



## **COCHIN PORT TRUST**

### ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR MULTI-USER LIQUID TERMINAL PROJECT (MULT) AT PUTHUVYPEEN, COCHIN PORT

VOLUME- III INTEGRATED DISASTER MANAGEMENT PLAN Rev. 1

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# CHAPTER - 1

# **PROJECT DESCRIPTION**





#### **CHAPTER - 1**

#### PROJECT DESCRIPTION

#### 1.1 INTRODUCTION

Cochin Port Trust, as part of its expansion programme, have envisaged setting up a Multi-User Liquid Terminal Project (MULT) at Puthuvypeen Island in the notified Special Economic Zone (SEZ) for handling LPG, bunkers and other POL cargo. The berthing facilities to be provided are as follows:

 A main berth for handling LPG, bunker fuel and other POL cargo. A Barge loading berth in the vicinity for loading/unloading of bunker fuel and other POL cargo into barges.

#### 1.2 Cochin Port

Cochin Port is a natural all weather port. The marine facilities of the port are located along the Mattancherry Channel and the Ernakulam Channel. The onshore facilities are mainly located on the Willingdon, Vallarpadam and Puthuvypeen Islands. Certain onshore facilities are also located on the shores of Ernakulam and Mattancherry/Fort Cochin. A Disaster Management Plan Report for the Cochin Port was prepared by TATA AIG Risk Management Services Ltd. in January 2002 and this document is the DMP report updated by WAPCOS Limited, a Government of India Undertaking in the Ministry of Water Resources. The facilities under the jurisdiction of the Cochin Port Trust are listed as follows:

#### Navigation Channels:

- Outer Channel of 13.10 Km length and 260/280 m width witha maintained depth of 15.95/17.4 m.
- > Inner Channels
  - Ernakulam Channel of 5.032 Km length and 200 m width with maximum depth of 13.2 m.
  - Mattancherry Channel of 2.60 Km length and 183 m width with





maximum depth of 10.75 m.

#### **Berthing Facilities:**

- Cochin Oil Terminal
- South Tanker Berth
- North Tanker Berth
- Fertilizer Berth (Q10)
- South Coal Berth
- Multi Purpose Berth (BTP & NCB combined)
- Ernakulam Wharf (Q5, Q6 and Q7, Q8 & Q9)
- Mattancherry Wharf (Q1 to Q4)
- Ro-Ro Terminals at Willingdon Island and Bolghatty

#### Storage Facilities:

- Mattancherry Wharf consisting of Warehouses, Overflow sheds and Transit sheds
- Ernakulam Wharf consisting of Warehouses, Overflow sheds and Transit sheds
- Container Freight Station

#### Facilities at Vallarpadam SEZ

• International Container Transshipment Terminal (ICTT)

#### Facilities at Puthuvypeen SEZ

- LNG Regasification Terminal (LNG) of M/s. Petronet LNG Ltd.
- Shore Tank Farm linked to the SBM of M/s BPCL-KR.for crude oil storage
- Proposed LPG storage Terminal of IOCL.
- Proposed Multi User Liquid Terminal for handling LPG, Bunker Oil and POL.

#### Proposed Facilities at Willingdon Island

- International Ship Repair Facility at port workshop
- International Cruise Terminal at extended BTP
- Desalination plant
- Waste to energy treatment plant
- Mechanized Coal Terminal
- Bridge between W/Island and EdaKochi





Cochin Port Trust as part of expansion programme have envisaged "Setting up a Multi-User Liquid Terminal Project (MULT) at Puthuvypeen" in the notified Special Economic Zone (SEZ) for handling LPG, bunkers and other POL cargo. The berthing facilities to be provided in the MULT are as follows:

- A main berth for handling LPG, bunker fuel and other POL cargo
- A Barge loading berth in the vicinity for loading of bunker fuel and other POL cargo into barges.

The Layout map of Cochin Port Trust is given in Figure-1.1.







Figure-1.1Layout map of Cochin Port Trust.





#### 1.3 PORT AREA

The total land area of Willingdon Island under the port's jurisdiction is 953 acres, of which the northern portion measures 583 acres and south end reclamation area measures 370 acres. In addition, 115.25 ha. of Port area at Vallarpadam Island and 285.8413 ha. of Port area at Puthuvypeen Island have been notified as port based Special Economic Zones.

#### 1.4 HINTERLAND LINKAGES

With the strategic location of Cochin Port on the South-West Coast of India and at the commanding position at the cross roads of East-West Ocean trade, the port is a natural gateway to the vast industrial and agricultural produce markets of the South-West India. It is connected to its hinterland through a network of roads, railways and waterways. The details are given in the following paragraphs:

#### Road

Cochin is connected to other states via the national highway network. The main North-South highway is NH-07, which runs through the centre of the country from Varanasai to Kanyakumari. This highway is connected to Cochin through NH-47, which runs inland from Trichur and joins at Salem. The NH-47 also connects at Edappally with the NH-17 which runs northwards along the coast to Mumbai.

The port area located at Willingdon Island is connected to the mainland by four bridges, two each on Ernakulam Channel and on Mattancherry Channel. Bridges constructed on the Ernakulam Channel and Mattancherry Channel links the port to the NH-47 and NH-49 (Cochin-Madurai).

Four lane NH connectivity to ICTT at Vallarpardam with a route length of 17.2 Km from Kalamassery completed in May 2015.

#### Rail

Cochin has direct access to the southern and national rail network allowing





connections to all major industrial and population centres. The rail connections are also extended up to the quay sides. Rail connectivity to ICTT with a route length of 8.86 Km from Edappally has been commissioned in February 2011.

#### Inland Water Transport

Cochin is located on a series of interconnecting waterways, canals and lagoons which allow movement through waterway vessel to Alleppey and Quilon. The main linkages are provided by the West Coast Canal, the Udyogamandal Canal and the Champakkara Canal which has been declared as National Waterway No. III. Of these, West Coast Canal is the most significant in terms of potential capacity.

#### 1.5 CARGO HANDLED AT THE PORT

The cargo traffic handled at Cochin Port increased from 13.02 million tonnes in 2002-03 to 21.60 million tonnes in 2014-15, registering an average annual growth rate of 5.43%. The year-wise growth in the cargo traffic handled at Cochin Port vis-à-vis that handled at all the major ports of the country together with the percentage share of traffic handled at Cochin Port from 2002-03 to 2014-15 is given in Table-1.1.

Year Traffic Handled (million Tones)		(million Tones)	% Share of traffic
	Cochin Port	All major ports	handled by Cochin Port
		in the country	
2002-03	13.02	313.55	4.15
2003-04	13.57	344.80`	3.94
2004-05	14.10	383.75	3.67
2005-06	13.89	423.57	3.28
2006-07	15.26	463.78	3.29
2007-08	15.75	519.16	3.03
2008-09	15.49	530.53	2.92
2009-10	17.43	560.97	3.11
2010-11	17.87	569.91	3.14
2011-12	20.09	560.14	3.59
2012-13	19.85	545.79	3.64
2013-14	20.89	555.49	3.76





Year	Traffic Handled (million Tones)		% Share of traffic
	Cochin Port	All major ports	handled by Cochin Port
		in the country	
2014-15	21.60	581.34	3.72
Average	5.43	15.48	
Annual Growth Rate			
(%)*			

Source: Major Ports of India – A Profile, IPA – Various issues.

The broad commodity composition of traffic handled at Cochin Port from 2002-03

to 2014-15 is given in Table-1.2.

