**1**	**10,000 KL**	**AMMONIA**
FACT	**W/ISLAND**	**2**	**19,500 KL**	**PHOSPHORIC ACID**
FACT	**W/ISLAND**	**2**	**16,000 KL**	**SULPHURIC ACID**

COCHIN PORT TRUST – AREA VULNERABILITY & THREAT MATRIX

X=slightly vulnerable: xx=moderately vulnerable: xxx=highly vulnerable



Threats Vulnerable Areas	**Vessel Accidents Collision Grounding Fire Explosion**	**Land Transport Personnne; Accident Rail Road**	**Fire & Explosion Manifold Pipeline**	**Toxic Gas Leakage Pipeline Manifold**	**Pollution Oil Chemical**	**Terrorism Bomb War Arson Cyber**	**Technical Failures Power, Transport Communi-cation Infrastructure**	**Occupati-onal Accidents Strikes**	**Cyclone - Floods**	**Tsun-ami Earth Quake**
Vessel Movement										
Approach Channel	xx				x	x	x	x		X
Turning Basin	x				x					
Coal Berths	x	x	x	x	x	x	x	x	x	x
Oil Tanker Berth	x	x	xx	x	x	x	x	x	x	x
LNG Berth	x	x	xxx	xx	x	xx	x	x	x	x
Fertilizer Berth	x	x	x	x	x	x	x	x	x	x
Boat Train Pier	x	x	x		x	x	x	x	x	x
Gen Cargo Berths	x	x	x		x	x	x	x	x	x
Fishing Harbour	x	x	x		x	x	x	x	x	x
Cargo Transfer										
Oil pipe lines			xx		xx	xx	xx	x	x	x
Ammonia/ph.acid			xx	xx	xx	xx	xx	x	x	x

pipeline										
Trucks/Mobile eqmt			x		x	x	x	x	x	x
Train tracks-Roads						x			x	x
Cranes & Ship Loaders						x	x	x	x	x
Bulk cargo conveyor system						X	X	X	X	X
SERVICES	------	----	------	-----	------	------	------	------	-----	----
Control gates			x			xx		x	x	x
Emergency Generators			x			x	x	x	x	x
Electric Substations			x			x	x	x	x	x
Train siding Locos, Wagons,			x			x	x	x	x	x
Signal station-SATCOM commn			x			x	x	x	x	x
Fire station 1 & 2			x			x	x	x	x	x
Port tugs, crafts, dredger	x	x	x		x	x	x	x	x	x
ADMINISTRATION	------	----	------	-----	------	------	------	------	-----	----
Administration Building & Parking			x	x		x	x	x	x	x
Customs Area & Weigh Bridge			x	x		x	x	x	x	x
Port officers & CISF Quarters			x	X?		x			x	x

EVENT SCENARIOS -COCHIN PORT TRUST

Probability-Low-once ev 10-50yrs:: moderate=once ev 2-10yrs; High=once annually
Impact/Preparedness/Risk Threat 0=Very Low 1=Low 2=moderate 3=High

EVENT/ SCENARIO SPECTRUM ↓	**Early warning**	**Probability of Occurrance**	**Duration Impact**	**Impact on property**	**Impact on people**	**Time to Restore Facilities**	**RISK THREAT**
Cyclone	96h-12h	Low	N/A	1	**1**	N/A	**Low**
Floods	96h-12h	Low	N/A	**1**	**1**	N/A	**Low**
Earthquake/Tsunami	5-8h	**low**	**N/A**	**1**	**1**	N/A	**Low**
V/L Accident							

Collision	< 1min	**Low**	**<1hr**	**0**	**0**	4 h	**Low**
Grounding	< 1min	**Low**	**2-4hr**	**0**	**0**	4 h	**Low**
Fire/Explosion	< 1min	**Low**	0.5-12h	**1-2**	**1-2**	12-96h	**Moderate**
Transport Accident							
Rail	< 1min	**Mod**	< 1min	**0**	**1**	6-48h	**Low**
Road Accident	< 1min	**Mod**	< 1min	**0**	**1**	**<1h**	**Low**
Pollution-							
Gas Release-Ammonia	< 1min	**Low**	**1-24h**	**0.1**	**2**	**2-30d**	**Low**
Phos /sulph acid spill	< 1min	**Low**	**1-12h**	**0.1**	**1**	**2-4d**	**Low**
Oil Spill	< 30min	**Low**	**1-12h**	**1**	**1**	**1-2d**	**Low**
***Fire*-**Admin Building	< 10min	**Low**	**1-72 h**	**1**	**1**	12-96h	**Low**
Parking/Gates	< 1min	**Low**	**1-12h**	**0**	**1**	12-96h	**Low**
Function Failure							
Elec sub station	< 1min	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Emergency Generator	< 1min	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Pipelines failure	< 1min	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Evacuation routes	< 1min	**Low**	**1-24h**	**0**	**0.2**	12-48h	**Low**
Fire Alarm failure	< 1min	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Fire station failure	< 1h	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Water system	< 1h	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Communications	< 1h	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Medical facilities	< 1d	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Sewerage failure	< 1h	**Low**	**1-24h**	**0**	**0**	12-48h	**Low**
Human related							
Labour Action/Strike	24h	**mod**	**<24h**	**0**	**0**	12-48h	**Mod**
Civil disturbance	< 1d	**mod**	**<24h**	**0**	**0**	12-48h	**Mod**
Terrorism & War							
State of War	<7 d	**Low**	**>7d**	**0**	**3**	>48h	**Low**
Bomb Threat	< 3h	**Low**	**1-96h**	**0**	**1**	>48h	**Low**
Hostage Threat	< 3h	**Low**	**1-96h**	**0**	**0.5**	>48h	**Low**
Mass Casualty	< 3	**Low**	**1-96h**	**0**	**1**	>48h	**Low**

SECTION-3	**Prevention and Mitigation**		

Monitoring of Hazards and Threat

- Perceive the threat
- Assess the hazard
- Select control strategy
- Control hazard
- Monitor hazard

Preventive and Mitigation Measures

- Analyze the hazard
- Determine prevention / protection action
- Determine publc warning
- Determine prevention/ protective action implementation plan

Public warning

Determine message content

Select appropriate public warning systems

ALERT ALARM: - SOUNDING OF SIREN FOR 10 SECONDS WITH A GAP OF 5 SECONDS FOR ONE MINUTE
TERMINATION OFCONTINIOUS SOUNDING OF THE SIREN FOR ONE MINUTE EMERGENCY:-

Disseminate public warning

SECTION-4	**Mainstreaming DM plan in developmental projects**		

New projects locations are to be chosen taking into following considerations

- LPG/LNG/Tanker berths to be located away from populated areas
- Sufficient protection in the form of seawalls/ breakwater for safe berthing of tankers and cargo handling.
- Sea room available for emergency unmooring of tankers.
- Effect of prevailing winds and coastal current on spillage of cargo incase of loading arm/ hose leak/ overflow etc.
- Water intakes free of silt for fire fighting water.

SECTION-5	**Preparedness**		

Preventive/ protective action implementation

Access control and isolation of danger area

Evacuation support

Evacuation Operation will be coordinated by the Commdt.CISF

EVACUATION ACTION-COORDINATION AND SPECIFIC FOLLOW UP

DEPT & ACTION BY	**SPECIFIC ACTION**
Administration -Secretary	1-**Overall Supervision** of Evacuation & Reports to Chairman
Traffic & CISF	2-**Evacuation of work force** at harbour area.
Administration - PRO	3-**Announcement** of Evacuation through PA on mobile units
Administration -Dy Secy & Estate Officer	4-**Arrange Relief Centres** ready to accommodate evacuated persons
Administration- Dy.Secy(G)	5-**Procure Transport vehicles** to transport persons at relief centres
Civil Eng - Addl CE	6-**Provide** adequate **Drinking water** at temporary evacuation shelters
Medical - Dy CMO	7-**Provide** Medicine and **First Aid** at Assembly points & relief centres
CME Dept. EE	8-**Provide adequate lighting** at temporary evacuation shelters
Administration- PRO	9-**Provide food** at temporary evacuation shelters
Comdt CISF	10-**Confirmation** that evacuation operations are complete
Administration-Secretary	11-**Status Report** to Chairman/Dy Chairman **every hour**

EVACUATION ROUTES

	INCIDENT	EVACUATION ROUTES (APPENDIX PORT LAYOUT)
1	**NATURAL CALAMITIES**	Assemble near the Fire station (Coordinated by CFO & CISF)
2	**TOXIC GAS RELEASE**	The route decision will be determined depending upon the wind direction at the time of the incident .It will be in **the up wind direction of the outflow source direction.** **(Coordinated by CFO and CISF)**
3	**FIRE AT OIL BERTH**	Assemble at the muster station to proceed out as directed (**Coordinated by CFO & CISF)**
4	**FIRE AT GEN. CARGO BERTH**	Assemble at the Ernakulam Wharf Gate & Mattancherry Gate **(Coordinated by CFO & CISF)**

All vehicles whether it is of Port Trust or hired should be parked in the location as decided by Secretary, CoPT from where it can be taken for immediate use as soon as the people move into action.

Decontamination support

Medical treatment

Special population support

Search and rescue

Search and Rescue Operation will be coordinated by the Commdt.CISF

Resouces management

Training and capacity building

Communication/ Early warning

COMMUNICATION SYSTEMS

Vulnerability is partly a function of the degree of protection available to potential victims as a result of a disaster. Improved warning reduces vulnerability. Warning' incorporates the communication of risk in times of impending emergencies, with the purpose of obtaining public protective actions through the implementation of the Disaster Management Plan.

Communication Network Elements within the Port on Site

Internal Fire Service	Special fire alarm and normal communication system- VHF-TELEPHONE-EPABX-WALKIE TALKIE- MOBILE
Forward control	UHF/VHF Transceivers-normal communication systems in reserve
Personal and internal Medical services	Normal communication services
Fire fighting craft and Rescue launches	UHF/VHF Radio telephones,Via port authorities as reserve
Ships at Berth	Normal UHF/VHF Radio telephone link used in cargo operations..Terminal representative at tanker berth to also have own radio
Civil authorities Including fire services, Police and medical services	Direct telephone link with failure alarm,UHF/VHF radio telephone or public telephone system. Cascade system to be used i.e. through dept heads to subordinates Enable keep lines clear
Harbour authorities, Pilots, tugs and other harbour craft	UHF/VHF Radio telephone or public telephone
District Collector or State Secretary	UHF/VHF Radio telephone, public telephone-hot line for emergency level 2 & 3-
Jt Secretary-MOSt New Delhi	Public telephone-hot line for emergency level 2 & 3

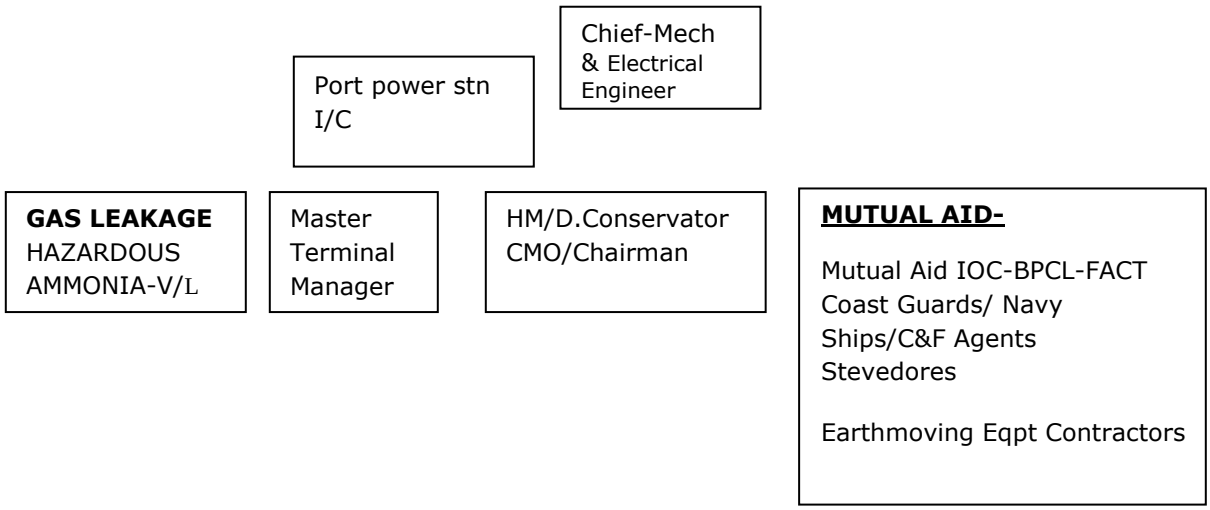
MANAGEMENT	**MOBILE VHF**
Secretary, C E, CME, Traffic Manager	Walkie talkie
Dy Conservator- Comdt CISF - CFO Port Entry Gates- Harbour Master	
Port Control	VHF / Walkie Talkie

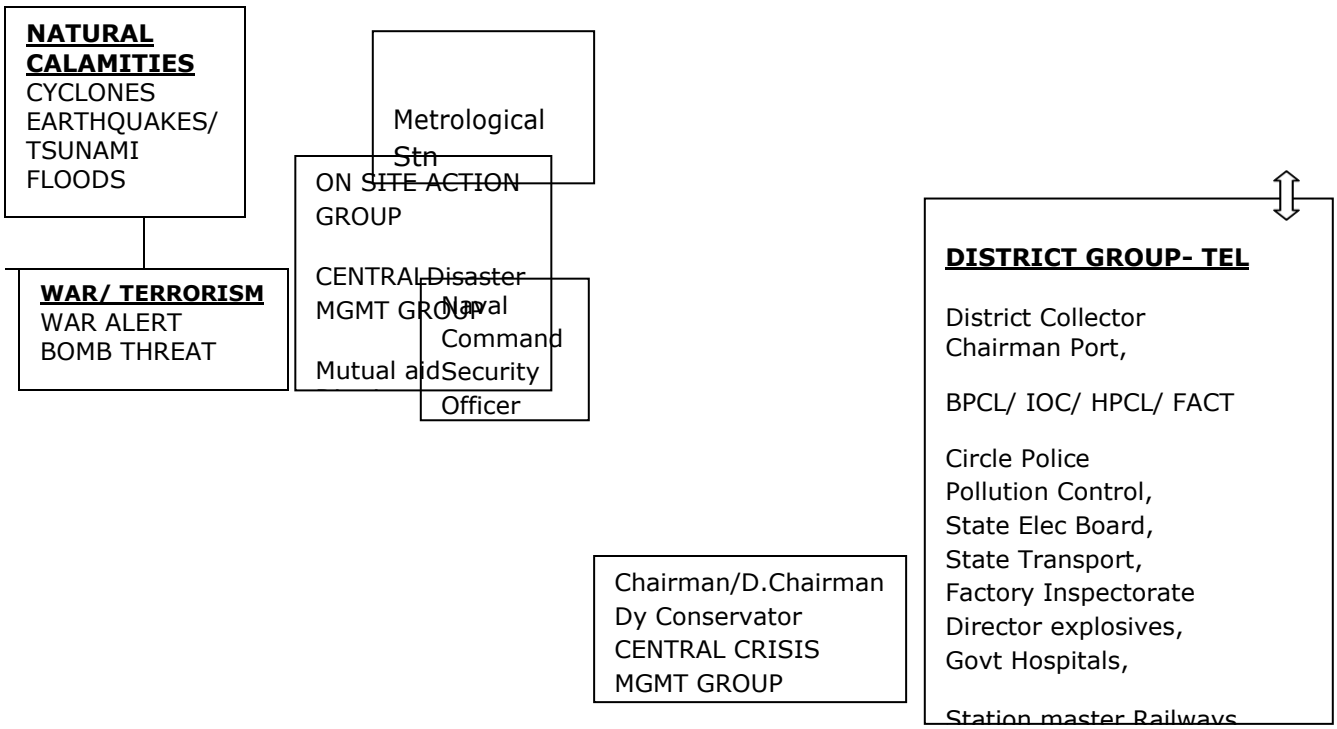
IN CASE OF ANY EMERGENCY
CONTACT **TEL** **2666468**
PORT CONTROL
VHF **Ch 16/15/14**

IN CASE OF FIRE CONTACT FIRE 102
TEL NO 2666555

<u>COMMUNICATION-CHANNELS STRUCTURE</u>

UTILITY-LOADS POWER BREAKDOWN LOAD DROP





Drills and exercises

Periodic drills and exercise to be conducted to validate the preparedness.