	Traffic Handled(MT)					
Year	Liquid	Dry Bulk		Break	Container	Total
	Bulk	Mechanical	Conventional	Bulk		
2002-03	9.5	0.45	0.57	0.43	2.07	13.02
2003-04	10.1	0.34	0.51	0.5	2.12	13.57
2004-05	10.42	0.48	0.46	0.42	2.32	14.10
2005-06	9.84	0.59	0.58	0.39	2.49	13.89
2006-07	10.75	0.52	0.74	0.3	2.95	15.26
2007-08	11.58	0.27	0.58	0.14	3.18	15.75
2008-09	10.76	0.27	0.81	0.13	3.52	15.49
2009-10*	12.40	0.33	0.64	0.13	3.93	17.43
2010-11*	12.48	0.61	0.29	0.07	4.42	17.87
2011-12*	14.24	0.67	0.36	0.11	4.71	20.09
2012-13*	14.20	0.65	0.27	0.12	4.61	19.85
2013-14*	14.83	0.87	0.22	0.18	4.79	20.89
2014-15*	14.82	1.05	0.44	0.05	5.24	21.60

#### Table - 1.2: Commodity composition of traffic handled at Cochin Port

\*Dry Bulk Mech. incl:Rock PH, Sulphur & Cement

During the year 2014-15, Cochin Port handled 21.60 million tonnes of cargo traffic, as against 20.89 million tonnes handled during the preceding year. The commodity-wise break-up of the traffic handled at Cochin Port during 2014-15 is given in Table-1.3.

### Table- 1.3: Commodity-wise break-up of the traffic handled at Cochin Port during 2014-15

SI.	Commodity	Traffic	Handled	Percentage		
No.		during	2014-15	share	from	the
		(million	tonnes)	Total		





Ι.	Liquid Bulk		
1.	Crude Oil	10.75	49.77
2.	POL Products	3.27	15.13
3.	LNG	0.40	1.85
4.	Other Liquids	0.40	1.85
	Total (I)	14.82	68.61
II	Dry Bulk		
5.	Fertilizer incl.FRM	0.27	1.25
6.	Coal	0.10	0.46
7.	Other Dry Bulk	1.12	.5.19
	Total (II)	1.49	6.90
III	Break Bulk	0.05	0.23
IV	Containers	5.24	24.25
	Grand Total (I to IV)	21.60	100%

#### 1.6 STORAGE FACILITIES OF COCHIN PORT

For the storage of the cargo, extensive facilities have been provided at the Cochin Port.

- 1. Mattancherry Wharf is served by a covered area of 30,925 sqm consisting of four warehouses.
- 2. Ernakulam Wharf excluding Q10 berth, has a covered area of 23,321 sqm including a Container Freight Station of 10732 sq. m.
- 3. In Willingdon Island, 14 tank farms in an area of 206360 sqm with a total capacity of 362212 KL are located.

The storage facilities available at Cochin Port are detailed in Table-1.4.

S. No.		Location	Quantity (No. / KL)	Total Storage Area (Sq.M)		
1	Mattancherry Wharf					
	a.	Warehouses	4 No.	11,755		
	b.	Overflow Sheds	3 No.	6060		
	C.	Transit Sheds	3 No.	13,110		
				35,463		

#### Table-1.4: Storage facilities available at Cochin Port





S. No.		Location	Quantity (No. / KL)	Total Storage Area (Sq.M)			
2	Err	Ernakulam Wharf					
	a.	Warehouses	1 No.	2980			
	b.	Overflow Sheds	3 No.	6000			
	c.	Transit Sheds	1 No.	3600			
	d.	Container Freight Station	1 No.	10,732			
				23,312			
3	Q 1	0 Berth (Fertilizer berth)					
	a.	Rock Phosphate Silo	1 No.	5,000 m <sup>3</sup>			
	b.	Sulphur and Potash Silo	2 No.	10,000 m <sup>3</sup>			
4	Tar	hk Farms	50005 KI	14200			
	a.	Ltd.	50005 KL	14300			
	b.	HHA Tank Terminal Ltd.	59100 KL	39100			
	C.	Konkan Storage Systems (Cochin) Pvt. Ltd.	50940 KL	33840			
	d.	Ganesh Benzo Plast Ltd.	30250 KL	4270			
	e.	Ganesh Medicament Ltd.		3170			
	f.	Ganesh Anhydride Ltd.		4170			
	g.	Ruchi Infrastructure Pvt. Ltd.	11000 KL	2000			
	h	Vijayalakshmi cashew Co. Ltd.	2400KL	900			
	i.	IMC. Ltd.	6000 KL	2020			
	j.	Indian Oil Corporation Ltd.	47117 KL	24120			
	k.	FACT Ltd.		46670			
	Ι.	Liquid Ammonia Tank	10000 KL				
	m.	PhosphoricTank	19500 KL	1			
	n.	Sulphuric Acid Tank	16000 KI	]			
	о.	Tropicana		12100			
	p.	B.R. Petrochem (P) Ltd.	29900 KL	12000			
	q.	Ruchi Infrastructure Pvt. Ltd. SER area	30000 KL	15800			
		Total (Tank Farms)	362212 KL	206360 Sq. M			

#### 1.7 BERTHING FACILITIES OF COCHIN PORT

The berthing facilities of the Cochin Port are provided along Ernakulam Channel





and Mattancherry Channel on either side of the Willingdon Island. The various facilities are briefly described in the following sections:

#### Cochin Oil Terminal (COT)

The COT is located in the Ernakulam Channel, opposite to Q8 berth. Tankers upto a draft of 12.5 m with parcel size of about 82,000 t are loaded at this terminal. The COT comprises of 4 breasting dolphins, one central platform and four mooring dolphins, two on either side of the platform. The structure has been located on vertical as well as raker piles. The mooring dolphins and central portion consisting of platform and breasting dolphins have been interconnected through walkways, 4 nos. marine unloading arms, each of 300 mm diameter with a rated discharge of 1500 tph has been provided at the central platform.

The COT is being used for handling of crude oil and products. One 762 mm diameter (for crude oil) and two 406 mm diameter (for products) including the submarine portion have been provided for connecting the COT to the refinery pipelines at shore. The crude pipeline has a capacity limiting to maximum discharge of 2500 tph and an average discharge of 2000 tph.

#### South Tanker Berth (STB)

This jetty situated adjacent to NTB is mainly used to service product tankers of size up to 18,000 DWT with an LOA of 170 m and 9.14m draft. This jetty is connected to the Ernakulam shore through a 270 m long approach trestle and oil transfer takes place through marine loading arms and flexible hoses. The jetty is provided with oil pipelines for handling products like Naphtha, MS, FO and SKO/HSD. The average discharge rate is 800 tph in case of Naphtha/MS/SKO/Kerosene and 500 tph in case of FO. One 320 mm diameter bunker pipeline is also provided.





#### North Tanker Berth (NTB)

This jetty was constructed in the Ernakulam Channel and commissioned in 1955. The jetty was upgraded in 1966 to receive crude tankers of size 30,000 DWT with LOA of 213 m with a loaded draft of 9.14 m. The Jetty is connected to Ernakulam shore by a 270 m long approach trestle. To handle crude and products, pipeline system comprising of various sizes has been provided. Marine loading arms and hoses are provided for transferring oil between the berth and the tanker using tanker's own derrick.

#### Fertilizer Berth (Q10)

It is an open piled jetty 278 m long, located at the south east of Q9 wharf. Two mooring dolphins, one on either side of the berth and an approach trestle of 36.3 m length and 7.5 m width, at the south eastern end, have been provided. This berth is allotted for handling the FACT traffic exclusively, which consists of fertilizer raw material i.e. rock phosphate and sulphur. In addition to this a 300 mm diameter pipeline has been provided to handle phosphoric acid. A barge jetty is provided adjacent to the Q10 berth, for transportation of the fertilizer raw material for FACT, by barges.

#### Ernakulam Wharf (Q5, Q6 & Q7, Q8 and Q9)

The Ernakulam Wharf consists of five berths Q5 to Q9. The berths Q5 to Q8 were commissioned in 1964 and Q9 was commissioned in 1972. These berths are made up of concrete monoliths of size 11.00 m x 11.00 m. These monoliths have been spaced 15.4 m from centre to centre and gap between monoliths closed with RC sheet piles. The total length of the Ernakulam Wharf is 917 m. The Q5 to Q9 berths are being utilized for handling general cargo and fertilizers.

The berths Q8 and Q9 were upgraded to a 414 m long full fledged container terminal after carrying out suitable modifications to the structure. These berths have been modified for a dredged depth of -13.2m.





As the Container operations have been shifted to the new Container Transshipment Terminal at Vallarpadam, these berths are now being utilized for handling General Cargo.