SECTION-6	Response		

COCHIN PORT DISASTER MANAGEMENT CONCEPTUAL PLAN FRAMEWORK

CENTRAL DISASTER MANAGEMENT GROUP **DISASTER MANAGEMENT** LEVEL III

INCIDENT COMMAND & CONTROL OFF SITE ACTION

ON-SITE ACTION GROUP

LEVEL I, II & III LEGAL SAFETY & ENVIRONMENT

EXTERNAL LIAISON PUBLIC AFFAIRS & MEDIA

PLANNING **OPERATIONS** **LOGISTICS** **FINANCE**

SAFETY OF LIFE HARBOUR COMMUNICATIONS & INFORMATION FUNDING

SAFETY OF PORT ENVIRONMENT INFRASTRUCTURE MAN POWER MAINTENANCE ADMINISTRATION

SAFETY OF PORT FACILTY SECURITY TRANSPORTATION

PORT TOWNSHIP ACCOUNTS OF CLAIMS

EQUIPMENT

EVACUATION

DOCUMENTATION FOOD//SHELTER/MEDICAL AID PROCUREMENT OF SUPPLIES

-Disruption of Facility
-Cost/time Restoration

INFORMATION GATHERING

RISK ASSESSMENT

-Natural & Industrial Hazards & Threats
-Vulnerability
-Magnitude
-Effect on life-property

EMERGENCY PLANNING PROCESS

STRATEGY DEVELOPMENT

OPERATIONAL PLAN

Organisation Responsibilities

- Review
- Communication
- Reporting
- Assessment
- Mobilization
- Response
- Evacuation
- Mitigation
- Restoration
- Documentation

Resources

Training

Updating

Priorities

Population & Port Area at Risk

Event Scenarios

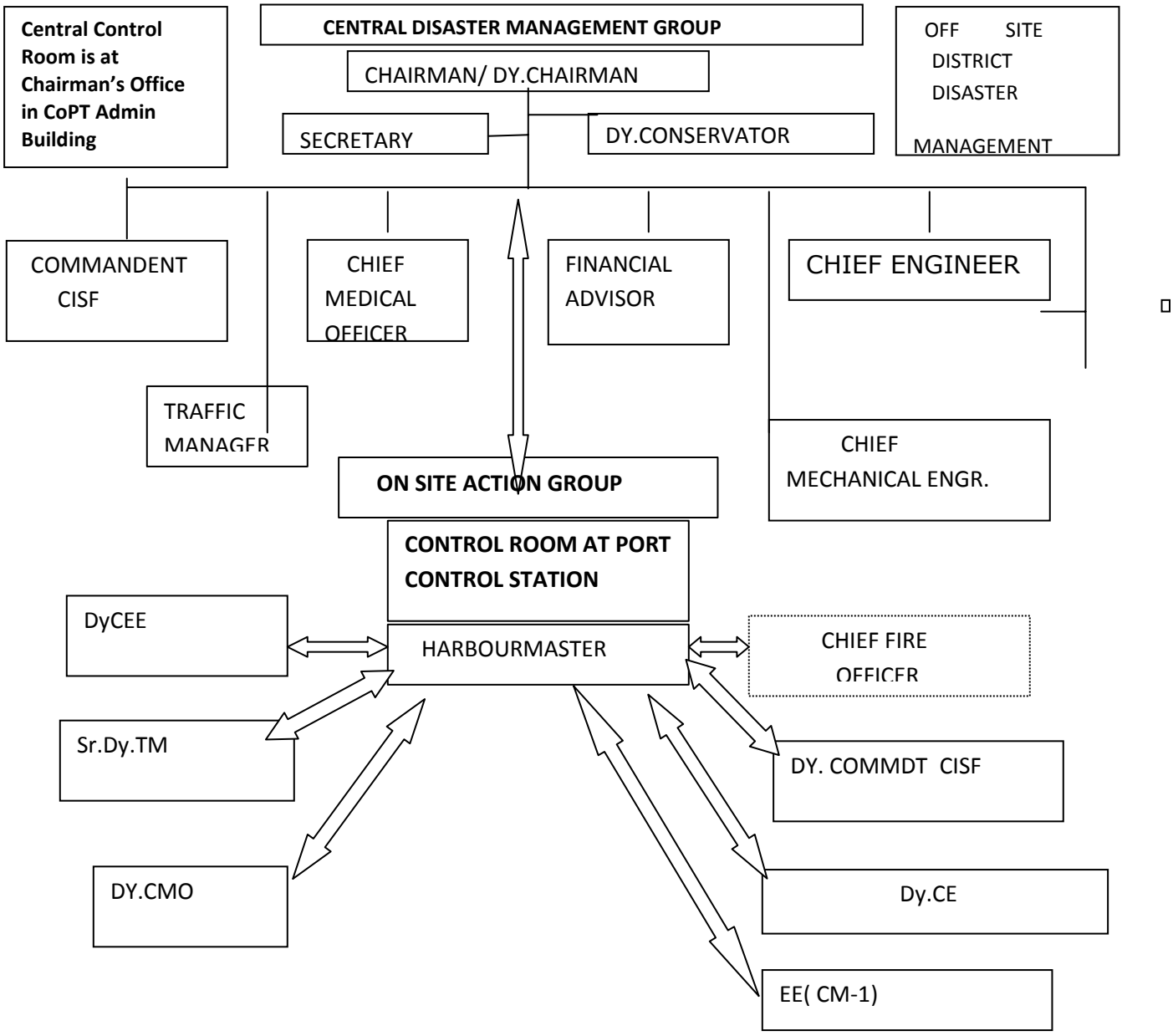
Strategic Options

Response Objectives

Emergency Classification

Tiered Response

ON SITE CoPT DISASTER MANAGEMENT ORGANIZATION



<u>INITIATION OF CENTRAL CONTROL ROOM -</u> On Emergency level II or III

Chairman CoPT to decide whether members of the Central Disaster Mgmt Team will operate from their respective dept control rooms and attend joint meetings at the Central Control Room at fixed timings or when total central control room attendance is required. Whenever the Central Disaster Management Team takes over responsibilities- the On Site Action Group now reports to the Central Control. Whenever the District Off Site Disaster Mgmt Group is initiated both Central Control and On Site Action Group will continue to

CENTRAL DISASTER MANAGEMENT GROUP- BASIC FUNCTIONS

Team Leader : Chairman / Dy Chairman
Members: Dy Chairman , Secretary, FA & CAO, Chief Engineer, CME , Traffic Manager, Materials Manager, Chief Medical Officer, Commandant-CISF , Commandant – Coast Guard.
Basic Functions
1-Monitor and analyze reports from the On Site Action team and identify the area/population at risk
2-Activate the Response Plan and arrange the Alert siren.
3-Support the Action Group with materials, equipment, information and human resources
4- Implement changes in the current mode of action if deemed necessary
5-Adjust the Disaster classification of the incident and actuate the Central Control Room
6- Coordinate with external organizations, State Govt. as deemed necessary
7- Make the necessary arrangements and funds for evacuation, transportation, food & supplies
8-Make media statements and reports to MOS.

ON SITE ACTION GROUP - BASIC RESPONSIBILITIES

Team Leader:- Harbour Master / Senior Pilot
Members:-Control room-Sr.pilot, Chief Fire Officer, Dy Comdt.CISF , Exec.Engineer (Electrical) Addl. TM, Dy Chief Med. Officer.
Basic Functions
1- Assess & classify Incident:-nature-location- severity-casualties-resource requirement –time to control
2- Activate elements of the disaster management plan, arrange alert signal in liaison with DC
3-Conduct search, rescue and evacuation operations. Provide medical Aid
4- Manage incident operations and terminate plan, Arrange for re-Entry and restoration

EMERGENCY CLASSIFICATION

Level 1. It is an Incident within the port and is of a minor nature with a low level of personnel injury, interruption to work,damage level and loss of capability.It can be handled by the Port Trust Staff involving Marine and other depts. The Emergency Management group leader is the Dept Head. E.g. Building/Shed Fire, Elec Supply disruption, labour accident, vessel accidents
Level 2;- It is an Incident within the port area and is of a limited and moderate level of personnel injury,possible death(s),interruption of work,damage to port ..Besides Port resources, outside assistance may be required. The Disaster Management group leader is the Chairman ,CoPT. E.g. Gas Leaks, Chemical/Oil Spills, Terminal Fires/ Explosions
Level 3:- It is a disaster of a severe and critical nature and could have a high level of personnel injury (and deaths), interruption to work, damage to port and loss of capability. It affects the port and possibly adjacent areas. Besides Port resources, assistance from outside agencies is required. If incident affects CoPT, group leader is chairman,CoPT and if it affects outside PPT , then information will be given to District Collector depending on the intensity. E.g. Gas Leaks, Chemical/Oil Spills, Fires/ Explosions & Cyclones

INCIDENT/REQUIREMENT SCENARIOS	**LEVEL I – ACTION BY**	**LEVEL II & III –ACTION BY**
Vessel –Grounding-Shifting-Evacuation	HM	HM + Salvage efforts + Navy + Coast Guard
Casualties	CMO	Port + District + State
Fire & Explosion on Vessel or Terminal	CFO	CFO + District (Fire wing) + CDMG
Fire & Explosion at Shed	CFO , TM	CFO + District (Fire wing) + CDMG
Oil or Chemical Spill	MMPC/ CFO	CFO +Central disaster Magnt. Group+ out side agencies
Toxic Gas Leakage	CFO	Central disaster Magnt. Group +District/state assistance + outside agencies
Cyclone, tsunami, flood etc	Dy.Conservtor	National disaster Management group + CDMG + District + state
Electric Supply breakdown	SE(Elect.)	CDMG + District + State

Position **Port Position** **Alternative**	**TEL**
Chief Emergency Controller Chairman ***Dy Chairman***	**CONTAC*T***
Monitors Disaster Management action Plan and a state of emergency preparedness is maintained at all times. Authorises release of required funds. Leads Central Disaster Management group to direct operations from the emergency control center.	**Std(0484)** 2668200, 2668566
	Res. Tel: ***2668100***
For industrial disasters, confirms level of crisis, monitors the shutting down, evacuation and other operations as necessary. Directs activation of the Central Control room at emergency level 2 and 3	
Activates the off site emergency plan if the disaster is spreading to/from outside Port boundary in liaison with Dy chairman, DC,TM and CFO	
Approves information to the media	
Liaises with the Sercretary,Jt.Secy(Ports) of the MOS (Ministry of shipping)	
Confirms the termination of the emergency.	
Leads the Central Disaster Management Group, monitors the early restoration of facilities and port activities,	
2-Provides timely required status reports to the Secretary MOS	

CENTRAL DISASTER MANAGEMENTRESPONSIBILITIES GROUP			**TEL**
Group Position	**Port Position**	**Alternative**	**CONTAC*T***
Welfare & Media Coordinator	**Secretary**	**Sr.Dy.Secretary**	***Off Tel***
Co-ordinates cyclone response-acts as media spokesman Prepares a duty roster for manning of the cyclone coordination centre by officers of the Administration, Finance & Accounts and Materials Management. Mobilises vehicles. Arranges food and water to the personel on roster duty			**2666412** **2582100** **2666424** **2582126**
Liaises with MOS and communicates inputs from the Chairman.			
Liaises with media as spokesman under guidelines of the Chairman			
Co-ordinates cyclone response plan and keeps constant touch with the local and District Administration to render assistance			
Secretary / Deputy Secy.(G) to arrange for evacuation of the township			
Maintains list of missing persons			
Monitors vehicles from shortlisted transport pool			
Provides a report to MOS			

(Std:0484)

Group Position	**Port Position**	**Alternative**	**TEL**
Chief Incident Controller	***Dy.Conservator***	***HarbourMaster***	**CONTAC*T***
Ensures that the applicable implementation procedures are reviewed and revised annually. Assists Central Disaster Management Group to Direct operations from the emergency control center			**9847049023** **2666417 (o)** **2582500 (o)**
Monitors and forecasts cyclone tracks threatening Port. Ensures stoppage of shipment operation & evacuation of vessel during disaster.			**2582950 (r)**
Directs the site incident controller(HM) from control room			
Directs the shutting down, evacuation and other operations at the port			
Monitors on site personal protection, safety			
Monitors the search & rescue operation.			
Coordinates,organizes and obtains additional resources for operation			
Liaises with the senior operating staff of the Fire,Police,Coast Guards,Military and para military, Navy etc.			
Advises Central Disaster Group for the termination of the emergency situation			
Assist in assessing damages together with the CE,CME&TM			
Assists in the supervision & reconstruction of affected areas post disaster			
Preserves evidence and assists Secretary in the submission of logs for the claim process.			

CENTRAL DISASTER MANAGEMENT GROUP RESPONSIBILITIES

Group Position	**Port Position**	**Alternative**	**TEL**
Traffic Department	***Traffic Manager***	***Dy. Traffic Manager***	**CONTAC*T***
Ensures evacuation of all dock workers and private labour, visitors, shippers, consignees from the port area.			***Off Tel*** **2666418**
Prepares vessels to vacate from berth to open sea			**2582200**
Arranges to protect cargo in port custody from damage by shifting			**Mobile**
Arranges to segregate dangerous cargo in sheds during fire			**9447055054**
Submits consolidated list of dangerous goods in port including tankers in port and tank farms in port area			***2582920 (R)***
Ensures his dept implements the disaster response plan and assists in segregating and shifting cargo and coordinating with the Fire Fighting Authorities			
Informs all cargo interests,Port Agents,stevedores regarding restoration of the port operation.			

CENTRAL DISASTER MANAGEMENTRESPONSIBILITIES GROUP			**TEL.**
Group Position	**Port Position**	**Alternative**	**CONTAC*T***
Cash & Accts.	**FA & CAO**	**Dy FA & CAO**	**2666582 (O)**
			2582600 (O)
Maintains cash / funds for disbursement to all the depts			**2582960 (R)**
Disburses cash / funds to different departments			**9847049025**
Provides Disbursement Statement to Secy. for processing claims			

CENTRAL DISASTER MANAGEMENT GROUP RESPONSIBILITIES

Group Position	**Port Position**	**Alternative**	**TEL**
CME Department	***CME***	***Dy. CME***	**CONTAC*T***
Mobilises field groups for On Site Action Monitors implementation of plans for providing continuity of emergency supplies and services such as electric power, emergency lighting, pump, bulk material handling equipment etc. Coordinates with Dy. Materials Manager to procure essential materials Arranges for the fabrication of any specialised equipments required for the emergency Monitors that his field group have secured , loader,conveyors, mobile equipment , bulk material handling equipment, locomotives, cargo handling equipments etc.			**2666639 (O)** **2582300 (O)**
Monitors the appropriate procedures to isolate damaged units without introducing new hazards and providing resources both in terms of personnel and equipment to accomplish this			
Activates the necessary utilities during the emergency, like activating back up emergency generators for general lighting purpose, pumps, welding services etc.			
Monitors the rendering of assistance for rescue of trapped personnel by cutting structures, wires etc			
Ensures the dept. group remain alert on duty for any electrical isolation of equipment during an emergency			
Assess damages and provide technical assistance to determine the operability of damaged units.			
Assist in the accident investigation			

CENTRAL DISASTER MANAGEMENT GROUP RESPONSIBILITIES

Group Position	**Group Port Position**	**Alternative**	**TEL**
Engineerig Department	*Chief Engineer - civil*	*Dy.Chief Engr – Civil*	**CONTAC*T***
1. Mobilises on-site action group to ensure proper functioning of the creek/culverts/Roads/ drainage system/Water supply system. 2. Ensures proper manning of the pump houses during the disaster 3. Ensures proper functioning of the drinking water supply to the relief/ cylone shelter.			Off tel 2666414 2582400 9847049021
4. Assists in recovery and port restoration activities			

CENTRAL DISASTER MANAGEMENT GROUP RESPONSIBILITIES			**TEL**
Position	**Group Port Position**	**Alternative**	**CONTAC*T***
Security Coordinator	***Sr.Commandant - CISF***	***Dy Commandant CISF***	**Off tel 2666579**
Directs the gate security and facilitates evacuation, transport, first aid, rescue			
Keep extra watch over stores,sub stations, berths, transit sheds,warehouses, administrative building, loco sheds.			**Res tel 2667723**
Controls the entry of unauthorized persons and vehicles-disperses crowd-cordons off restricted areas-prevents looting			**Mob. 9847049055**
Permits the entry of authorized personnel and outside agencies for rescues operations without delay.			
Allows the entry of emergency vehicles such as ambulances without hindrances			
Ensures that the people are as per the head count available with the assembly point section of that area to arrange for orderly evacuation			
Monitors that Dy Commdt CISF completes a reconnaissance of the evacuated area, to enable declaration of the same as evacuated and report to the Chief Incident controller			
Participates in recovery and re-entry activity			

CENTRAL DISASTER MANAGEMENT GROUP RESPONSIBILITIES			**TEL**
Position	**Port Position**	**Alternative**	**CONTAC*T***
Medical Aid Coordinator	***Chief Medical Officer***	***Dy CMO***	**Off tel**
Set up casualty collection centre and arrange first aid posts			**2666402 (O)**
Arrange for adequate medicine, antidotes, oxygen, stretchers etc			**2582970 (R)**
Advises Chief Incident Controller on industrial hygiene and make sure that the personnel on duty are not exposed to unacceptable levels of toxic chemicals			**Mobile** 9847049026
Makes arrangements of Ambulance for transporting and treating the injured			
Maintains a list of blood groups of each employee with special reference to rare blood groups.Arranges additional medicine and equipment as required			
Liaises with selected NGO's under instructions of the chairman			
Arranges Equipped Ambulance to be kept fully ready.			
Ensures that the casualty section of Port hospital has specialists			
Arranges for extra beds and in emergency contact with the state Govt. Hospital for extra medical supplies.			

CENTRAL DISASTER MANAGEMENTRESPONSIBILITIES GROUP			**TEL**
Position	**Port Position**	**Alternative**	**CONTAC*T***
Logistics Coordinator	***Sr.Materials Manger***	***Dy Materials anager***	**Off tel**
Arranges purchase of stores and supplies			**2667180**
			2582467
During cyclonic season sufficient stock of stores like GI corragated sheets, J.Hooks, screw hinges, gunny bags, tarpaulins, ropes and wires for Port Crafts, diesel oil, kerosene oil, hurricane lantern, petromax lamps, torch lights with batteries and bulbs, electrical items etc. are kept.			
All the materials which are likely to get damaged with rain are protected by a tarpaulin cover and raised above ground level.			
One Stores Supdt., one Store Keeper and the other minimum staff are required to issue materials including POL are kept during emergency.			
Informs FA&CAO the approximate funds required.			
He will replenish stock if possible			

DISASTER MANAGEMENT ON SITE ACTION GROUP- ORGANIZATION RESPONSIBILITIES

Group Position	**Port Position**	**Alternative**	**TEL**
Site Incident controller	***Harbour Master***	***Senior Pilot***	**CONTAC*T***
Directs and co-ordinates all field operations at the scene of the accident			**Off tel**
Monitors early warning for cyclones and rescue operations			0484-266410
Assesses the level of incident -nature-location- severity-casualties and resource requirement			
Classifies the incident - Advises Pilot at Port Control to convey to Main incident controller (HM) about Crisis Severity status and Emergency level , resource requirements etc.			
			Mobile
Activates elements of the terminal emergency plan / site response actions **Coordinates** –in combating operation of the fire fighting and toxic gas leakage with the CFO,if Oil spillage with the Coast Guards, if Vessel accidents with the Dy Conservator, if Natural calamities like cyclone and floods, tsunami with the Secretary,CME,CE , for Cargo opn. shutdown with the Traffic Manager, for Search& rescue Sr. Comdt CISF, for First aid and hospitalization with CMO.			9847049056
Coordinates all functional heads in field operations group to take action			
Arranges tugs, mooring boats and pilot(s) for un-berthing vessel(s)			
Arranges for additional resources and periodic tactical and logistical briefings with Main Incident Controller (DyConservator) of CMG(Central Management Group).			
Liaises with Coast Guard, Navy and CISF Fire Service			
Co-ordinate with the search and rescue operations of CISF			
Manages incident operations to mitigate for re-Entry and restoration including channel hydrographic survey and navigation aids survey in liaison			
Arranges survey of damaged marine flotilla for necessary repairs Makes claims if the incident is due to the vessel from owners , P& I Club or agents			
DISASTER MANAGEMENT ON SITE ACTION GROUP			
Group Position	**Port Position**	**Alternative**	
Communications Officer	**Senior Pilot**	**Pilot**	
Maintains 24 h vigilance towards the channel/anchorage& port			Off tel 484-2666410
On receipt of instructions from the chief Incident controller, informs the fire brigade/CISF/HM			VHF Ch 14/15/16

Refrains from exchanging any information with unauthorized persons unless authorized to do so by the Chief Incident Controller	
Maintains contact with other vessels and on VHF	

DISASTER MANAGEMENT ON SITE ACTION GROUP - RESPONSIBILITIES

Group Position Port Position Alternative	**TEL**
Cargo Storage, Sheds & Labour coordinator Sr.Dy.TM Dy.TM	**CONTAC*T***
Co-ordinate with HM in de-berthing vessel to vacate the berth	**OFFICE 484-2666070**
Arranges to segregate and protect cargo in sheds	
Submits consolidated list of dangerous goods in port including tankers in port during fire.	
Coordinates with shipowners/agents/C & F agents/stevedores and with labour Officer to arrange and ensure evacuation	
In case of Fire at Cargo Beths/Transit Sheds - liaises with Dy Commdt CISF Fire to extinguish fire and in search and Rescue Operations	

DISASTER MANAGEMENT ON SITE ACTION GROUP- RESPONSIBILITIES

Position Port Position Alternative	**TEL**
Fire Search & Rescue CFO Dy.CFO	**CONTAC*T***
Keeps all firefighting appliances and resources in readiness Maintains patrols and ensure unsafe practices are eliminated Liaises with Site Incident controller(HM) and is responsible for keeping the Fire Dept in a state of alertness on a 24 hour basis.	Off tel 484-2666555
Sounds action alarm at the Fire station. Keeps HM,DC, Chairman,Dy Chairman informed the level of crisis & leads team directly to incident site	
Initiates fire fighting procedures immediately and ensures fire fighting team reaches the incident location with the correct resources.	
Assists CISF in the evacuation of workers to the assembly points in liaison with the Dy. Commandant CISF	
Informs Site Incident Controller (HM) if external fire tender/fire fighting equipment /materials is required	
Arranges safety equipment e.g. fire suits, protective gloves and goggles, breathing apparatus as required	

DISASTER MANAGEMENT ON SITE ACTION GROUP- RESPONSIBILITIES

Group Position	**Port Position**	**Alternative**	**TEL**
First Aid	***Dy CMO***	***Medical Officer***	**CONTAC*T***
Maintains a list of blood groups of each employee with special reference to rare blood groups - Liaises with CMO as necessary			484-2666457
Sets up a casualty collection centre , Arranges first aid posts at assembly points			
Arranges for adequate medicine, antidotes, oxygen, stretchers etc			
Contacts and cooperates with local hospitals and ensure that the most likely injuries can be adequately treated at these facilities e.g. burns			
Advises Incident Action Group not tobe exposed to unacceptable levels of toxic exposure			
Submits reports-indents to replenish medicines ,resources used			

DISASTER MANAGEMENT ON SITE ACTION GROUP-RESPONSIBILITIES		**TEL**
Position	**Port Position**	**Alternative**	**CONTAC*T***
Security	***Dy Commandant-CISF***	***Inspector CISF***	**Off tel**
Controls the entry of unauthorized persons and vehicles			2666556
Permits the entry of authorized personnel and outside agencies for rescues operations without delay.			
Allows the entry of emergency vehicles such as ambulances without hindrances			
Ensures that all people are aware of the assembly points, where the transportation vehicles are available.			
Ensures that the people are as per the head count available with the assembly point section of that area			
Liaises with the Addl. TM for transport arrangements of the people at assemble point			
Carries out a reconnaissance of the evacuated area before declaring the same as evacuated and report to the Commandant CISF & Chief Incident controller			
Submit report to Sr.Commdt CISF copy to Chairman-Dy Chairman-Dy Conservator & Traffic Manager			

DISASTER MANAGEMENT ON SITE ACTION GROUP- RESPONSIBILITIES

Position	**Port Position**	**Alternative**	**TEL**
CME DEPT.	***DY. CME***	***Exe. Enginer(M)***	**CONTAC*T***
Suggests optimal strategies for conducting emergency isolation of damaged equipment, the emergency transfer of materials etc			**OFFICE 2582301**
Provides the necessary utilities during the emergency like back up emergency generators for general lighting purposes, pumps, welding services.			
Renders assistance for extricating trapped personnel by cutting structures, wires etc			
Recommends the appropriate procedures to isolate damaged units without introducing new hazards and provides resources both in terms of personnel and equipment to accomplish this			
Assess damages and provide technical assistance to determine the operability of damaged units.			
Assists in the re- entry and restoration process of the port operation.			

Position	**Port Position**	**Alternative**	**TEL**
Civil	***Dy.CE***	***Sup.Engr (CM)***	**CONTAC*T***
During cyclones/floods arranges sand bags & develop methodologies to control hazardous spills. Co-operate with on-site action group to conduct the clean up work during and after the disaster. Assist in the restoration and recovery activities.			Office 2582401 2582402

EMERGENCY FACILITIES

EMERGENCY CONTROL CENTRE AT PORT CONTROL STATION

NOS	EQUIPMENT	REMARKS
2	VTMS RADAR	WITH BATTERY BACKUP
2	VHF SETS	WITH BATTERY BACKUP
2	TELEPHONES DIRECT PLUS EPABX	Power supply not required
8	WALKIE TALKIE SETS & MOBILES	With spare batteries
	FLIP CHART WITH FELT PENS	
	IDENTIFYING JACKETS AND HELMETS AND ARM BANDS	
	EMERGENCY LIGHTS AND TORCHES	
	PORTABLE PA/LOUD HAILER SETS	
	with emergency generator-dry food & water for 72 hours	

CENTRAL DISASTER MANAGEMENT CONTROL ROOM-

EQUIPMENT	NOS
• Emergency lights and torches	
• TV	1
• Radio	1
• Computer	1
• Scanner/Fax and Printer	1
• Telephone hotline-State Govt	1
• Telephone hotline-Ministry of Shipping	1
• Telephone-one for incoming ;second for outgoing calls	2
• Over head slide projector	1
• White board and coloured marker pens	1
• Tape recorders	1
	4
• Walkie talkies/mobile telephone	6
• VHF sets-marine	1
• Video camera	1
• Binoculars	1
• Disaster Management Response plan	
• Table-seating	

• Tables-for equipment	
• Chairs	
• Stationary- Flip charts	
□	

INITIATION OF CENTRAL CONTROL ROOM -On Disaster level,II or III

Chairman CoPT will decide when members of the Central Disaster Management Group will operate from their respective dept control rooms and attend joint meetings at the Central Disaster Management Control Room or when total central control room attendance is required. Whenever the Central Dsaster Management centre takes over responsibilities the On Site Action Group now reports to the Central control Room.