#### Multi Purpose Berth (Boat Train Pier & North Coal Berth Combined)

This Boat Train Pier (BTP) berth has been constructed as multi-purpose jetty. The berth structure consists of a central platform connected to land through three no. of gangways. The total length of the platform is 200 m.

The North Coal Berth (NCB) is located on the Mattancherry Channel. This was constructed for handling coal vessels. North Coal Berth was commissioned in 1959 and its length is 182.88 m. The permissible draft at these berths is 9.14 m. The berth is constructed using pre-cast concrete piles and the main berth consists of a 105 m long RCC platform supported over 500 mm square pre-cast piles. This platform is connected to the shore by three gangways, one at the centre and two on either sides. The North Coal Berth is used for handling POL products for Indian oil. This berth is also being used for general cargo vessels with a maximum capacity of 35,000 DWT, passenger vessels and for maintenance of dredgers.

#### Mattancherry Wharf (Q1 to Q4)

The Mattancherry Wharf consisting of four berths namely Q1, Q2, Q3 and Q4 is the first Wharf constructed during 1930s, using the steel sheet piles. The length of the original steel pile quay was 457.60 m. During 1940s the wharf was extended on both sides, using monoliths, increasing the quay length to 670 m. Subsequently, a structure using reinforced cement concrete supported over concrete screw piles was constructed in 1951 for berthing of vessel. The length of this structure is 577 m. It was subsequently extended on both sides by 33.15 m to provide a total wharf frontage of 643.30 m for berthing of the vessels. The quay structure has been designed for a dredged depth of -9.75 m in front. The





berths Q1 to Q3 are being used for handling of general cargo whereas the Q4 has been converted to handle liquid cargo in bulk.

#### South Coal Berth

The South Coal Berth located on the Mattancherry Wharf. It was constructed for handling coal vessels. South Coal Berth was commissioned in 1953. The length of the South Coal Berth is 192.02 m. The permissible draft at the berth is 9.14 m. The berth is constructed using pre-cast concrete piles. The main berth consists of a 105 m long RCC platform supported over 500 mm square pre-cast piles. This platform is connected to the shore by three gangways one at the centre and two on either sides. The South Coal Berth is being used for handling liquid ammonia, for which a 200 mm diameter marine unloading arm and a 300 mm diameter pipeline is provided connecting the storage tank.

#### Liquid Ammonia Jetty

This is a barge loading jetty located south of the South Coal Berth. This jetty is an open piled construction using 500 mm square RCC piles. This jetty is 59 m long by 4.5 m wide. It is connected to the shore by a 39 m long and 4 m wide approach on pre-cast piles. This jetty was being used for transportation of liquid ammonia for FACT by barges.

#### **Ro-Ro Facility**

Cochin Port had devised a barge movement facility through NW 3 between Willingdon Island and Bolghatty to service Roll on-Roll off (Ro-Ro) vessels and Lift on-Lift off (Lo-Lo) barges for clearance of containers in the scenario of increased movement of containers due to commissioning of International Container Transshipment Terminal at Vallarpadam (ICTT).





#### 1.8 INTERNATIONAL CONTAINER TRANSSHIPMENT TERMINAL (ICTT) AT VALLARPADAM ISLAND

The ICTT project has facilities for handling mother container ships of 8000 + TEU capacity. This State of Art terminal with 1800m berth and supporting handling equipments, which is to have an annual throughput of 3 million TEUs is to be implemented in three phases. This BOT project was awarded to M/s India Gateway Terminal Pvt. Ltd (IGT), a subsidiary of M/s Dubai Port World (DPW). The phase-I of the terminal with a capacity of 1 million TEUs had been commissioned in February 2011.

#### 1.9 FACILITIES AT PUTHUVYPEEN SEZ

#### Captive LNG Port and Re-GasificationTerminal

The comprehensive LNG project comprising of the LNG Port Project and LNG Re-gasification project, is implemented by M/s Petronet LNG Ltd. (PLL). The LNG Port Terminal consists of a jetty mooring facilities, approach trestle, other associated offshore works and ancillary facilities, capable to handle 5 MMTPA LNG. The LNG Re-gasification facility includes storage tanks and other onshore facilities required for the import, re-gasification and dispatch of LNG and related activities/services.

The length of the LNG berth is approximately 376.5 m and is designed for catering to the needs of LNG carriers ranging from 65000 to 216000 cu. m.

The LNG berth comprises of five breasting dolphins and seven mooring dolphins for berthing and mooring of the LNG vessels. A Central Unloading Platform is provided between the breasting dolphins to accommodate LNG unloading arms, vapour recovery arms, access gangway and other utilities. The breasting dolphins, mooring dolphins and service platform are connected by a walkway for movement of personnel.





#### **Unloading Platform**

The Unloading Platform provided at the middle of the berthing jetty is in two levels of dimension 43.5 m x 18.5 m, lower deck and 25.0 m x 10.5 m, upper deck. The platform is located off centre to take into account the manifold offsets of the LNG tankers.

#### The unloading arms

Four unloading arms have been installed at the Jetty for the following services:

- Two arms dedicated for unloading LNG from the ship.
- One arm dedicated for return vapour from the on-shore storage tanks to the ship during the LNG unloading operation.
- One dual purpose arm that could be used for unloading LNG or returning LNG vapour from the Terminal storage tanks to the ship as required.

The LNG product from the ship will be unloaded through 32" diameter insulated line running from the unloading arms manifold to the onshore LNG Storage Tanks. This line is sized to handle 12,000 m<sup>3</sup>/hr of LNG product for the normal unloading process which is expected to take approximately 15 hours and includes the cool down time for the unloading arms and the ship's piping. Drain pump will be provided that will be located close to the jetty *I* onshore interface to drain the jetty portion of the unloading line or the entire unloading system in case of an emergency/maintenance purposes. The pump is designed to transfer drained LNG from the unloading lines into the LNG Storage Tanks or the LNG tank send out pump discharge system.

#### SBM & STF for handling of crude oil

BPCL-Kochi Refineries a subsidiary of BPCL, has installed a Single Buoy Mooring (SBM) facility in the open sea at Vypeen within Kochi port limits. BPCL-KR has constructed storage tanks on 70 hectares of land leased out at





Puthuvypeen.The SBM and supporting facilities are installed and maintained by BPCL-KR while all the vessel operations are done by CPT.

#### Multi-User Liquid Terminal (MULT) Project at Puthuvypeen

The proposed MULT is envisaged for handling bunkers, LPG and other POL with a capacity of 4.52 MMTPA (Bunkers-3.02 MMTPA, LPG-0.60 MMTPA and other POL- 0.90 MMTPA). The berthing facilities at MULT shall comprise the following:

- A Main berth for handling LPG, bunker fuel and POL.
- A Barge loading berth in the vicinity for loading of bunker fuel and POL into barges.

Storage of LPG/constituent gases will not be in scope of and within the battery limit of MULT. MULT berths shall be operated by the Concessionaire to be selected on Design, Build Finance, Operate and Transfer (DBFOT) basis.

#### LPG Import Terminal

The proposed LPG import terminal is to be located at Puthuvypeen SEZsituated at eastern side of Arabian Sea. The LPG brought in tanker ships will be unloaded using two nos of 10" diamarine unloading arms in the proposed jetty of Cochin Port Trust and pumped to LPG Mounded Bullets. The LPG from the jetty will be pumped to LPG import terminal through 20" dia. transfer pipeline. The total designed storage capacity of the terminal is 15400 tons and that of the road tanker loading facility is approximately 128 trucks/day. Four presuure vessels are designed for propane storage and four pressure vessels for butane storage service.

#### 1.10 MECHANICAL EQUIPMENT

For handling of the cargo at the port different mechanical equipments have been





provided which include quay cranes, mobile equipment such as forklift trucks, tractors trailers, mobile cranes, high reach-stackers etc.

#### 1.11 PORT CRAFTS

The port has a number of dredgers, tugs, mooring launches, pilot launches, water barges, floating cranes, fire float and other miscellaneous crafts. The details are given in the following sections.

#### Dredgers

The port has one (1) self-propelled hopper grab dredger and 1 no. non-propelled grab dredger. These are utilized to carry out maintenance dredging in the berthing areas and at the berths. Maintenance dredging of the navigational channel is carried out by engaging outside dredging agencies.