	EMERGENCY FACILITIES		

FIRE FIGHTING RESOURCES

PORT FIRE FIGHTING RESOURCES –Capacity- Specs	**nos**
Foam Tender (Capacity 8000L, 4500L X 2, 3000L)	4
Water Tender (4500L)	1
Dry powder tender (2000Kg)	1
Foam Generator	1
Trailer Pump 1800LPM	2
Portable pumps (275LPM & 500 LPM)	3
Foam/ Water monitor trailer (8000 LPM)	1
Ground Monitor	16
Fire Hydrants & Hoses	25
High pressure pump (500 CU.M/HR each)	6
Breathing Apparatus Sets	16
Fire suits	5
Chemical suits	3
Mobile VHF Walkie-Talkie sets	24

Pollution Response Equipments	**No**
Oil containment boom-harbour	500 mtr
Ocean Boom	600 mtr
Multi Skimmer (60 Cu.m/hr)	01
Portable skimmer (5 TPH)	01
Oil Spill Dispersant	4000 Ltr
Sorbent Boom	200 mtr
Sorbent pads	1000
Skimmer Vessel (60 TPH)	01

SECTION 7	RECOVERY		

GUIDELINES FOR ASSESSMENT OF TIME TO RESTORE A PORT TO NORMAL OPERATIONAL CAPABILITY AFTER A CYCLONE / EARTH QUAKE

An analysis of past incidents and time taken for restoration of the port to operational status is a useful tool- however the interpretation of the data results will require modifications in line with the intensity/duration of the current incident and steps and resources used to mitigate the effects pre to post cyclone. The following is a guideline

NATURE OF RESTORATION TO PORT UNITS	DEPTS & RESOURCES USED	RESTORATION
Administrative building damage	Roads & Bldg division	1-3 days
Power Supply – restore sub stations	Port Elec Divn	<2 days
Damage to tugs – floating craft	CME Dept.	2-18 days
Sunk/grounded vessels-	Salvage Efforts	1-3 weeks
Hydrographic survey channels/berths	Hydrographic Surveyor	1-3 weeks
Damaged buoys- shifting of buoys	DC-HM-Harbour works Divn I & II	4 days
Oil.Chemical Storage Tanks	Tank farms to check integrity	2 days
Road blockades-clear debris-fallen trees	Roads & Bldg dept	1 week
Repair damaged roads	Roads & Bldg dept	<1 week
Injury & infection-medical treatment	Medical Department	1 week
Flooding & stagnant water - clean drains	Public Health Divn (Civil)	3 days
Fishing harbour-survey-damaged trawlers	Fishing Harbour Divn	1-2 weeks
Civil works –sea wall- Jetty-fenders-	CE/Harbour works Divn	1 week
Electrical & mech works	Elect. & Mech. Department	1 week
Pipeline –manifolds-isolation valves	Exe. Engr, DM Divn	2 days
Spillage of chemical-Petroleum Oil products	DC-Salvage Team-Coast Guards	4 days
Damage to Mobile cranes	CME	<1 week
Checking of transit sheds, ware houses	Traffic department	3 days
Checking of quarters of port employees	CE Dept.	3 weeks
Checking and rectification of drinking water	CE Dept.	2 days

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PART-II	Hazard Specific Incident Action (IAP)

SECTION 01	Cargo related accidents		

The following toxic cargo are discharged in port like Ammonia gas

ANHYDROUS AMMONIA Emergency Treatment Effects of Overexposure Eye: Tearing, edema or blindness may occur.if >700ppm **Skin:** Irritation, corrosive burns, blister formation may result. Contact with liquid may produce a caustic burn and frostbite. **Inhalation:** Acute exposure may result in severe irritation of the respiratory tract, bronchospasm, pulmonary edema or respiratory arrest. **Ingestion:** Lung irritation and pulmonary edema may occur. ***Extreme exposure may result in death from spasm, inflammation or edema. Brief inhalation exposure to 5,000 ppm may be fatal.***
ANHYDROUS AMMONIA Emergency Aid: Remove patient to uncontaminated area Eye: Flush with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing. **Skin:** Flush with copious amounts of tepid water for a minimum of 20 minutes while removing contaminated clothing, jewelry and shoes. Do not rub or apply ointment on affected area. Clothing may initially freeze to skin. Thaw frozen clothing from skin before removing. **Inhalation:** Remove to fresh air. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required. **Ingestion:** If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth. **DO NOT INDUCE VOMITING!** **SEEK IMMEDIATE MEDICAL HELP FOR ALL EXPOSURES!** **Note to Physician** ***Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may*** ***follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.***

Anhydrous Ammonia Special Protection and Procedures

Respiratory Protection

Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, MSHA/NIOSH approved respiratory protection that consists of a full-face gas mask and canisters approved for ammonia is required.

Eye Protection Chemical splash goggles should be worn when handling anhydrous ammonia. A face shield can be worn over chemical splash goggles as additional protection. Do not wear contact lenses when handling anhydrous ammonia.

Ventilation Local exhaust should be sufficient to keep ammonia vapor to 25 ppm or less.

Protective Equipment • At a minimum, splash proof, chemical safety goggles, ammonia resistant, gloves (such as rubber), and ammonia-impervious clothing should be worn to prevent contact during normal loading, unloading and transfer operations and handling small spills. Face shield and boots can be worn as additional protection.

• Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable safety and health exposure limits are exceeded. For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

PHOSPHORIC ACID EMERGENCY OVERVIEW: DANGER! Corrosive to all body
tissues. Causes destruction of eye and skin tissue. Harmful if inhalled or swallowed.
POTENTIAL HEALTH EFFECTS:
INHALATION: Corrosive to respiratory passages. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea.
EYE CONTACT: Immediate irritation and burning followed by destruction of eye tissue. **SKIN CONTACT**:Immediate irritation and burning followed by destruction of skin tissue. Moderately toxic when absorbed through skin. Aggravates pre-existing skin disorders. **INGESTION:** Corrosive to gastrointestinal tract. May cause nausea, vomiting, loss of consciousness.
CHRONIC Effects: Kidney and liver damage possible.

PHOSPHORIC ACID FIRST AID MEASURES
INHALATION: Remove victim to fresh air and, if needed, immediately begin artificial respiration. Give oxygen if breathing is labored. Get emergency medical help. Contact a physician immediately.
EYE CONTACT: Flush eyes with water for 15 minutes. Get medical attention if symptoms develop and persist.
SKIN CONTACT: Flush with water or soap and water for 15 minutes or until all traces have been removed. Seek medical attention if symptoms develop and persist.
INGESTION: Do not induce vomiting. Rinse mouth out with water. Get immediate medical attention

SULPHURIC ACID Corrosive Poisonous if inhaled or swallowed. Skin contact poisonous. Contact could cause burns to skin and eyes. Fire could produce irritating or poisonous gases. Runoff from fire-control or dilution water could cause pollution. Contact with skin or eyes will cause burning dependent on concentration. Breathing high concentrations may cause coughing or sneezing. Ingestion: Serious burns of mouth.

EMERGENCY AND FIRST AID PROCEDURES
EYE CONTACT Flush eyes with water for 15 minutes. Hold eyelids open while washing.
SKIN CONTACT Wash off with water. Remove clothing. Shower thoroughly. IMMEDIATELY remove contaminated clothing and drench affected area with running water for 20 minutes.
INHALATION Remove from contaminated area. Give oxygen. CPR if indicated. Move to fresh air.
INGESTION Do not induce vomiting. Rinse mouth. Immediately give plenty of water to drink. Prompt medical attention is vital.

FIRE & EXPLOSION RESPONSE PLAN

The CoPT Fire Fighting Service is operated by Fire Service which is headed by Chief Fire Officer is assisted by Dy. CFO, Inspectors and team which operates on a 8 hour shift round the clock. The location of the Main Fire station is near Mattancherry Gate.

METHODS OF DEALING WITH DIFFERENT TYPES OF FIRES & LEAKAGE

Fires from minor oil spillage on deck or jetty		Use dry chemical or foam extinguishers or water fog or water spray
Fire from large spillage of oil or burst hose on deck or jetty		Use large dry chemical appliance and follow up with foam or water fog/spray. Cool surrounding area/risks with water spray
Fires from spillage of oil on surrounding waters		Emulsification of oil with water jets or apply foam coverage as appropriate
Ammonia Gas		Use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.from upwind position
Phosphoric/Sulphuric Acid		Dry powder, carbon dioxide (CO_2), water fog or spray
-Electrical Fires -Fire in buildings-canteen		Switch off power-use CO2 or dry chemical extinguishers
Fire in office involving combustible material		Use dry powder fire extinguishers-water spray, Use Breathing apparatus.
LPG AND LNG Fires		Should not be extinguished until source of leakage is under control. Dry chemical is the most effective. Cover affected area with water spray to reduce radiant heat.
Fire in cargo tanks		Use foam or steam smothering.

DEPARTMENTAL ACTION - TANKER ON FIRE AT THE OIL JETTY

DEPT	ACTION
Marine & Vessel	Port Control informs HM and Chief Fire Officer the status on VHF 16/15/14. Master of the vessel ceases all cargo or bunker operations close the manifold valves, disconnect hoses and consults with HM for unberthing & also ensures the immediate action of the vessels Fire fighting squad. If necessary Master may request for additional resources and/ or-evacuation of injured. **PORT CONTROL** Communication Officer informs CFO-DC-HM-DM-TM-Chairman- Dy Chairman, Secretary of the incident. **HM** Assess works together with CFO and Master to ascertain the status and crisis level. HM Informs DC of Central Crisis Management Group the status and Crisis level,places Pilots on Stand by for shifting out vessel- directs fire fighting tugs - Keeps mooring crew and launch standby to unberth vessel. **DC** maintains close liaison with HM and monitors progress and strategy of containment and extinguishing.
Fire	CFO ensures that fire tenders are ready at the jetty and takes over control from Jetty Fire Service to extinguish fire
Traffic	TM reconfirms stoppage of cargo operations to IOCL/BPCL/HPCL & informs TM to close down the nearby ore handling berth if fire is likely to spread. TM monitors the situation and keeps Chairman informed about the incident.
Elec & Mech Department	EE ensures isolation of the electric power on berth.
CISF	Commdt CISF cordons area .Executes Search and rescue with Fire. Keeps Commdt apparaised and requests for additional resources if required.
Medical	Dy CMO keeps ambulance standy by at berth and provides First Aid and burn treatment to the injured.

DEPARTMENTAL ACTION - FIRE AT THE GENERAL CARGO BERTHS

DEPT	ACTION
Marine	Port Control station informs HM and CFO the status on VHF 16/15/14 and the communication Officer at Port Control station informs CFO-DC-HM-TM-Chairman-Dy Chairman, Secretary of the incident. **HM** activate the On Site Action group to extinguish the fire. HM Informs DC of Central Crisis Management Group the status and Crisis level,places Pilots on Stand by for shifting out vessel- directs fire fighting tugs to standby ships side -Keeps mooring crew and launch standby to unberth vessel
	Fire Service arrives with fire tenders and resources and takes over to extinguish fire and assists in Search and Rescue operation.
Traffic	TM ensures stoppage of cargo operations. If the incident is at Q10, then FACT is to be informed to initiate the on-site action group for extinguishing the fire. TM of On Site ActionGroup keeps TM informed and obtains authorization to close down the nearby cargo berth if fire is likely to spread. TM monitors the situation and keeps Chairman informed. On termination of the incident, TM monitors the early restoration of the traffic operation.
Elec & Mech Department	EE ensures isolation of the electric power on berth
CISF	Dy Commdt CISF cordons area .Executes Search and rescue with CFO. Keeps Commdt apparaised and requests for additional resources if required.
Medical	Dy CMO keeps ambulance standy by at berth and provides First Aid and burn treatment to the injured.

DEPARTMENTAL ACTION - ADMINISTRATION BUILDING FIRE

DEPT	ACTION
Administration	First the discover-Raises Alarm (breaks glass-Uses Fire extinguishers to extinguish fire and Call 102. Dy Secretary will supervise the action. Secretary will be the overall incharge of the action group. Water should not be used for Electrical Switch Boards or on wiring as soon as an electrical fire is detected first the main switches should be put off. Handicapped persons should be helped to the outlet stairway which is unaffected by fire or smoke**.** Attendance register for the day and other important papers should be collected by the Administrative Officers present and taken along with them. The Sr. most Section Head on each floor will be last to leave the premises and prior this person does so, he will make sure that all the electrical switches are off. After incident is terminated, Secretary arranges alternative office space.
Fire	As soon as the information is reached, the fire personnel will proceed to the floor on fire and will commence extinguishing the fire with the installed water hose and extinguishers. The fire service personnel will assist in transfer of sensitive documents, evacuation and shut down of equipments initiates the search and rescue operations.
Civil Engineering	Dy.CE along with the on-site group survey & asseses the cost to rectify the damage portion of the building.
Elec & Mech Engineering	EE ensures isolation of the electric power to the administrative building.
CISF	Dy Commdt CISF cordons area .Executes Search and rescue with CFO. Keeps Commdt apparaised and requests for additional resources if required.
Medical	Dy CMO of On Site Action Group keeps ambulance standy by off Administration Building. Provides First Aid to the injured.

DEPARTMENTAL ACTION - FIRE AT CARGO STORAGE SHED

DEPT	ACTION
TRAFFIC	Shed I/c raises alarm (breaks glass and uses Fire extinguishers to extinguish fire Call 102(Fire). Puts the Mains switch off and informs Sr.DTM of on-site action Group and TM of Central Disaster Management Group. Shed I/c Mobilises all manpower in the area surrounding the site to bring the firefighting appliances in the area, to extinguish the fire. The senior most Traffic official on site will mobilize all the work force, labour and cargo handling appliances available in the area. Addl. TM ensures the removal of all the unaffected cargo from the shed to a safe place.with special reference to hazardous cargo. Sr.DTM ensures that the details of types of cargo and quantity of cargo in the shed should be kept ready and given to of Port Fire Service who comes first to the scene of the fire. Dy.TM shall ensure that the labour working inside the shed are assembled for a head count .
	Fire Service arrives with fire tenders and resources and takes over Fire Fighting & conducts search and rescue assisted by CISF.
HM	HM Informs DC of Central Disaster Management Group the status and Emergency leve of the incident & ensures pilots are on Stand by for shifting out vessel opposite the shed if required. Also directs fire fighting tugs to spray sheds if required. Keeps mooring crew and launch standby to unberth vessel
Civil Engineering	Addl. CE along with the on-site group survey & asseses the cost to rectify the damage portion of the Cargo storage shed.
E& M Department	EE ensures isolation of the electric power to cargo storage shed.
CISF	Dy Commdt CISF cordons area .Executes Search and rescue with Fire Service. Keeps Commdt apparaised and requests for additional resources if required.
Medical	Dy CMO of On Site Action Group keeps ambulance standy by off Administration Building. Provides First Aid to the injured.