#### Tugs

Port has 4 nos. tugs out of which 2 nos. are of 30 t bollard pull capacity each and the remaining is of 45 t bollard pull capacity each. In addition there are 2 nos. of hired tugs each of 60t bollard pull. All the tugs are fitted with fire fighting facility including foam.

#### Launches

Port has 13 nos. of mooring launches and 2 nos. of pilot launches. Besides there are 2 more launches. These are of lengths varying between 9.0 m and 17.0 m with horse power ranging from 55 to 150.

#### **Miscellaneous Crafts**

These include one water barge, Jalaprabha; one 200 t capacity floating crane – Periyar; and auxiliary/pollution control craft- Venad.

#### 1.12 MAINTENANCE FACILITIES

For repairs and maintenance of the port structure and equipment, Port





Maintenance Workshop (PMW) have been provided in addition to electrical repair shops.

#### 1.13 UTILITIES

#### **Electric Supply**

Cochin Port is a Licensee of Kerala State Electricity Board for the distribution of Power Supply in the port area. Port is drawing power at 110 KV at W/ Island and at 11KV at Puthuvypeen & Vallarpadam respectively and distributes to about 1500 consumers. Standby Power Supply is available through 3 nos. of Diesel Generator sets of 11kV with 3.125 MVA, 440V with 625 KVA and 440V with 530 KVA networks. In addition, crucial operational areas like COT, CFH etc are also provided with standby DG sets. Port maintains about 1000 street lights and 15 nos. of high mast lighting systems.

#### Water Supply

The Cochin Port Trust receives the fresh water supply from the Kerala Water Authority (KWA) by a 225 mm diameter line and a 300 mm diameter line (which is shared by the Navy). About 4000 KL of water is required for domestic consumption and another 500 KL of water is required for the supply to vessels. Due to acute shortage of water at the port, water supply from the shore installations has been restricted only to passenger vessels coming at the Port.

#### Fire Fighting

The port has a full fledged Fire Station equipped with 6 No. fire tenders viz.4 foam tenders, 1 water tender and 1 DCP tender. In addition adequate no.of portable fire extinguishers, portable monitors, fire proximity suites, chemical encapsulation suites etc are also available. COT, NTB, STB, SCB, Q4as well as new administration building have been provided with fixed fire fighting system.. Liquid storage tank farms have been provided with fixed fire fighting system by the respective operators. STF, LNG Terminal and ICTT have their own stand alone fire fighting facilities.





#### 1.14 EMERGENCY PLANNING

Emergency planning is essential for any well run organization. This is important for effective management of an accident/incident to minimize losses to people and property, both in and around the facility. Emergency planning also demonstrates the organization's commitment to the safety of employees and increases the organization's safety awareness. The Onsite Emergency Management Plan for Port facilities at Cochin Port was prepared by National Institute of Oceanography (NIO), Goa in January 2002. Cochin Port Trust had awarded the work of updation of the Onsite Emergency Management Plan Report prepared by NIO, Goa to WAPCOS Limited, a Government of India Undertaking under Ministry of Water Resources. The present document outlines the updated Disaster Management Plan Report for Cochin Port.

#### 1.15 OBJECTIVES OF ON-SITE EMERGENCY MANAGEMENT PLAN

The objectives of On-Site Emergency Management Plan is to describe the facility's emergency response organization, the resources available and response actions applicable to deal with various types of emergencies that could occur at the facility with the response organization structure being deployed in the shortest time possible during an emergency. Thus, the objectives of emergency response plan can be summarized as:

- Rapid control and containment of the hazardous situation,
- Minimizing the risk and impact of event/accident,
- Effective rehabilitation of the affected persons and prevention of damage to property.

In order to effectively achieve the objectives of emergency planning, the critical elements that form the backbone of the On-Site Emergency Management Plan are:

- Reliable and early detection of an emergency and careful planning.
- The command, co-ordination and response organization structure along with efficient trained personnel.





- The availability of resources for handling emergencies.
- Appropriate emergency response actions.
- Effective notification and communication facilities.
- Regular review and updating of the On-Site Emergency Management Plan.
- Proper training of the concerned personnel.





# CHAPTER-2 IDENTIFICATION OF MAJOR EMERGENCIES





#### CHAPTER-2 IDENTIFICATION OF MAJOR EMERGENCIES

#### 2.1 BACKGROUND

Disaster Management planning is an integral and essential part of loss prevention strategy. Although a great deal of efforts and money is spent to reduce the scale and probability of accidents, there always remains a finite but small possibility that disaster may occur. Effective action may been possible due to existence of pre-planned and practiced procedures for dealing with emergencies.

This Disaster Management Plan also sets out the procedures and measures to be taken into account in the event of loss of containment and consequence thereof in the Cochin Port Trust.

#### 2.2 TYPES OF EMERGENCIES

The type of emergency primarily considered here is the major emergency which may be defined as one which has the potential to cause serious danger to persons and/or damage to property and which tends to cause disruption inside and/or outside the site and may require the co-operation of outside agencies.

Emergency is a general term implying hazardous situation both inside and outside the premises. Thus the emergencies termed "on-site" when it confines itself within the factory/installation even though it may require external help and 'offsite" when emergency extends beyond its premises. It is to be understood here, that if an emergency occurs inside the plant and could not be controlled properly and timely, it may lead to an "off-site" emergency.

An emergency in the Premises can arise due to certain undesired incidents resulting in fire, explosion or oil spill.

#### 2.3 CLASSIFICATION OF EMERGENCIES

Emergencies have been broadly classified into three levels:





#### Level I Crisis

- Crisis of all nature which can be handled by Port Trust Staff.
- It will not affect other organizations in the adjacent area.
- It involves mainly the Marine Department and the department in whose area the crisis has taken place.
- Crisis Management group leader Deputy Conservator/ concerened HOD

#### **Level II Crisis**

- Crisis of big nature
- Affects only Port Area
- Help may be required from outside agencies
- Crisis management group leader Chairman

#### Level III Crisis

- Crisis of serious nature
- Affects not only Port but also adjacent areas
- Requires help and co-ordination from outside agencies to contain crisis
- May require evacuation/relief of significant magnitude
- Crisis Management group leader District collector/Chairman

#### 2.4 PRIORITY IN EMERGENCY HANDLING

The general order of priority for involving measures during the course of

emergency would be as follows:

- Safeguard life
- Safeguard environment
- Safeguard property

Specific objectives of the emergency management plan are as follows, :

- Safeguard port and outside people.
- Minimize damage to property and the environment.
- Contain and ultimately bring the incident under control.
- Identify casualties.
- Provide for needs of causalities.
- Provide authoritative and factual information for the news media.
- Secure safe rehabilitation of the affected area.
- Preserve relevant records and equipment for the subsequent enquiry into the circumstances and cause of the incident.
- Restore the facilities at the earliest.





#### 2.5 LIKELY EMERGENCIES

The Port may be exposed to the following emergencies:

- Toxic release (Ammonia gas, Benzene, Toluene, Hexane)
- Flammable gas release resulting in fire (LNG/LPG
- Flammable liquid release- resulting in fire (POL products)
- Fire in solid stock piles coal/sulphur/timber
- Fire in godowns
- Accidents involving ships and barges
- Oil Spill from an oil tanker within the port maritime boundary

#### Others

- Sabotage/Terrorism
- War
- Fire on board a vessel within the port limits

#### 2.6 NATURAL DISASTERS

The following natural disasters could also lead to emergencies:

- Earthquake
- Flooding and Inundation
- Cyclone

#### Earthquake

As per the seismic zoning Map of India, the earthquake zone for this area is categorized as Zone-III wherein the earthquake of 5-6 on Richter scale is possible in the region. Hence structural damage is not ruled out especially if the structures are resting on piles. All the structures in the Port are built in accordance with relevant IS codes and is likely to sustain high intensity earthquakes without significant damage to the process equipment and operations.

Structural and process related equipment in the Ammonia storage tank have been designed and constructed in accordance with relevant IS, API and ASME standards to ensure that no catastrophic failure and complete loss of





containment occurs. The ammonia tanks are double containment, cup in tank construction with inner metal and outer concrete construction.