DEPARTMENTAL ACTION - OIL OR CHEMICAL POLLUTION

<table>
<tr><th>DEPT</th><th>ACTION</th></tr>
<tr><td>Marine and Vessel</td><td>Port Control contacts Dy. Conservator/ Harbour Master about the incident.
HM Advises DC the level of emergency
Keeps tugs, pilot, mooring boats standby and oil recovery craft, tugs for dispersant. Port Control informs Fishery Department of the pollution
Dy Conservator will inform the status to Chairman and ensures that the penalty imposed if the incident is caused by the vessels negligence is in accordance with the Major Port Trust Act. Sends notice to Master holding vessel and owners liable for the incident indicating projected expenses.
The Master of the Vessel will submit the oil Spill report to the Dy Conservator signed and stamped with vessels official seal in the following format.
<table>
<tr>
<td>• Name of the Vessel & IMO no
• Name of the Master
• Call Sign/Flag/Year Built/Class
• Port of Registry
• Owners Name, address fax/tel
• Charterers Name, address fax/tel
• Name of P& I Club & Local Corr</td>
<td> Copy of oil record book
 Date and Time of Spillagr
 Cause of Spillage
 Location
 Type and quantity spilled
 Immediate action taken
 Weather conditions</td>
</tr>
</table>
</td></tr>
<tr><td>Fire</td><td>Fire Service arrives with fire tender and stands by in case there will be fire.</td></tr>
<tr><td>Traffic</td><td>Addl. TM reconfirms stoppage of cargo operations to tank farmsl.</td></tr>
</table>

	TOXIC GAS		

DEPARTMENTAL ACTION - AMMONIA GAS RELEASE

DEPT	**ACTION**
Marine and Vessel	**A-VESSEL ACTION** Sounds internal alarm & contact Port Control and CFO about the status on VHF 16/15/14. and initiates the vessel response plan. Ceases all cargo operations and advises the loading master to close all the manifold valves & disconnects hoses and consults with HM for unberthing. **B- PORT CONTROL STATION** Radio Operator informs DC-HM-TM-Comdt CISF-CFO HM appraise DC about the level of the incident and activates the on-site action group and instruct all other vessel at berth to take precautions due to the leakage. Keeps tugs,launches and mooring crew stand by to shift the vessel from the berth.
Fire Service	CFO arrives off berth and positions themselves upwind with suitable protective clothing with face masks,gloves and breathing apparatus and coordinates with the on-site action group.
Traffic	**TM** confirms stoppage of cargo operations Shift Manager shuts down discharge operations and disconnect the Chickson arm and actuates the emergency response plan.
	HM discusses with the Jetty shift Manager of and CFO and Master to ascertain the status and emergency level, if thelevel is II or III then informs DC of Central Disaster Management Group.
E&M Department	Ensures adequate lighting near the area and assembly areas
CISF	Commdt CISF cordons off area,and arranges evacuation from upwind site
Medical	Dy CMO of On Site Action Group keeps ambulance ready for medical treatment.
Administration	Secy assists to Chairman to prepare media statement & reports to MOS.
Marine	DC to ensure that the master of the vessel gives details in the format given below and contact the agent of the vessel for compensation if the incident is due to the vessel.
	• Name of the Vessel & IMO no • Name of the Master • Call Sign/Flag/Year Built/Class • Port of Registry • Owners Name, address fax/tel • Charterers Name, address fax/tel • Name of P& I Club & Local Corr Copy of COFR & oil record book Date and Time of Spillagr Cause of leakage Location Quantity leaked

	TOXIC GAS LEAK		

SUMMARY FLOW CHART-CONTINGENCY PLAN AMMONIA GAS LEAKAGE

2-Signal Station- Control room inform **GAS KEAKAGE**

SHIPS CREW-

S

1 WITNESS-PORT

1-Master of vessel raises alarm-cont blasts of ship whistle-VHf Stops cargo work-closes valves

4-**Harbour Master** Activates Alert-Alarm Activates Action Group and Control Centre Places tugs and mooring crew on standby Declares Emergency level Instructs Signal Stn to contact Mutual Aid Partners

3 **ON SITE ACTION GROUP -Activated** Harbourmaster-Duty Pilot-CFO -Supdt Engr M-Supd Engr C-Supdt Engr E- Dy C Med Officer-Dy Traffic Manager(ops)-

CENTRAL DISASTER MGMT GROUP- Activated

Chairman/Dy Chairman-Dy Conservator-Chief Eng(C)- FA&CAO-CE & ME-Chief Med Officer-Secretary-Traffic Mgr –Materials Mgr-Commandant CISF

5 **RESPONSIBILITY ACTION BY**

Protect response operators from harmful ammonia-clothing/gloves/BA All Disconnect Chickson arm – Actuates Emergency plan Shift Manager FACT Determine source of leakage and stop it-spray water on leak block jetty valve Fire & v/l

Evaluate extent of spill & wind direction Fire & v/l

UPWIND ROUTE part or full AREA CFO Inform adjacent ships and their agent's - toxic leakage. HM Terminal to isolate sphere-empty out line with tanker compressor-repair-test

If at Emergency level III Activate - Off Site Plan & Advise Group members – Chairman

HEALTH & WELFARE 6

Evacuate CISF

Notify appropriate hospitals **CMO**

Provide Medical Aid CMO

Shut off Bldg airconditioners Dy Secy Gen Evaluate toxicity Terminal

Evaluate risk to population MOE

Set up emergency center Port/Terminal

PUBLIC INFORMATION 7

Keep diary of events - CFO / Secy Prepare press conference - Port

Inform the media and local authorities- Port

Photograph or video film the events- Port&press

FINAL MEASURES **8**

RESPONSIBILITIES	**ACTION BY**
Evaluate contaminated area	Response operator
Evaluate cause of leakage	Response operator
Recover emergency equipment	Response operator Re
establish access by sea and land	Port & Coast Guards

Question witnesses, completion of enquiry Port or District if at Level 3

SECTION-2	**VESSEL ACCIDENTS**		

COLLISION : PORT FLOTILLA AND VESSELS CALLING AT COCHIN PORT

SHIPBOARD-PORT EMERGENCY PLAN	**COLLISION**	
Action to be taken	**ACTION BY PORT**	**ACTION BY VESSEL**
1.Stop the vessel and take appropriate action. 2.Sound Emergency Alarm: 3.Check for possibility of oil pollution		Master
- Establish communication with other vessel and exchange information - Advise other vessels to keep clear-Hoist NUC Lights 3- Advise port for assistance - Advises agents of status requests surveyors-Class- P&I- Salvage association- - Secure evidence and maintain adequate records	HM with on-site action group.	
- Inspects/assesses damaged area& in - case of oil leakage determine whether de-berthing of the vessels will increase oil spill rate. - Ascertains oil pollution-ascertains leak source 3- Harbourmaster and Master of vessel to inspect vessels 4-Sounds all bilge, ballast and fuel tanks 5-Transfer oil from leaking tanks 6-Effects damage control and temporary repairs to stop oil leakage if any with the assistance of port action group and underwater welding team or salvage group	HM with on-site action group Coast Guard + Salvage efforts	Vessel emergency action group team
1-Provides First Aid	HM + Dy.CMO.	
1- Attend engine room controls and services 2- Investigate engine room for damages and water ingress 3- Check steering gear 4- Reports status of the main engine and auxiliaries to Harbour master	HM	Vessel Engineering team.

FIRE / EXPLOSION

CHECKLIST FOR USE IN EMERGENCY

SHIPBOARD EMERGENCY PLAN FIRE / EXPLOSION OFF BERTH

Action to be considered	Action taken	Responsibility
IMMEDIATE ACTION		
Consider sounding Emergency Alarm:	Yes/No	Person discovering incident
Initiate vessel emergency response procedure:	Yes/No	Officer on duty
INITIAL RESPONSE		
Cease all cargo and / or bunkering operation: Close	Yes/No	Ch. Eng. / Officer on duty Ch.
manifold valves:	Yes/No	Eng./ Officer on duty Chief
Fire squads to position deemed best for fighting the fire:	Yes/No	Engineer/ Ch.Off. Master /
Inform terminal/loading master/bunkering personnel:		Officer on duty/ Chief Engineer
	Yes/No	
SECONDARY RESPONSE		
Stop air intake into accommodation:	Yes/No	Chief Engineer Chief Engineer
Consider to stop non-essential air intake to engine room:	Yes/No	
Determine the extent of the damage, and decide what		Master / Chief Officer Chief
damage control measures can be taken:	Yes/No	Officer
	Yes/No	Master/Ch.Off./Ch.Engg.
Determine whether there are casualties:	Yes/No	Ch.Off./Deck Duty heads
Contain the fire and prevent it from spreading to other	Yes/No	Master
parts of the vessel:	Yes/No	Chief Officer Master Master
Assess health hazards from smoke:	Yes/No	
If possible, position the vessel to minimize the wind effect:	Yes/No	
Start recovering of any casualties:	Yes/No	
Notify authorities and outside organisation, as appropriate:		
Evaluate evacuation of non-essential crew:		
FURTHER RESPONSE		
Assess the possibility of pollution from leakage: Fit	Yes/No	Master/Ch.Off./Ch.Eng. Duty
scupper plugs if spillage on deck:	Yes/No	Off. / Dk Dutyheads Chief
Check all tanks and compartments:	Yes/No	Officer
Alter trim if necessary:	Yes/No	Chief Officer
Transfer bunker internally, if required: Require assistance	Yes/No	Chief Officer/Ch. Eng. Master
as deemed necessary: Comply with reporting procedures:	Yes/No	Master
If required, obtain permission from local authorities and/Or	Yes/No	
the terminal to continue normal operation		Master
	Yes/No	

BUNKER SPILL/LEAKAGE

CHECKLIST FOR USE IN EMERGENCY		
SHIPBOARD OIL POLLUTION EMERGENCY PLAN		**BUNKER SPILL/LEAKAGE**
Action to be considered	Action taken	Responsibility
IMMEDIATE ACTION Consider sounding Emergency Alarm: Initiate vessel emergency response procedure:	 Yes/No Yes/No	
SECONDARY RESPONSE Consider to stop air intake into accommodation/engine room: Reduce the tank level by dropping bunker into an empty or slack tank: Assess fire risk from release of flammable substances, or health hazards from toxic substances: Prepare pumps for transfer of bunkers to shore/barge, if necessary: Prepare spillage overboard, if necessary, by adjusting ship trim: Contain spill with seals or absorbent materials: Prepare portable pumps where it is possible to transfer spill into an empty or slack tank: Check scupper plugs for tightness: Man fire station on deck if necessary: Consider notification of authorities:	 Yes/No Yes/No Yes/No Yes/No Yes/No Yes/No Yes/No Yes/No Yes/No	
FURTHER RESPONSE Clean-up as required by using material from provided contingency unit: Transfer deck washing into slop tank: Ensure that residues collected in the clean-up operation are stored carefully prior to disposal: Comply with reporting procedures: If required, obtain permission from local authorities and/or the terminal to continue normal operation:	 Yes/No Yes/No Yes/No Yes/No Yes/No	

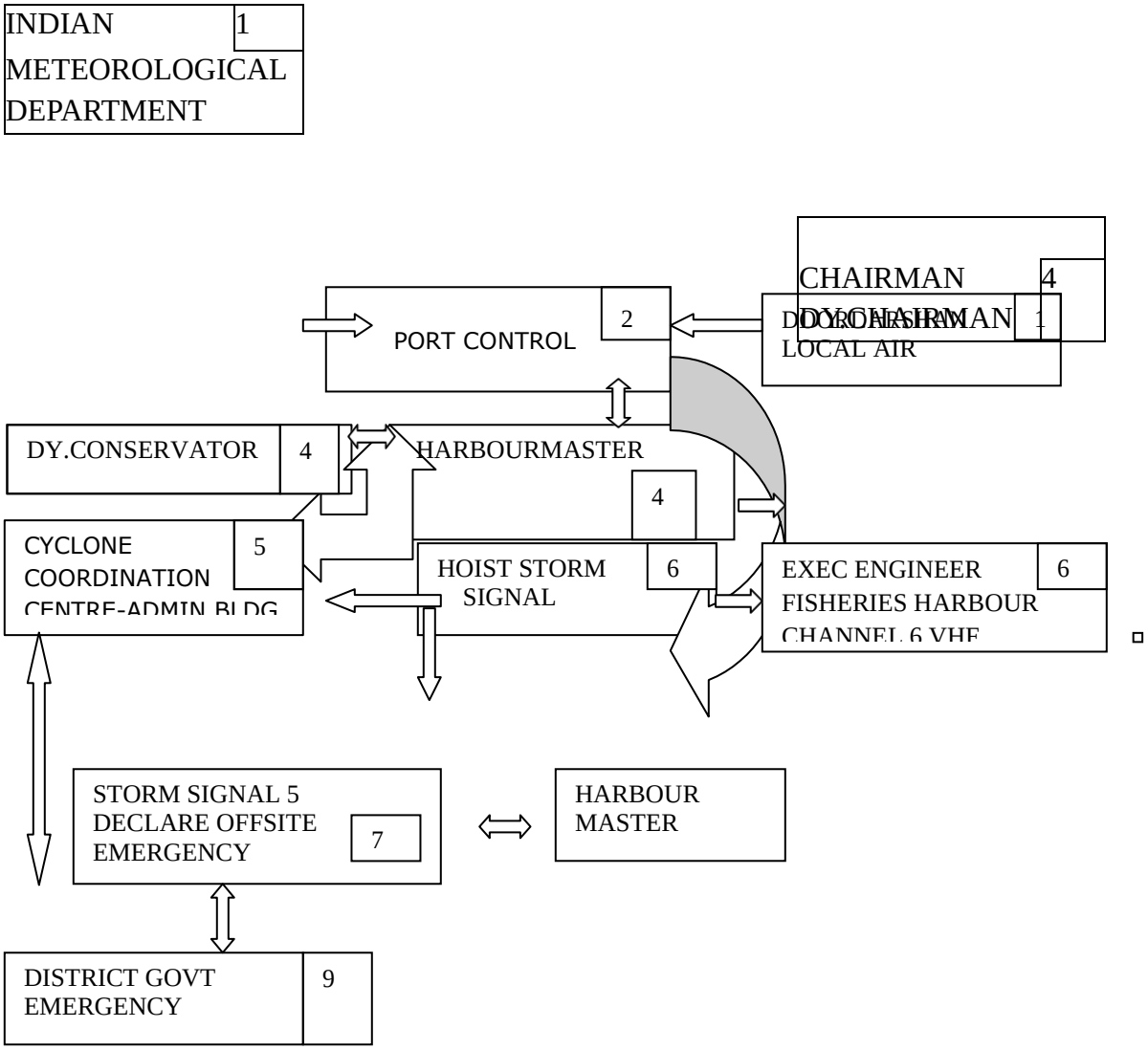
VESSEL GROUNDING IN PORT- DETAILED ACTION BY PORT

ACTION BY MARINE DEPT	DETAILS OF SPECIFIC ACTION
1-Master/Pilot	Contacts Port Control on VHF Ch 16 or Ch 14 and informs position of incident
2-Port Control	Informs HM, Dy Conservator and Coast Guard All vessels arriving and departing Cochin will be informed of the incident
3-Dy Conservator	Informs coast guard for rescue of the grounded vessel.
2-Harbour Master	Activates the on-site action group and assesses the situation, tide,wind direction,& inform DC. Through the Port Control advises all Pilots to report on duty
3- Sr. Pilot	Organises available tugs,launches, and keeps crew stand by and awaits instructions of the HM/Dy Conservator
4- Hydrographic Surveyor	Proceeds by survey launch to vessel and obtains soundings around the vessel by the echo sounder and the hand lead.
6-Master of grounded vessel	Records soundings of all tanks and also records draft, arrange soundings by hand lead around the vessel. Examines the soundings and draft around the vessel for transfer of bunkers, ballast or shift cargo to refloat vessel. Tow ropes to be kept ready
7-Master and Harbour Master	Commence preparations for towing operations 2 hours before high tide . Vessel engines to be kept stand by to assist in the refloating operations. Takes all anti oil pollution measures.
8-Port , Navy or Coast guard & Salvage efforts	Hull leakages to be attended to by under water welding by the Navy/coast guard or other available diving firms.