#### Flooding or Inundation

Flooding may take place in case of very heavy torrential rains due to Cyclone arising the Arabian Sea. The depression in the Arabian Sea would result in heavy rainfall, However, since the Wellingdon Island is well graded, and provided with storm water drains, chances of it getting inundated/water logged is remote. Connection to the Island is through bridges which arehigh deck structures and is likely to keep the connection of Island with the mainland under all states of tide and storm surge.

#### **Cyclonic Storm**

The possibility of a cyclone occurring on the south west coast is very low since the same is in the return path of monsoon and does not have a past history of the same. Coastal structures/buildings in the Port are built as per IS standards to sustain high wind velocities in excess of 150 km/hr.

#### 2.7 MAN MADE DISASTERS

Various manmade disasters are categorized as follows:

- Toxic release (Ammonia gas/Benzene)
- Flammable gas release and subsequent fire
- Flammable liquid release and subsequent fire
- Fire in solid stock pile (Coal/Sulphur)
- Fire in godowns (dry cargo sugar, foodgrains, fertilizer)
- Oil spillage on water and then fire on it
- Fire on board a vessel within the port limits
- Fire in Hazardous Cargo/classified cargoes

#### Toxic release (Ammonia gas)

In the event of a toxic release the gas could affect a lot of people both within the

port area as well as outside the port premises.

The toxic release could happen due to the following reasons:





- Failure of pipeline weld, flange gasket failure
- Inadvertent movement of the tanker away from the jetty manifold during loading and unloading operations.
- Breakage of the ammonia unloading/loading arm
- Damage to the bottom nozzle of the ammonia tank
- Failure of pipeline/storage tank due to corrosion
- External direct impact to the pipeline or the storage tank.

#### Flammable gas release and subsequent fire

The accidental release of flammable vapour followed by fire may take place due

to the following reasons:

- Inadvertent movement of the ship during loading/unloading operation
- Breakage of the feed/transfer pipeline of Natural Gas
- External damage to the pipeline by an object
- Process upset
- Corrosion leak due to poor maintenance practices

#### Fire in the solid cargo (Coal/Sulphur)

#### **Coal Fire**

Coal fires are very common and the same can occur due to the following:

- Spontaneous combustion
- Sabotage
- Local fires
- Source of ignition available near the coal stack

#### Sulphur fires

Sulphur fire in godowns could be due to following reasons:

- Short circuit from an electrical cable
- Local fires
- Sabotage

#### Fire in dry cargo godowns

Fires in dry cargo godowns are usually known to have occurred due to:

- Electrical short circuit
- Local fires
- Sabotage, arson

#### Oil Spill and then Fire in the Water





The oil spill can result in due to the following reasons:

- Tanker collisions
- Damage to the unloading hose
- Damage to the supply pipeline both submerged as well as the above ground one at the jetty
- Damage to the storage tank or the fuel forwarding barge
- Spilled oil on the water can catch fire should there be a source of ignition available the same could be possible should there be a damage to the unloading pipeline and the forwarding pipeline at the jetty or by the damaged submerged pipeline.

#### Others

- War
- Sabotage/Arson
- Terrorist strike





#### War

In the event of war, there could be wide spread damage to the port installation. This would happen due to proximity to the Head Quarters, Southern Command of the Navy.

The war would leave nothing intact on account of likely heavy bombardment, hence to plan for such a contingency is very difficult. All that can be done is to shift as many as possible people from the port area to town and the balance to bunkers, which are safe heavens that too on the advice of the Commander-In-Chief, Southern Naval Command.

The likely targets within the port installation would be the following:

- SBM project for handling of crude oil
- Proposed LPG terminal
- Container Terminal
- Ammonia storage tank
- North Tanker Berth/South Tanker Berth/Q4
- Gas/POL/Crude pipelines.
- LNG terminal
- Cochin Oil Terminal





# **CHAPTER - 3**

## EMERGENCY CONTROL CENTRE AND NOTIFICATIONS PROCEDURES IN CASE OF AN EMERGENCY





#### **CHAPTER - 3**

#### EMERGENCY CONTROL CENTRE AND NOTIFICATIONS PROCEDURES IN CASE OF AN EMERGENCY

#### 3.1 EMERGENCY CONTROL CENTRE

On-site Emergency Management Plan is developed to co-ordinate effort involving Cochin Port Trust, individual terminal as well as the district administration along with volunteer organizations. Within an integrated emergency plan, these entities assist the individual terminal as well as citizens to prepare for, respond to, recover from and eliminate or reduce the effect of an industrial disaster or a natural disaster.

Port Control Room will work as the Emergency Control Room in case of any emergency. It will have following facilities:

- 1. Sr.Dy. Director (EDP), Cochin is to have IMO web site available through Internet connection in the control room for ready reference. Apart from this, the remote sensing satellite picture from Hyedrabad can be used to monitor the progress of the storm to facilitate early prediction of an impending disaster
- 2. A map of the whole Cochin Port as well as that of the Island and the population distribution
- 3. Different colour flags for sticking on the map in order to denote the location of disaster and the affected zone
- 4. Folio of maps of the Cochin Port as well as the individual Islands
- 5. One of the maps highlight school, hospitals and theaters located on Ernakulam mainland, the Willingdon Island as well as on the other Islands
- 6. Another map depicting terminal storing toxic chemicals and terminal storing flammable chemicals
- 7. Transportation map depicting transportation route of LNG/LPG pipeline as well as the submerged pipeline for crude.
- 8. Map depicting railway station, Ferry start points, bus stands and taxi stands for both Vypeen as well as the Willingdon Island
- 9. A map depicting densely populated area, fishing area




- 10. List of core committee team members.
- 11. Updated database of chemicals and Material Safety Data Sheets (MSDS) on software
- 12. Map depicting temporary shelter as well as food supplying store
- 13. List of Personal Protective Equipment (PPE) suppliers and availability in the Port i.e. at Cochin as well as the various Islands where the terminals are proposed to be set up i.ePuthuvypeen as well as the Vallarpadam
- 14. In addition to this, there should be a wireless ,i.e. a VHF connection which should be connected with the important people in the port. Dy. Conservator, Sr. Commandant, CISF, all the security personnel, Pilots, Chief Fire Officer, Chief Medical Officer, Harbour Master, Dock Master and the Naval Command control room as well as the District Collector's office.

Main ferry station at the Ernakulam mainland should be also hooked up to this particular VHF link

- 15 About 30 Gas canister/cartridge masks should be kept in ready use at all the times in the main control room
- 16. Flameproof searchlights (15-20 nos)
- 17. Main control room for the security personnel should have at least 12 no. of gas masks available for use in case of an emergency.
- 18. The patrolling vehicle being used by the security personnel should be equipped with at least 2 gas masks at all times.
- 19. Telephone directory with numbers of the following people:
  - District Collector/District Magistrate
  - Commissioner of Police
  - Naval Commander in Chief of the Southern Naval Command
  - Chairman, CPT
  - Deputy Chairman, CPT
  - Deputy Conservator, CPT
  - Harbour Master, CPT
  - Dock Master, CPT
  - Manager, Marine Pollution Control, CPT





- Godown and Cargo Handling Coordinator Traffic Manager, CPT
- Sr. Deputy Traffic Manager, CPT
- Sr. Dy. Materials Manager, CPT
- Dy. Materials Manager, CPT
- Sr. Commandant, CISF
- Dy. Commandant, CISF
- Chief Fire Officer, CPT
- Chief Medical Officer, CPT
- Dy. Chief Medical Officer, CPT
- Dy. Secretary, CPT
- Major local hospitals in Ernakulam, Mattancherry & Vypeen Area
- Ambulance service provider
- Ernakulam Fire brigade
- Navy Fire Brigade





#### 3.2 CONTROL ROOM

There shall be two control rooms, one should be next to the main administrative building and the second could be at a location that is currently labeled as CIFT. The Control Room at Cochin shall be under the direct supervision of the Harbour Master and in the event of an emergency it shall be under direct supervision of the Chairman of the Port.