SINKING OF VESSEL IN PORT 12.5

ACTION BY PORT Marine DEpt	DETAILS OF SPECIFIC ACTION	ACTION BY VESSEL
HM	**Ensures vessel is cleared of the channel / turning basin or berths to suitable area for normal traffic.**	Activates the vessel action group
Port Control	Informs HM, Dy Conservator of the accident.	
HM and Pilots	Proceeds to the area with Tugs and conducts Rescue operations.	Lower life boats
Dy Conservator	Appriase to the Chairman and Dy Chairman and members of the Central Disaster Management group about the incident.	
HM / Navy / Coast Guard	HM to initiates the rescue operation of the person on board .	

SECTION CYCLONE ALARM AND RESPONSE



CLASSIFICATION OF TROPICAL DISTURBANCES OVER THE INDIAN SEAS

Classification Of Tropical Disturbances	**Speed kmph**	**Speed knots**
Low	< 31 kmph	< 17 knots
Depression	31 – 51	17 – 27
Deep Depression	52 – 62	28 – 33 kts
Cyclone	63 – 87	34 – 47 kts
Severe Cyclone	88 – 117	48 – 63 kts
Very Severe Cyclone	118 – 221	64 – 119 kts
Super Cyclone	222 kmph & above	120 kts & above

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SECTION 3	**CYCLONE**		**USEFUL WEB SITES FOR T** 1- www.imd.ernrt.in 2- www.supertyphoon.com/Indian.html 3- www.npmoc.navy.mil/products 4- www.solar.ifa.hawaii.edu/tropical/tropi 5- www.underground.com/tropical

CYCLONE CONTINGENCY PLAN

The Cyclone Contingency Plan will come into force as soon as the storm **warning signal No.5 or** higher is hoisted or when the Port organization has gathered enough data to **forecast that a cyclone threat is close.**

1. The Cyclone station will come into operation at the Signal Station.
2. The Harbour Master will be in charge of the Cyclone Station..
3. Storm warning signals will be hoisted at the Cyclone Station.
4. HM will inform the Chairman, Dy Chairman and heads of Depts by telephone/Mobile the status of worsening weather conditions and storm signals.
5. A cyclone coordination centre will be made functional in the Administrative Building headed by Secretary.
6. The Cyclone Coordination Centre will be in constant touch with Port control and District , Local Administration for rescue and relief operation.
7. All other departments to operate their respective control rooms .Port control, cyclone co- ordination centre and control rooms will function round the clock and will be closed only after obtaining the necessary orders from the Chairman.

MARINE DEPARTMENT

I - HARBOUR MASTER

Under the overall supervision and responsibility of the HM, the specific duties of marine personnel will be as below:

1- He will be responsible for the operation of the Signal Station and will issue necessary standing orders for the purpose.

2- He will keep close liaison with Radar Station, Police Wireless Station, Coast Guard and Ships in Port regarding weather conditions.

3- He will prepare special signals and promulgate them to the Masters of the vessels, dredgers, tugs and any

other crafts in Port. He will inform the Masters of all vessels at the berths to double the moorings, put out insurance wires and to keep engine ready to proceed out to sea if situation warrants. Decision regarding sending ships to the anchorage will be taken depending on the strength of the wind likely to be encountered and number of vessels in the Port.

4- He will maintain a close liaison and co-ordination with the Marine Engineering Supt.(MES) for arranging staffs for manning the Port Crafts.

II-PORT CONTROL

1- The staff of Port Control will remain on duty until they are relieved by next shift staff or till alternative arrangements are made or till the storm has passed or as per the HM instruction.

2- Every two hour barometer reading will be recorded after cyclone warning signal No.3 is hoisted but the same will be made hourly if further upward signal is placed.

3- One Aldis lamp with battery will be kept ready at signal station.

4- The Port Control will maintain a continuous watch on channel 16. Port Control will keep Harbour Master informed of all the messages received by telephone, VHF sets or by messenger.

5- Port Control will inform the Harbour Master of any buoys or crafts are seen adrift or any Port installation is seen or informed to be in danger.

1. The staff on duty will have sufficient provisions to stay on duty for a period ranging from 24 hours to 48 hours.
2. Port Control receiving any weather related facsimile report will pass on to the HM.
3. Continuous watch to be kept on CWDC. On receipt of any warning, the same shall be reported immediately to the cylone co-ordination centre.
4. Port Control will be responsible to ensure that Weather messages are intimated to the Executive Engineer, in charge of Fishery Harbour on Channel 6 over VHF.

III - TIDAL OBSERVATORY-

The Gauge Clerk will record the range of tides, times and heights of high and low water who will in turn apprise the Dy Conservator / HM and or Sr pilot on duty of the actual and predicted tides.

IV. Hydrographic Surveyor /PILOT

The above officers will assist the HM at the Cyclone Station. One Pilot has to be kept standby to proceed on board anywhere in the Port as required.

V. Master Tug (Floatilla)

1. Master Tugs (Floilla) will detail one shore gang consisting of minimum one Serang, one Tindal and 10 laskars to remain on duty as emergency duty squad unit being relieved by the next shift staff or until Harbour Master instruction.
2. Master Tugs (Flotilla) will take all necessary steps for the safety of the Port crafts and should ensure that all other crafts are placed at safe place and properly secured excepting one pilot launch and one stand by launch used for inspection and emergency duties.

3. He along with emergency squad will make frequent round (minimum two hourly) to check the safety of Port Crafts.
4. Fender and extra lengths of ropes/wires will be kept ready so as to attend to any craft whose moorings may part.
5. Master Tugs (Flotilla) will inform the cyclone station immediately in the event any craft is seen adrift or any other Port installation is seen in danger
6. He will also keep a listening watch on his walkie talkie set for information.

MASTER OF TUGS / PILOT LAUNCHES AND OTHER LAUNCHES

1. Masters of respective crafts will instruct their staff to remain on board until they are relieved by next shift staff or Sr Duty Pilot releases them from duty.
2. Masters will shift their respective crafts at suitable places as directed by the Harbour Master and will secure them suitably with additional moorings. Masters of respective crafts will be responsible for proper securing and safety.
3. Masters will keep the engines of their crafts ready to proceed at short notice as per the instructions Harbour Master.
4. Extra fenders will be kept ready on board of the Tug for use as required.
5. If any craft is seen adrift or any other port installation is seen in danger, the Master of the crafts will immediately inform the cyclone station.

The cyclone mitigation team shall be headed by Depy. C.E. & Dy C.M.E. with Engineering Supdt ., DyCE (Electrica)l in the control room.

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The Departmental vehicles as well as the hired taxis of the department shall be deployed for the above purpose.

PRECAUTIONARY MEASURES

1. Cyclone warning signals shall be communicated to all field units from the control room.
2. The field units shall communicate the signal to all the staff of the Divisions.

GENERAL FUNCTIONS OF FIELD UNITS

1. All the equipment shall be properly secured.
2. Safety of workmen on duty shall be given priority during work
3. Operator's cabin doors of all the equipment and vehicles shall be kept shut.
4. Important documents/files/records at site must be stored well above the floor.

Main Control Room:

1. Power should be shut-off, breaker should be made-off and doors should be closed.

Port Electrical Division

1. On receipt of directive from the EE , the power supply of main sub-station to be made off and communication system from control room to the sub-station to be kept operative.
2. Walkie talky hand sets must be made available in all the substation for establishing communication
3. Two emergency vehicles should be kept stand-by for attending to various duties.
4. EE will have a temporary advance if required to meet the contingency expenditure.

Marine Engineering Division

1. Engine room entrance doors, sky lights etc. of all the floating crafts to be kept shut.
2. All the heavy equipment and vessels must be secured in sheltered locations and operator's cabins must be kept shut.
3. Special care shall be given for securing the crane boom.
4. Marine Engineer Superintendent will have a temporary advance if required to meet contingency expenditure.
5. Crafts are to be manned as per Marine Engineer Suptd.

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. **Harbour Master Division**

1. All port tugs and launches are to be secured in a safe place with good mooring ropes.
2. Water tight doors, skylights, exhaust flaps have to be kept shut to avoid ingress of rain water.
3. All the deck openings, sounding pipes, air vents, booby hatches etc should be shut properly.
4. All the crafts have to be manned as per direction of Harbour Master.
5. Harbour Master shall ensure that vesels are having adequate fuel, fresh water, provisions for at least three days.

SECTION 3	**CYCLONE**		

CIVIL ENGINEERING DEPARTMENT

1 - Public Health Division

Executive Engineer, Public Health Division will ensure the following:

1. The staff as per usual shifts is deployed at each of pump house during cyclone.
2. A sufficient quantity of bleaching powder, alum etc. and the water treatment plant is kept ready for water treatment during cyclone period.
3. As soon as the contingency plan is made operational all the water tanks should be filled up and standby arrangement for supply of water to be made with special provision for the hospital.

2- CM(I & II) Division

The following actions will be taken:

1. The Executive Engineer will post one Asst. Engineer exclusively to look after navigational aids, fenders; transit shed doors and roofs etc. along with necessary staff.
2. The Executive Engineer will deploy one Asst. Engineer along with necessary staff to look after the shore protection wall condition & if any breach is noticed along the side of the shore protection wall, immediate steps should be taken up for it's repair.
3. For the above purpose he shall keep ready 3,000 to 4,000 empty cements bags to be used.
4. All measures to be taken to minimise uprooting of trees.

3 - Fishing Harbour

The CE&Administrator (CFH) should take adequate steps to protect the infrastructure of Fishing Harbour before the cyclonic weather.

TRAFFIC DEPARTMENT

1- Operation

Deputy Traffic Manager (Operations) will take the following measures:

1. All loading/unloading of cargo operations to be ceased.
2. All the cargoes under Port's custody, lying outside and likely to get damaged, will be shifted to Transit Sheds/Ware Houses.
3. Doors of the sheds will be closed and properly secured.
4. He will visit the site and inspect the arrangements.

2- Railways

Co-ordinate with railways to ensure the following

1. Yard Master personally takes over the charge of yard supervision instead of leaving the same to shift staff.
2. Movement of wagons is stopped when wind speed exceeds the operational limit (70 KM per hour).
3. All the rolling stock on tracks is clamped / chained both in Port area and exchange yard and the locomotives are returned to the Loco Shed.

SECTION 3	CYCLONE		

ADMINISTRATION DEPARTMENT

1. The Secretary will remain overall in-charge of the Cyclone Coordination Centre.
2. The Secretary shall make a duty roster for the manning of the cyclone coordination centre by the officers of Administrative, Finance & Accounts and Materials Management Department.
3. The Co-ordination Centre will keep constant touch with the Local & District Administration for rendering necessary assistance.
4. The port Public Relations Officer will ensure announcement by the mike in the Wellington Island indicating the precautionary measures to be taken.
5. The Secretary will make necessary arrangement in coordination with the local administration for evacuating people from the low lying area. They will be shifted to relief centres as designated by District Administration.
6. The Secretary will hire basic transport .He will also detail Officers to remain in-charge of various relief centres.

FINANCE & ACCOUNTS DEPARTMENT

1. All the department may inform the FA&CAO Office the amount of cash required by them so that the same can be kept in advance and can be disbursed by one of the Officers of the Finance & Accounts Department as per need.

MEDICAL DEPARTMENT

1- The casualty ward is to be manned by one Specialist in addition to the regular Doctors attending.
2- The Ambulance has to be kept standby near the casualty ward.

MATERIAL MANAGEMENT DIVISION

The Dy.Manager (Materials) will ensure the following :

1- During cyclonic season sufficient stock of stores like Polythene, J.Hooks, screw hinges, gunny bags, tarpaulins, ropes and wires for Port Crafts, diesel oil, kerosene oil, petromax lamps, torch lights with batteries and bulbs, electrical items etc. are kept.
2- All the materials which are likely to get damaged with rain are covered with tarpaulin.
3- One Stores Supdt., one Store Keeper and the other minimum staff required to issue materials including POL are kept during emergency.

CENTRAL INDUSTRIAL SECURITY FORCE

The .Commandant, CISF will make arrangement for the following**:**

1- To keep extra vigil on the following stores/buildings which are likely to be affected by the

Cyclone.

1- Electrical sub section 2- Central Stores	3-Tanker berths 4-Cargo Berth 5-Transit Sheds	6- Ware Houses 7- Administrative Building

2- Till normalcy is restored, arrangement will be made for thorough checks on all out-going vehicles to guard against pilferage.

3- Round the clock patrolling duty shall be introduced along the electric lines to guard against the removal of copper wires which are likely to be grounded during cyclone.

4- A special task force to be set up by the CISF for the rescue operation.