On declaration of the emergency the Harbour Master should rush to the control room as soon as the emergency plan is put into action. All the key persons in the emergency organisation shall report for duty to the Overall-in-charge immediately, as soon as the control room comes into operation.

The overall in-charge should draw up muster of the said employees and assign duties. The staff should report to the Control Room.

The overall-in-charge of the Control Room shall ensure the presence of the staff, to whom various duties have been assigned. They should attend the meetings as and when called.

The Control Room shall have the following communication facilities:

Control Room at	<u>Telephones</u>	<u>Fax</u>	VHF
A.O. Building	0484-2582525, 2667105	0484-2666916	CH 14,16

The overall in-charge for setting up of Control Room at Administrative Office will be Dy. Conservator /Secretary. They should ensure setting up the Control Rooms at the respective places within two hours of warning and the matter reported to Chairman/ Dy. Chairman CPT.

1. Functions of the Control Rooms: The contact details of the control rooms as given in the Table-3.1 shall be displayed by the port authority.





S.I	No.	Name of Organization	Tel. No.
1	۱.	Port Control Room	0484- 2582525, 2667105
2	2.	Collector's Control Room	0484-2423001
3	3.	Police Control Room	0484-2366100
2	1.	All India Radio	0484-2422543
5	5.	India Meteorological Department	0484-2668443
6	5.	Doordarshan	0484-2422266
7	7.	Navy	0484-2879999, 2872207
8	3.	Cochin International Airport	0484-2610115

#### Table-3.1: Contact details of the Control Rooms

This will be directly under the control of secretary, who will give necessary instructions.

#### 3.3 NOTIFICATION OF GOVERNMENT AGENCIES

Coordination with the various governmental agencies wherein the flow of information and establishment of command chain is critical for ensuring the smooth operation of the emergency plan. The first requirement for the plan to be effective is that, there is co-ordination within the governmental organization blocks i.e. at the Port, District, State as well as the Central Government level.

#### 1. Cochin Port Trust

In the event of receiving information regarding impending natural disasters like an earthquake or any cyclonic storm, Cochin Port Chairman/Dy. Chairman will coordinate with following persons:

- The District Collector/District Magistrate Ernakulam
- Chief Secretary, Government of Kerala
- Secretary, Ministry of Shipping, Government of India
- Joint Secretary (Ports), Government of India
- Mayor, Kochi Corporation
- Commissioner of Police, Kochi
- Local Representative of Food Corporation of India
- Divisional Railway Manager
- Commissioner of Customs
- RDO, Fort Kochi





#### 2. District Administration

District Collector/District Magistrate to co-ordinate with the following:

- District Crisis Management group
- Inspector General of Police
- Kochi City Corporation
- District Health centers
- Chief Inspector of factories
- State Pollution Control Board
- State Electricity Board
- Kerala Water Authority
- Police Circle Inspector, Vypeen/ Mattancherry
- Fire Department Ernakulam
- Cochin International Airport
- Executive Engineer BSNL, Willingdon Island
- Govt. Hospital, Ernakulam
- Fire Officer- in charge of the naval fire station
- Executive Engineer PWD
- Port Health Officer, Cochin Port
- General Manager, BSNL, Ernakulam
- Indian Coast Guard





# CHAPTER - 4 DELEGATION OF RESPONSIBILITIES IN CASE OF EMERGENCIES





## CHAPTER - 4 DELEGATION OF RESPONSIBILITIES IN CASE OF EMERGENCIES

#### 4.1 GENERAL

One of the most important objectives of Emergency Management Plan is to create a response organization structure capable of being deployed in the shortest time possible during an emergency. It is often the case that appropriate initial response actions may significantly reduce the consequences of an accident before it escalates in magnitude.

Important telephone numbers pertaining to the DMP are given in Annex I of the Report.

#### 4.2 MAIN INCIDENT CONTROLLER

The overall responsibility of the emergency management lies with the Chairman, Cochin Port Trust. He will assumes the responsibility of Main Incident Controller (MIC) on receipt of the information of an emergency or an impending emergency, In absence of the Chairman, Dy./Acting Chairman will assume the responsibility of MIC.

Some of the critical functions of the Main Incident Controller are:

- Activation of the emergency response organization
- Conduct and reassess ongoing emergency assessment, including upgrading or downgrading of the emergency alarm level
- Notification to other governmental agencies
- Decision to ask for outside help and resources
- Decision to rescue/evacuate people
- Decisions involving the safety of, off-site vulnerable points (e.g. recommendations to evacuate or take shelter, in the case of a toxic vapour release),





• Decisions to shut down/restart the Port.

#### 4.3 CHIEF EMERGENCY CO-ORDINATOR- CHAIRMAN, CoPT

Hewill act as Chief Emergency Coordinator during emergency. He may appoint a

responsible officer as the Liaison Officer to deal with various governmental

agencies.

The following duties and responsibilities may be assigned to various officials, depending on the emergency:

- Establish emergency control centre, bring it into action in emergency
- Mobilize other Co-ordinators and activate Crisis Group
- Declare Danger Zone
- Approve information to press
- Co-ordinate with outside agencies
- Communication
- Fire, Safety. and Rescue
- Special hazard
- Utilities
- Engineering *I* technical function
- Medical function
- Logistic function
- Security function
- Administrative function
- All clear and reentry/restart of facility/Port

## 4.4 FIRE AND SAFETY CO-ORDINATOR- DEPUTY CONSERVATOR (IN HIS ABSENCE HARBOR MASTER)-

The duties of fire and safety coordinator are listed as below:

- Formulate strategies and advise the Chief Emergency Coordinator of the actions to be taken to mitigate the consequences of the accident.
- Deploy man power
- Arrange external assistance from outside fire fighting agencies if situation warrants
- Maintain direct communications with the on site staff.
- Co-ordinate the activities aimed at organizing, requesting, and obtaining additional, resources (both as equipment and personnel) to support the





field operations

- Check for casualties,
- Arrange for rescue of trapped workers and those in *a* state of shock,
- Pending arrival of the Chief Emergency Coordinator, direct the shutting down and evacuation from the facility and call outside emergency service, (if necessary).
- Allocate jobs to the emergency squad,
- Report all developments to the Chief Emergency Coordinator.
- Preserve all evidence for use in the subsequent enquiry after the emergency has terminated.
- Test the communication of the equipment by talking to all the emergency squad members.
- Co-ordinate with the Harbour Master and get the shipping traffic to stop should that be necessary,
- Update maps and wall charts displaying the worsening or improvement in the emergency situation (e.g. units affected by fire, areas affected by evacuation order). Posting of the flags with pin and colour codes could be done for indicating the areas affected and the areas likely to get affected if no action is taken.
- Ensure that all the Private trawlers & launches operators (i.e. fishermen) are evacuated from the Cochin Fishing Harbour
- All the Dock workers are evacuated
- Port's share workmen are evacuated
- Contract labours are evacuated from the dock and all the godown areas.
- To ensure that fishermen are evacuated from the Port once signal No. 7 is hoisted.

# 4.5 MARINE FLEET CO-ORDINATOR- HARBOUR MASTER (IN HIS ABSENCE, DOCK MASTER)

His duties shall include:

- Mobilize all crafts, tugs and men
- Arrange for shipping movements as necessary
- Keep all ports vessels ready for operation
- Arrange boats for evacuation and crew transport
- Activate Action Group

In case of crisis of level II or above all marine craft will come under the direct





control of Harbour Master. He will be assisted by the Additional Dredging Superintendent.

## 4.6 TANKER BERTH SAFETY CO-ORDINATOR- DOCK MASTER (IN HIS ABSENCE, MANAGER MARINE POLLUTION CONTROL)

His duties shall include

- Co-ordinating fire fighting and pollution control with ship staff/terminal/OMC
- Co-ordinate with Harbour Master on possible tanker movements if situation warrants.

#### 4.7 POLLUTION CONTROL CO-ORDINATOR- MANAGER MARINE POLLUTION CONTROL (IN HIS ABSENCE, CHIEF FIRE OFFICER)

His duties shall include

- Mobilize `Venad' and all available crafts and personnel
- Arrange oil dispersant, booms, skimmers etc.
- Co-ordinate action with HM/DM
- Co-ordinating with State Pollution Control Board for pollution control

#### 4.8 ENGINEERING CO-ORDINATOR- CHIEF ENGINEER/CME

His duties shall include

- Arrange/isolate electrical supply to affected area if required.
- Arrange for bulldozers-mobile cranes fork lifts/or any other specialized equipment
- Arrange for fabrication of any special equipment that may needed for emergency operation
- Mobilize cargo handling equipments

#### 4.9 GODOWN AND CARGO HANDLING CO-ORDINATOR-TRAFFIC MANAGER

His main duty shall be to mobilize staff to remove cargo in sheds, wharves etc. out of danger area.





# 4.10 SECURITY, TRANSPORT CO-ORDINATOR- CISF COMMANDANT (IN HIS ABSENCE DY. COMMANDANT)

His duties shall include:

- Transport people to Evacuation Centres/Temporary shelters
- Arrange/Regulate Traffic
- Cordon off necessary areas
- Restrict entry of unauthorized personnel
- Mobilise security staff
- Liaison with Police/Arrange for wireless communication as required.
- Arrange to issue warning by loud hailers
- Prevent looting/arson
- Assist in orderly evacuation
- Ensure that all people in the residential area in the Port are notified about the impending disaster alongwith likely time.
- Ensure that people are aware of the assembly points, where the transportation vehicles are available.
- Ensure that the people are as per the head count available with the assembly point section of that area.
- Liaise with the Secretary for transport arrangement trucks/buses
- Ensure First-aid kit is available at the assembly points.
- •
- Carry out a reconnaissance of the evacuated area before declaring the same as evacuated and report to the Main Incident Controller.
- Ensure two vehicles are on standby at all the time.
- Ensure that non-essential persons do not crowd the affected area,
- Inform the SHO of Willingdon Island, Police Station.

#### 4.11 WELFARE & MEDIA CO-ORDINATOR- SECRETARY (IN HIS ABSENCE Sr. DY. SECRETARY)

His duties shall include:

- In-charge of temporary shelter
- Arrange for food, snacks, beverages
- Arrange communication with relatives of employees
- Inform statutory authorities, State Government officials
- Arrange Video coverage
- Arrange press release of information and cautionary notices
- Keep a running head count to access how many people trapped or rescued.





In case of crisis of Level II or above the Public Relations Officer (PRO) is to take charge and form a vehicle pool which will include Cochin Ports hired vehicles also.

#### 412 MAINTENANCE FUNCTION - EXECUTIVE ENGINEER/DY. FA & CAO

His duties include:

- Give a real time estimate after assessing the damage to the Main Incident Controller on as to how much would be the replacement or repair time for the equipment from its current state,
- Also estimate the procurement time in addition to the repair time,
- Quantify the damage and repair cost
- Recommend the appropriate procedures to isolate damaged units and provide resources, both in terms of personnel and equipment, to accomplish this.
- . Render assistance for extricating trapped personnel by cutting structures and wires.
- Contact the vendors who can assist in repair of the damaged equipment If required liaise with KRL & IOCL, BPCL or FACT/FEDO.

#### 4.13 EMERGENCY SQUAD FUNCTION

The duties of this function include:

- On hearing of the emergency they should get to their stations and keep at the data and equipment ready for deployment.
- Arrange for emergency electric supply (generator)
- Take over all the schools and community centre to set up Temporary Evacuation Centre (TEC).
- Provide water supply
- Ensure medical assistance and medicine availability.
- Ensure set up of kitchen and availability of food at the Temporary Evacuation Centre (TEC).
- Inform all the stevedores and all terminal
- Ensure that all the evacuees are transported after a head count at the site as well as Temporary Evacuation Centre (TEC).
- Contact voluntary agencies
- Contact hotels for food supplies
- Ensure lines of communication between "TEC" and Main Emergency Control room
- Assist the FIC in all his requirements like electric emergency supply
- Sourcing of skilled workers for rescue Getting together a team of cutters and welders if required in the rescue operation.





- Help in evacuation of the people from the Port.
- Apart from this they have to man their stations so that the normalization process does not take much time.
- Ensure that when the termination of emergency takes place, transition to normal operation is the least time consuming,

The composition of Emergency Squad Members is given as below:

#### **General Administration**

• Deputy Secretary, CPT

#### **Estate Branch**

• Sr. Asst. Estate Manager, CPT

#### CISF

- Deputy Commandant'
- Assistant Commandant,

#### Traffic

- Sr Deputy Traffic Manager, CPT
- Deputy Traffic Manager, CPT
- Wharf Supdt. (CFS)
- Wharf Supdt (M/W)
- Wharf Supdt (E/W)

#### **Dock labour Division**

- Dy. Administrative Officer
- Assistant Labour Officer

#### Mechanical Engineering

- Deputy Chief Mechanical Engineer
- Safety Officer

#### I C Engines Division





• Superintending Engineer (M)

#### **Electrical Division**

- Deputy Chief Mechanical Engineer (Elec.)
- Executive Engineer (Elec.)
- Asst. Executive Engineer (Elec.)

#### **Civil Engineering**

- Deputy Chief Engineer (PD)
- Suptdg. Engineer (CM)
- Executive Engineer (EM) / Executive Engineer (PD)

#### **Materials Management Division**

Dy. Materials Manager

#### **Cochin Fisheries Harbour**

• Asst. Traffic Manager

#### Marine Department

• Hydrographic Surveyor

#### Harbour Master Division

- Pilot
- Engineer I/C

#### **Dock Master's Division**

• Suptdg. Engineer (M)

#### Marine Engineering Division

• Marine Engineering Supdt.

#### **Fire Station**





• Fire. Officer

#### **Accounts Department**

• Sr. Dy. Chief Accounts Officer

#### Medical

- Deputy Chief Medical Officer
- Sr. Medical Officer (Specialist)
- Asst. Medical Officer

The team members of emergency squad are in addition to the emergency functional heads as mentioned earlier. It should be ensured that at least three working staff from each of the departments will be attached with the Squad for attending to the needs.

#### 4.14 Link Between Navy, Coast Guard and Air Force

The task involved may demandrough and tough and dedicated personnel who are trained to meet any challenge, be it evacuating people marooned due to flood or making shelters or transporting relief to inaccessible areas. It is for this purpose that the Army, Air Force and the Coast Guard would be required to assist the Cochin Port Administration.

The Chairman / Deputy Chairman, CPT would be the co-ordinating official for liaisoning with the Station Commander (Army, Navy as well as Air Force) after consulting the District Administration.

While seeking assistance from the army, Air Force or the coast guard the following documents should be kept ready for reference:

- Overall layout plan of the Cochin Port
- Clear demarcation of the affected area on the layout plan
- VHF link frequency or establishing contacts with the signal room as well as CISF commandant.





- List of all the important telephone numbers.
- In the event of Cyclone or an Earthquake, keep the task force updated on the weather condition i.e whether any rain can be expected or not.
- Ensure that the emergency team is extending their full co-ordination to the task force.
- For ready reference the Secretary should nominate a person who should be made responsible to taking notes on what is happening and what sequence.
- The areas, which could be-used as temporary shelters should be indicated to them.
- Open space which can be used as staging area should be indicated to them.
- All the medical staff should be kept on standby and they should be asked to act after consulting the Army or the Air Force teams.
- In the event of air evacuation requirement it should be ensured that the people being evacuated are listed and the number of sorties required are noted.
- In the event of a cyclone and a resultant Ammonia Gas leak it should be noted that the Army and the Air Force personnel should be provided with gas mask (if the need be).
- Data pertaining to the number of people in the affected areas (an approximate) should be made available to the Army/Air Force.

The flow of information for co-ordination:

Chairman, District Collector, Secretary - Ministry of Shipping /Chief Minister of the state/Army /Air Force.

Important telephone numbers pertaining to the DMP are given in Annex I of the Report.