GENERAL INSTRUCTIONS

1- Assistant Secretaries/Office Superintendents/Head Assistant/ Divisional Accountants will ensure that the doors and windows are properly closed prior to leaving the office

2- All important files are stored in secure cupboards

POST CYCLONE DUTIES

1. All the Heads of the Departments are required to assess the damage and submit a detailed report indicating the estimate to the Chairman. For this, a team may be formed comprising Sr.Pilot, Dy Traffic Manager, EE (Elect) EE (Mech) EE(Civil) and assisted by one representative from the Finance Department. The preliminary report is to be submitted within 48 hours and detailed report within four days from the date of normalcy .
2. Hydrographic survey is to be conducted to assess the channel condition and ensure resumption of shipping as early as possible.
3. In case of any small craft sunk or grounded, the same to be removed to make the channel/berth safe for navigation.. HM will detail a salvage party headed by the Master Tugs for this purpose.
4. A team of Officers to be nominated by the Administrative Department to supervise the rescue and relief operation and disposal of animal carcasses in coordination with the local and District Administration.
5. Preventive measures for epidemics to be taken by the Medical Department .
6. All the operating systems to be attended urgently and made operational as early as possible on a war footing basis to resume operation.
7. Spot tendering procedure shall be followed for repairs up to Rs.2 lakhs by the concerned Executive Engineers**.**
8. Water supply and electricity to be given priority. The electrical cabling net work to be checked area-wise. The inspection team to be decided by the Addl. CE&ME for obtaining clearance to resume power supply.
9. All damaged temporary roofed houses in the port premises will be attended to.
10. The Manager Materials will nominate a team for the procurement and supply of essential materials for repair of various structures and equipment as reported.
11. To assess the progress of repair works, Heads of Depts meeting will be held daily till normalcy is restored.
12. Assistant Secretary /Head Assistant may prepare a list of files if damaged and report to theHeads of Depts.

SECTION 3	**FLOODS**		

ACTION PLAN FLOODS-SIMILAR TO CYCLONE

DEPT	**ACTION**
MARINE	Signal Station passes weather message to HM and DC HM places on-site action group alert DC apprises Chairman of weather developments who places Central Disaster Management Group on alert if necessary.
Civil Engg	• Drainage system of the port i.e inside harbour area & out side harbour area should made cleared. • Trailer mounted portable Diesel pump sets to be made standby with sufficient length of hose pipes. • Sand bags to be used around sensitive areas including water supply Pump stations electric sub stations
Elec & Mech Engg	• All the outside installations and equipment shall be properly secured. • Cyclone field units to be made alert
Administration	To make standby arrangements for transportation to evacuate population in low lying areas to cyclone centres and relief centres & arrange food and water.

SECTION 3	EARTHQUAKE		

ACTION PLAN **EARTHQUAKE** **SECTION**

EARTHQUAKE PREDICTIONS

Local earthquake are difficult to predict Cochin is in Seismic Zone 1& 2(lowest risk) which is quite safe as compared to Gujarat which is in zone 4 & 5(highest risk)

- Frequency of tremors as reported in the newspapers, TV and radio
- Rattling of doors and windows on high storied building
- Unusual barking of dogs and zoo

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CHARACTERISTICS-QUAKE

-Magnitude

-Focal depth

-location of quake center

-Rupture length

-Rupture orientation

PROPERTY-characteristics

-Distance from focus

-Soil conditions

RELIEF WORK AFTER AN EARTH QUAKE

DEPT	ACTION
Chairman	To contact the District Collector, Relief Commissioner, Army, Navy, Coast guards and seek assistance.
Dy Chairman	To assist the Chairman to assess relief requirements
Administration	Secretary – To arrange for food, shelter and transportation. And assist the Chairman and Dy Chairman for all relief arrangements
Elec & Mech Dept.	CME–To provide and hire if necessary, earthmoving equipments,cranes, forklifts, bull dozers,pneumatic hammers.
Civil Eng Dept.	CE to deploy engineers to direct or guide earth moving equipment and cranes to remove the debris
Traffic	TM to ensure safety of cargo in cargo sheds and at rail siding
Marine	Dy Conservator to ensure the safety of Port Marine craft and vessels alongside
CISF	Commandant CISF to organise Search and Rescue of persons trapped under debris.
Fire	To assist in Search and Rescue operation.
Medical	CMO to ensure provide of proper Medical Aid to the injured

If you are outdoors, find a clear spot away from buildings, trees, streetlights, and power lines. Keep lying on the ground and stay there until the shaking stops. Injuries can occur from falling trees, street-lights and power lines, or building debris.

If you are in a vehicle, pull over to a clear location, stop and stay there with your seatbelt fastened until the

shaking has stopped. Trees, power lines, poles, street signs, and other overhead items may fall during earthquakes. Stopping will help reduce your risk. Once the shaking has stopped, proceed with caution. Avoid bridges or ramps that might have been damaged by the quake.

Stay indoor until the shaking stops.

SECTION 3	**TSUNAMI**		

ACTION PLAN TSUNAMI SECTION

CHARACTERISTICS- Tsunamis are a series of enormous waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. A tsunami can move about 500 miles per hour in the open ocean. Once the wave approaches the shore, it builds in height. The topography of the coastline and the ocean floor will influence the size of the wave. There may be more than one wave and the succeeding one may be larger than the one before. Drowning is the most common cause of death associated with a tsunami.

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WARNING/CONFIRMATION

Met . Station
COAST GUARDS

DEPT	**ON SITE ACTION GROUP**
MARINE	HM through Signal Station informs all the ship to evacuate from the berth to open sea. Signal Station keeps in touch with all vessels on VHF
	Harbour Master to move tugs and launches to safe areas or deep water anchorages Crew to wear life jackets
ADMINSTRATION	Dy Secy to arrange transport to evacuate to safer inland areas
TRAFFIC	Dy.TM ensures stoppage of all cargo operations of vessels.
Civil Engineering Department	Addl CE to ensure sand bags is kept ready.
Elec & Mech Department	Addl.CE&ME to ensure proper secure of the cargo handling equipment and the shore cranes.

	CENTRAL DISASTER MANAGEMENT GROUP
Chairman	Activates Central Disaster Management Group
Marine	DC to apprise the group leader of the Central Disaster Management Group of any developments and early warning Systems.
Administration	Secretary to keep in constant touch with state Govt.

SECTION 4	BOMB THREATS		

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SECTION BOMB THREATS

DECISION ELEMENTS	OBJECTIVE
-History of threats-local-national -Prevailing conditions of strikes, Industrial tension, political issues	• To avoid any loss to lives and property • To eliminate panic • To be prepared for the safe handling/disposal of a bomb

Dept	Action
CISF Security	1-Commdt CISF reports that Bomb Threat received by staff/outsider
	2-Recomends emergency classification II or III to chairman
	3-Requisitions of fire tender and ambulances and positioning them at a safe distance from the threatened or suspected area.
	4-Ensures evacuation of the workmen working inside the port area, if the threat is inside the probhibited area.
	5-Requisitions of BDDS(Bomb Detection & Disposal Squad) from Police Dept.

Checklists-Questions to Ask Bomb Threat Caller

- Threat received in []writing[]telephone
- On phone keep caller on line as long as possible
- Ask colleague to inform security to trace call-tape recorder
- Ask for []bomb location? []time of detonation? []
  What type of a bomb? [] How does it look? []
  How do you know so much about bombs?
- Advise caller of the loss of innocent lives as a consequence of a bomb detonation
- []Could he live with this guilt for the rest of his life
  []Whom does he represent? []Why is he doing this?
- Background Noises []music,[]airport[]railway []factory[]tel. booth []Residence-to trace place of call
- Check voice characteristics; Male[] Female[] Voice Quality-[]Calm []excited []Anger
- Age[] Accent-[]local []out of state []foreign []disguised
  Speech Impediment []stammer []slow []educated
  [] laughing []deliberate []familiar

SECTION 4	STATE OF WAR		

DEPT	ACTION
PRESIDENT & PM	DECLARATION OF WAR
CHAIRMAN	1. TO ACTIVATE CENTRAL DISASTER MANAGEMENT GROUP AND ON SITE ACTION GROUP 2. CONTACT AND COORDINATE WITH CISF,INDIAN NAVY , COAST GUARDS & INDIAN ARMY.
CISF	COMMANDANT CISF Implements blackout in port
MARINE	HM- 1. Ensures all vessels at anchorage to observe blackout 2. No night movements **PORT CONTROL** The Sr. Pilot ensures proper following of the Naval Instructions to inbound vessels.
TRAFFIC	DTM ensures shut down of all cargo operations after sunset. Ensure workers within perimeter of dangerous/chemical tank farms shifted to safer perimeters All other workers to move out of port probhited area during night.
ELEC & MECH Dept.	**CME to** ensure in keeping essential services working during day and night.
MEDICAL	**Deputy Chief Medical Officer** to ensure ambulances and first aid staff kept in readiness on 24 hour basis
FIRE	ON ALERT TO ASSIST CISF

SECTION 5	**LOCAL STRIKE PLAN**		

Strike Contingency:

Major Ports represent a critically important asset of India's national economy. The working of ports & harbours requires certain key/essential services to be maintained. Ministry of Defence have issued a directive of contingency planning for Port's strike which has been communicated to the Port Trusts in Ministry of Transport, Department of Surface Transport (Ports Wing)'s letter No. PW/PTS-19/84 dated 1.7.1986. As per this directive the Armed Forces may be requested to render assistance as required by the Port authorities after the following conditions have been fulfilled:-

a) The strike is declared illegal by the Central Government.
b) All other avenues for making alternative arrangements have been fully explored by the Central Government and not found practicable.
c) The situation created as a result of the strike is so serious as to adversely affect the national interest.
d) A Gazette Notification is issued by the Ministry of Defence invoking sub-section (I) of Section 2 of the Armed Forces (Emergency Duties) Act, 1947 declaring services in the affected Port or Ports as essential.
e) Normally, the assistance will be limited to the resources of the local Naval Officer In Charge.

SECTION 5	LOCAL STRIKE PLAN		

Envisaged Tasks :

Navigation:

The shipping operation will be carried out from 0600 to 1800 hrs. VTMS/ Port Control will operate as the Control Room and will be manned by the HM/ Pilot.HM Office may be used as alternative. Pilotage duties will be done by the Pilots. Deputy Conservator will remain over all in-charge of the operation.

The manpower requirement for the Floating Crafts & Marine Site Office will be as follows:-

Hired Tugs (2 nos)	Full complement	
Pilot Launch	Normal complement	
Mooring Launch	Normal complement	
Standby Pilot Launch		
Standby Mooring Launch		

Employees those are not interested for taking part in the strike and willing for working during that period will be provided required protection

Boat service to be provided from NTB jetty and Vypeen jetty for staff coming to Administration block and Mooring shed.

The areas where assistance of navy would be required as per the directive of the Ministry of defence are enumerated as follows:

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- Maintenance of pilot services/pilotage.
- Berthing, unberthing, mooring and unmooring of vessels.
- Manning and operation of pilot launches, mooring boats, tugs and other auxiliary crafts.
- Operation of Port Signal Stations.
- The manpower requirement for this purpose is as follows :-

Floating Crafts & Marine Site Office:

CISF provide security & transport to Port Trust Pilots to carry out Pilotage of vessels. Hired tugs to be secured at safe berth with adequate protection to crew.

The tug and pilot launch will work in general shift and Mooring Launch in three shifts. All vessels should be properly locked to avoid sabotage.

Security of Port Trust Installations, Cargo & Personnel:

As per the directive, the State Police/CISF must ensure the security of the Port Trust property & personnel involved in rendering assistance.

The CISF shall ensure:

- Security of Port property, cargo and personnel.
- Security of personnel involved in rendering assistance.
- Fire fighting services of the Port Trust.

APPENDIX A MOS/OFF SITE-MUTUAL AID TELEPHONE NUMBERS

MINISTRY OF SHIPPING	**OFFICE TEL**	**RES TEL**	**WEB SITE- FAX NO**
Transport Bhavan, 1 Sansad Marg New Delhi 110 001			www.shipping.nic.in Fax 23715118
Minister	011-23710121	23359111	
PS (Minister)	23711252	23321010	Fax 23715118
Secretary Ministry of Shipping	23714938	24674955	Telefax 23716656
Adll Sey & Financial Advisor	23710140	26898958	
Joint Secy (P)	23711873		
Dredging Corp of India Limited			http://www.dredge-india.com
Directorate General Shipping	91-22-22613651	Fax. -22613655	dgship@dgshipping.com
Indian Ports Association			www.ipa.nic.in
Tariff Auth Major Ports (TAMP)			www.tariffauthority.gov.in
National Maritime Academy	24530343/44/45	Fax 044-24530342	www.nipm.in.nic.in
OFF SITE GROUP	**Office Tel**	**RES TEL**	**Address**
National Disaster Managemnt Group	011-25655014	Fax–011-25655003	New Delhi
District Collector	484-2423001	484-2372902	**Kochi**
Dy. Collector/ADM	484-2422282		Kochi
RDO Fort Kochi	484-2215340		Fort Kochi
Commissioner of Police	9497996990		
Dy. Commisioner L&O	9497996986		
Mayor	484-2369007		
Dy. Mayor	484-2362707		

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APPENDIX B	AMMONIA DATA		

ANHYDROUS AMMONIA: (MSDS) Material Safety Data Sheet

Description

Chemical Name: Ammonia, Anhydrous **CAS Registry No:** 7664-41-7 **Identification No:** UN 1005

Synonyms: Ammonia **Chemical Family:** Inorganic Nitrogen Compound

Formula: NH_3 **Molecular Weight:** 17.03 (NH_3)

Composition: 99+% Ammonia

Statement of Health Hazard Description

Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. Exposure to liquid or rapidly expanding gases may cause severe chemical burns and frostbite to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure.

Emergency Treatment Effects of Overexposure Eye: Tearing, edema or blindness may occur.if >700ppm

Skin: Irritation, corrosive burns, blister formation may result. Contact with liquid may produce a caustic burn and frostbite.

Inhalation: Acute exposure may result in severe irritation of the respiratory tract, bronchospasm, pulmonary edema or respiratory arrest.

Ingestion: Lung irritation and pulmonary edema may occur. ***Extreme exposure may result in death from spasm, inflammation or edema. Brief inhalation exposure to 5,000 ppm may be fatal.***

Emergency Aid: Remove patient to uncontaminated area

Eye: Flush with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing.

Skin: Flush with copious amounts of tepid water for a minimum of 20 minutes while removing contaminated clothing, jewelry and shoes. Do not rub or apply ointment on affected area. Clothing may initially freeze to skin. Thaw frozen clothing from skin before removing.

Inhalation: Remove to fresh air. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required.

Ingestion: If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth.

DO NOT INDUCE VOMITING!

SEEK IMMEDIATE MEDICAL HELP FOR ALL EXPOSURES!

Note to Physician ***Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.***

Special Fire-Fighting Procedure

Must wear protective clothing and a positive pressure SCBA. Stop source if possible. If a portable container (such as a cylinder or trailer) can be moved from the fire area without risk to the individual, do so to prevent the pressure relief valve of the trailer from discharging or the cylinder from rupturing. Fight fires using dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Cool fire exposed containers with water spray. Stay upwind when containers are threatened. Use water spray to knock down vapor and dilute **Extinguishing Media:** Dry Chemical, CO_2, water spray or alcohol-resistant foam if gas flow cannot be
stopped

Fire and Explosion Hazard Data **Flashpoint:** None

Flammable Limits in Air: LEL/UEL 16% to 25% (listed in the NIOSH Pocket Guide to Chemical Hazards 15% to 28%) **Auto Ignition Temperature:** 1,204°F (If catalyzed), 1,570°F (If un-catalyzed)

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Unusual Fire and Explosion Hazards

- Outdoors, ammonia is not generally a fire hazard. Indoors, in confined areas, ammonia may be a fire hazard, especially if oil and other combustible materials are present. Combustion may form toxic nitrogen oxides.
- If relief valves are inoperative, heat exposed storage containers may become explosion hazards due to

over pressurization.

Chemical Reactivity Stability

Stable at room temperature. Heating a closed container above room temperature causes vapor pressure to increase rapidly. Anhydrous ammonia will react exothermically with acids and water. Will not polymerize **Conditions to Avoid**

Anhydrous ammonia has potentially explosive reactions with strong oxidizers. Anhydrous ammonia forms explosive mixtures in air with hydrocarbons, chlorine, ethanol, fluorine and silver nitrate. Anhydrous ammonia reacts to form explosive products, mixtures or compounds with mercury, gold, silver, iodine, bromine and silver oxide. Avoid anhydrous ammonia contact with chlorine, which forms a chloramine gas, which is a primary skin irritant and sensitizer. Avoid anhydrous ammonia contact with galvanized surfaces, copper,

brass, bronze, aluminum alloys, mercury, gold and silver. A corrosive reaction will occur.

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Spill or Leak Procedures Steps to be Taken

Stop source of leak if possible, provided it can be done in a safe manner. Leave the area of a spill by moving laterally and upwind. Isolate the affected area. Non-responders should evacuate the area, or shelter in place. Only properly trained and equipped persons should respond to an ammonia release. Wear eye, hand and respiratory protection and protective clothing; see

Protective Equipment. Stay upwind and use water spray downwind of container to absorb the evolved gas. Contain spill and runoff from entering drains, sewers, and water systems by utilizing methods such as diking,

containment, and absorption. CAUTION: ADDING WATER DIRECTLY TO LIQUID SPILLS WILL INCREASE VOLATILIZATION OF AMMONIA, THUS INCREASING THE POSSIBILITY OF EXPOSURE.

Special Protection and Procedures Respiratory Protection

Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, MSHA/NIOSH approved respiratory protection that consists of a full-face gas mask and canisters approved for ammonia is required.

Eye Protection Chemical splash goggles should be worn when handling anhydrous ammonia. A face shield can be worn over chemical splash goggles as additional protection. Do not wear contact lenses when handling anhydrous ammonia.

Ventilation Local exhaust should be sufficient to keep ammonia vapor to 25 ppm or less.

Protective Equipment • At a minimum, splash proof, chemical safety goggles, ammonia resistant, gloves (such as rubber), and ammonia-impervious clothing should be worn to prevent contact during normal loading, unloading and transfer operations and handling small spills. Face shield and boots can be worn as additional protection. Totally-encapsulated chemical protective suit (TECP suit)" means a full body garment which is constructed of protective clothing materials; covers the wearer's torso, head, arms, legs and respirator; may cover the wearer's hands and feet with tightly attached gloves and boots; completely encloses the wearer and respirator by itself or in combination with the wearer's gloves, and boots

• Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable

safety and health exposure limits are exceeded. For a hazardous material release response, Level A and/or Level B
ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Physical Data Boiling Point: -28°F at 1 atm **pH:** N/A **Specific Gravity of Gas (air = 1):** 0.596 at 32°F
Specific Gravity of Liquid (water = 1): 0.682 at -28°F (compared to water at 39°F)
Percent Volatile: 100% at 212°F **Appearance and Odor:** Colorless liquid or gas with pungent odor
Critical Temperature: 271.4°F **Gas Specific Volume:** 20.78 Ft^3/lb at 32°F and 1 atm **Vapor Density (air = 1):** 0.0481 Lb/Ft^3 at 32°F **Liquid Density:** 38.00 Lb/Ft^3 at 70°F **Approximate Freezing Point:** -108°F **Weight (per gallon):** 5.15 pounds at 60°F **Vapor Pressure:** 114 psig 70°F
Solubility in Water (per 100 pounds of water): 86.9 pounds at 32°F, 51 pounds at 68°F
Surface Tension: 23.4 Dynes / cm at 52°F **Critical Pressure:** 111.5 atm
HEALTH = 3 FLAMMABILITY = 1 REACTIVITY = 0 PERSONAL PROTECTION = H

Waste Disposal Classified as Hazardous Waste due to corrosivity with designation D002, if disposed of in original form.. Suitably diluted product may be disposed of on agricultural land as fertilizer if permitted by local and National Regulations.. Keep spill from entering streams, lakes, or any water systems

APPENDIX C	PHOSPHORIC ACID		

Material Safety Data Sheet PHOSPHORIC ACID (CAS# 7664-38-2)

TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Corrosive liquid, n.o.s., (phosphoric acid, hydroxyacetic acid), 8, UN 1760, PG III

HAZARD CLASS: 8 **IDENTIFICATION NO:**UN 1760 DOT Emergency Guide #154

Reportable Quantity (RQ): 1000 gallons (phosphoric acid)

International:Corrosive liquid, n.o.s., (phosphoric acid, hydroxyacetic acid), 8, UN 1760, PG III, IMDG

HAZARDS IDENTIFICATIONS

EMERGENCY OVERVIEW: DANGER! Corrosive to all body tissues. Causes destruction of eye and skin tissue. Harmful if inhaled or swallowed.

POTENTIAL HEALTH EFFECTS:

INHALATION: Corrosive to respiratory passages. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea.

EYE CONTACT: Immediate irritation and burning followed by destruction of eye tissue. **SKIN CONTACT**: Immediate irritation and burning followed by destruction of skin tissue. Moderately toxic when absorbed through skin. Aggravates pre-existing skin disorders.

INGESTION: Corrosive to gastrointestinal tract. May cause nausea, vomiting, loss of consciousness.

CHRONIC Effects: Kidney and liver damage possible.

FIRST AID MEASURES

INHALATION: Remove victim to fresh air and, if needed, immediately begin artificial respiration. Give oxygen if breathing is labored. Get emergency medical help. Contact a physician immediately.

EYE CONTACT: Flush eyes with water for 15 minutes. Get medical attention if symptoms develop and persist.

SKIN CONTACT: Flush with water or soap and water for 15 minutes or until all traces have been removed. Seek medical attention if symptoms develop and persist.

INGESTION: Do not induce vomiting. Rinse mouth out with water. Get immediate medical attention

FIRE FIGHTING MEASURES

FLASHPOINT (TEST METHOD): NA

FLAMMABLE LIMITS: LOWER: NA UPPER: NA AUTOIGNITION TEMPERATURE: NA

GENERAL HAZARD:

FIRE FIGHTING INSTRUCTIONS: Approach fire from upwind side. Avoid breathing smoke, fumes, mist, or vapors on the downwind side. Firefighters wear protective clothing and self contained breathing apparatus.

EXTINGUISHING MEDIA: Dry powder, carbon dioxide (CO_2), water fog or spray.

HAZARDOUS COMBUSTION PRODUCTS: Smoke, CO, CO_2, toxic fumes of PO_x

.

ACCIDENTAL RELEASE MEASURES

LAND SPILL: Emergency response coordinator must have mandated training. Eliminate all ignition sources. **SMALL SPILLS**: Pick up with absorbent materials and place in non-leaking containers; seal tightly for proper disposal or reuse. LARGE SPILLS: Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak if safe to do so. Dike and contain.

Remove with vacuum trucks or pump to storage/salvage vessels.**WATER SPILL:** Notify proper authorities.

Clean up spills/leaks immediately to prevent soil or water contamination

APPENDIX C	**PHOSPHORIC ACID**		

HANDLING AND STORAGE

HANDLING: Always add acid to water; never water to acid. Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in section IV. Launder contaminated clothing before reuse.

STORAGE: Store away from caustic / alkalies

.

EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Local exhaust recommended.

PERSONAL PROTECTION: Use NIOSH approved respirator, chemical impervious gloves, chemical goggles or full face shield. Use boots, aprons, drench showers, eye wash as needed for protection against spills and/or splashes

ECOLOGICAL INFORMATION

Dangerous to aquatic life in high concentrations. Phosphoric acid 138 ppm / 24 hr. / mosquito fish / TLm / fresh water

- DISPOSAL CONSIDERATIONS

Dispose as hazardous waste. Classification and documentation is required before disposal. Follow all local, state and Central Govt laws and regulations.

PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE (Air=1): Same as H_2O **VAPOR DENSITY** (Air=1): 1.0

SPECIFIC GRAVITY: 1.2 **EVAPORATION RATE** (BuAc=1): >1

SOLUBILITY IN WATER: Soluble**VOC** (G/L): 0

pH: 1 - 2 FREEZING POINT:

BOILING POINT: 130 C **APPEARANCE & ODOR**: Colorless liquid, no odor

STABILITY AND REACTIVITY

STABILITY: Stable. **CONDITIONS TO AVOID:**

MATERIALS TO AVOID: Alkaline materials, caustics.

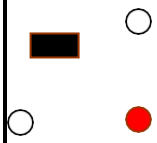
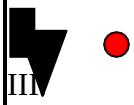
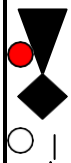
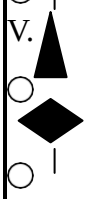
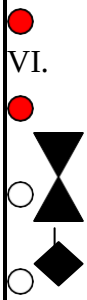
HAZARDOUS DECOMPOSITION PRODUCTS:From combustion: smoke, CO, CO_2,PO_x

HAZARDOUS POLYMERIZATION: Will not occur.

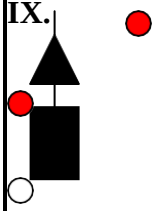
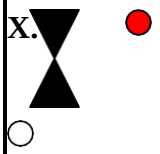
TOXICOLOGICAL INFORMATION
Phosphoric acid LDLo: 220 mg/kg (unr - man) LD50: 1530 mg/kg (oral - rat) LD50: 2740 mg/kg (skin - rat)
Hydroxyacetic acid LD50: 1950 mg/kg (oral - rat) 2 mg SEV (eye - rabbit)
NFPA Ratings Health:2 Flammability: 0
Reactivity: 0 HMIS Protective Equipment: X

APPENDIX D	STORM SIGNALS		

STORM WARNING SIGNALS

SIGNAL NO.	DESCRIPTION	ACTION
DAY-NIGHT I 	**DISTANT CAUTIONARY :** There is a region of squally weather in which a storm may be forming.	Monitor weather report, TV news Internet and keep close watch.
II 	**DISTANT WARNING :** A storm has formed.	Monitor weather report, TV news, Internet and keep close watch inform all.
III 	**LOCAL CAUTIONARY :** The Port is threatened by squally weather.	Inform all. Warn fishermen
IV. 	**LOCAL WARNING :** The Port is threatened by a storm but it does not appear t hat the danger is as yet sufficient great to justify extreme measures of precaution.	Alert all concerned to be ready and available.
V. 	**DANGER :** The Port will experience weather from a storm of slight or moderate intensity that is expected to cross the Coast to the South of the Port	Implement Contingency Plan.
VI. 	**DANGER :** The Port will experience sever weather from a storm of slight or moderate intensity that is expected to cross the Coast to the North of the Port.	Implement Contingency Plan.

VII. ○ ● ○	**DANGER :** The Port will experience severe weather from a storm of slight or moderate intensity that is expected to cross the Coast over or near to the Port. **NOTE:** this signal is also hoisted when a storm is expected to skirt the Coast without (actually) crossing it.	Implement contingency Plan.

SIGNAL NO. DAY-NIGHT	DESCRIPTION	ACTION
IX. 	**GREAT DANGER :** The Port will experience severe weather from a storm of greater intensity that is expected to cross the Coast to the North of the Port.	Implement contingency Plan.
X. 	**GREAT DANGER :** The Port will experience severe weather from a storm of great intensity that is expected to cross over or near the Port.	Implement contingency Plan.
	**NOTE :** This signal is also hoisted when a severe storm is expected to skirt the Coast without (actually) crossing it.	
XI. 	**FAILING OF COMMUNICATION :** Communications with the Meteorological Warning Centre have broken down and the local Officer considers that there is danger of bad weather.	
	NOTE : Squally weather is meant to cover occasional/frequent squalls with rain or persistent type of storage gusty winds (mean wind speed not less than 20 knots) accompanied by rain. Such conditions are associated with low pressure systems or onset strengthening of monsoon. Mean wind speeds exceeding 33 knots associated with cyclonic storms are generally covered by signal higher than LC.III. The word generally has been added to permit hoisting of LC.III at Ports outside the inner storm area where wind speeds may exceed 33 knots.	

APPENDIX E	**Terms & Definitions**		

Terms and Definitions

On-Site Plans address incidents originating within the port area wheras **Off-Site Plans** address incidents originating outside the port area but affecting the port operations or from port to outside

Risk is defined as the chance of an adverse event occurring in some period of time or in a specific circumstance, in the process of engaging in an activity

A hazard is a phenomenon which may cause disruption to persons and their infrastructure;
and is an undesirable outcome in the process of engaging in an activity

Disaster - An event which can cause immense damage and disruption to the (Port and its) infrastructure causing loss to lives and property;

An **Emergency is** a serious sudden situation or occurrence that happens unexpectedly and demands immediate action to correct or to protect lives and/or property.

A Crisis is an unstable situation of extreme danger.and may lead to the following elements; - Surprise- -Rapid flow of events-Lack of or insufficient information-Internal conflict-confusion

Disaster Management is a set of actions and processes designed to lessen disastrous effects before, during and after a disaster.

Preparedness are those measures undertaken in advance to ensure that individuals and agencies will be ready to react, such as emergency plans, logistical support and resource, inventories, and emergency information & communications systems

Response - Those measures undertaken immediately after a disastrous or hazardous event has occurred and for a limited period of time thereafter, primarily to save human life, property, treating the injured, prevent further injury and other forms of property loss and to mitigate disruption. They include response plan activation, declaration and communication of emergency to the concerned potential population and facilities at risk, opening and staffing of emergency operation centres, mobilization of resources, issuance of warnings and directions and provision of aid.

Mitigation - Those measures and activities aimed at reducing or eliminating hazards or lessening the impact of the event.**Prevention** - Mitigation of hazard effects through public

education, early warning or detection systems, safety systems, building and land-use codes and regulation,

Recovery - Those measures undertaken to restore normal conditions. The time frame for recovery begins as soon as a reduction in critical response activities permits the re- allocation of resources. and could include physical restoration and reconstruction.