# CHAPTER - 5 ROLE OF FACILITY OWNER IN THE PORT





### CHAPTER - 5

### ROLE OF FACILITY OWNER IN THE PORT

#### 5.1 GENERAL

The following facility owners are operating in the port:

- BPCL-KR
- HPCL
- IOCL
- FACT
- ICTT
- HHAT
- GANESH BENZOPLAST
- KONKAN STORAGE SYSTEMS
- PETRONET LNG TERMINAL
- HOTELS
- GODOWN OPERATORS

#### 5.2 Actions to be taken in event of Emergency

The individual terminal will have to ensure the following in the event or

emergencies arising out of

- a. Natural disaster
- b. Toxic release
- c. Flammable vapour release
- d. Road tanker / Rail tank truck transportation accident
- e. Fire
- f. Flooding

#### a) Natural Disasters

- Ensure that adequate staff are posted at the terminal to meet any eventuality
- Ensure all operations are shut down,
- If possible, ensure disconnecting pipelines
- Provide 48 hours food supply as well as portable water supply at the terminal

#### b) Toxic release

• Ensure that the staff is evacuated in the cross wind direction.





- The staff located at the site to ensure safe operation, should be provided with gas masks.
- Do's and Don'ts should be posted at strategic location to ensure minimum loss to life

#### c) Flammable vapour release

- It should be ensured that all possible help is rendered to the affected site / terminal.
- The fire and safety officer at Cochin Port fire station should be informed
- Information pertaining to fire should be relayed to Main Emergency Control room at Cochin Port
- Information regarding fire incident should also be relayed to Naval Fire station in addition to the Ernakulam Fire station,
- Security personnel of the individual terminals should also be on standby to assist in fire fighting if need be
- Mutual Aid Agreement should be signed between all the terminals as well as the CoPT
- IOC terminal should assist the port in plugging the pipeline leak i.e, with respect to the submerged pipeline as well as with respect to the pipeline on the COT as well as the pipeline rack,
- The terminal Manager of the terminal next to the affected terminal should also inform the CISF

#### d) Road tanker / Rail tank truck transportation accident

- The dispatch terminal to whom the cargo belongs is responsible for attending to the mishap
- The dispatcher has to inform the exact location of the accident to the Main Emergency Control Centre (MECC) as well as to the Local Emergency Control Centre (LECC) at CoPT
- CISF Commandant has to be informed by the dispatcher of the site of





accident

- The Fire and Safety Officer stationed at Cochin Port should also be informed with specific name of the chemical
- In case the road tanker involved happens to be containing POL products then HPCL, BPCL and IOCL should be contacted immediately

#### e) Fire

- Inform the Chief Fire Officer of Cochin Port as well as Naval Fire station,
- Information should be relayed to CISF regarding the fire.
- In case it is a fire related to POL product then the oil majors i.e HPCL, BPCL and IOCL should be contacted

#### f) Flooding

- Terminal should have trolley mounted pumps preferably of flame proof type to ensure dewatering of the site
- Gum boots should be supplied to the staff at the terminal
- The electricity supply to the terminals should be shut off to avoid short circuit
- The trolley mounted pump should have DG supply in order to ensure continuous operation
- It should be ensured that all the drains should be cemented and free of any debris Which could hamper the flow of water

#### 5.3 Emergency Team

The following occupiers shall be a part of the emergency, team for rendering expert advice. (This composition may be changed once in three years on rotation basis.)

#### a) Toxic Team

- FACT
- b) Fire Team
  - BPCL
  - HPCL





- KRL
- HHAT
- Ganesh Benzoplast
- Konkan Storage systems

#### c) Transportation Team

- IOCL
- HPCL
- BPCL

#### d) Natural Disaster Team

Collective responsibility of the Port as well as the industrial and the other occupiers.

#### 5.4 OTHER DUTIES

Individual terminals shall be responsible for ensuring that safe shut down has been affected aftermath of *a* disaster in the neighbourhood

The emergency team should be drawn essentially from CISF and Marine Department i.e. at the behest of Harbour Master. In the event of an impending natural disaster like cyclone or incessant rain, CISF personnel should be stationed at the wharf.

The emergency team should have the following:

- Chemical data sheet
- Protective clothing
- Breathing Apparatus
- Safety Harness
- General tools and flash light
- Leak plugging equipment like wood plugs
- Analytical equipment like explosimeter
- Flood light with generator
- First Aid kit
- Portable diesel Operated fire water pump

The responsibility of the various teams mentioned above would be to follow the





following procedure:

- a) Keep people away
- b) Inform incident controller i.e. at Main Control Room
- c) Contain the chemicals
- d) Avoid igniting the chemicals by ensuring muffler on the exhaust
- e) Obtain chemical data sheet

The communication parameters which need to be relayed to the emergency Control Centre.

- a) Place and time of the incident
- b) Chemicals involved
- c) Condition of the container
- d) Injuries *or* death
- e) Area surrounding (open country, town)
- f) Weather conditions,
- g) Assistance available (police, fire services)
- h) Means of maintaining contact

#### 5.5 LOGISTIC TEAM

The function of Logistic Team is to ensure necessary supplies are available to Response Team during the emergency. In addition to above mentioned, the team is also responsible for organizing and maintaining the staging area where emergency material and equipment is to be temporarily stored and assembled before rapid deployment. The Logistic Co-ordinator will be reporting to the Main Incident Controller and keep him updated on the availability of supplies arid equipment or of any anticipated need.

Typical list of emergency equipment and material is given below:

- Fire extinguishers
- Fire fighting agents
- Fire hoses an nozzles
- Personal protection apparatus like fire suit (proximity suit)
- Chemical resistance protective clothing
- Self contained breathing apparatus
- Respirators
- Emergency lights





- Power generators
- Portable radius and cellular mobile phones
- Spill control agents for decontamination of toxic spills
- Plastic containers and lining material for diking and damming
- Earth moving machinery
- Fuel and gasoline for operation of vehicles and machinery

In the event of the a disaster like an Earthquake it should be the endeavour of all the industrial occupiers like KRL, FACT, IOC, HPCL, BPCL, HHAT and Ganesh Benzoplast to formulate a joint strategy as to how they can reduce the impact of the damage or the emergent situation. Apart from that the population at risk should also be ascertained and informed about the hazard this they should do in conjunction with the Cochin Port Trust emergency team members.

The Temporary Emergency centre within the port limits would be manned by the Port CISF personnel to ensure that the general public located inside the port area is safe and not at risk.

All the terminals within the ports should have their own fire protection detection system coupled with the gas detection system (applicable only to FACT),

An audible alarm that is predetermined should be raised when a gas leak takes place.





# CHAPTER - 6 SECURITY REQUIREMENT





### CHAPTER - 6 SECURITY REQUIREMENT

#### 6.1 GENERAL

The need for surveillance against sabotage is far greater than pilferage in case of Cochin since, it has tanker terminals handling LNG/Chemicals/ POL products. Within the limits of Cochin Port exists the Head Quarters of Southern Naval

Command, a defence installation of great strategic importance. It is therefore extremely important to have continuous surveillance in the area for both the maritime purposes as well as the anti-sabotage point of view.

Surveillance for Cochin could be considered under the following sections:

- Closed circuit television (CCTV) cameras
- Patrolling
- Watch towers and Search lights

#### 6.2 RESPONSIBILITY OF SECURITY FUNCTIONARIES AT THE TIME OF EMERGENCY

The Security functionary shall perform the following duties:

- To control road traffic movement in/out of the port. To instruct security personnel to prevent unnecessary gathering of personnel not required to be present at the scene of emergency.
- To instruct security personnel, who could be spared, to assist Fire & Safety Coordinator in fire fighting or evacuation of personnel.
- To request local police authorities, for assistance, if needed.

The installation proposed to be located at the Puthuvypeen will have a security compound wall with searchlights on the periphery of the terminal.

• The CISF deployed at Cochin Port would form the first line of defence in terms of security. In the event of a disaster, security personnel from





individual terminalmoperators will form the second line of defence. Indian Navy at the command of the FOC-in- C, Southern Command would also assist in the cordoning off, of the area.

- In the event of sounding of an alarm for major ammonia gas leak or an impending natural disaster (storm or torrential rain) Commandant CISF should secure all the entrances and exits.
- The areas to be secured should include the *main* gate of dry dock area and main gate of Workshop, the North Coal Berth, the South Coal Berth as well as the Mattancherry Wharf and the barge jetty for ammonia.
- Apart from the above mentioned locations, it should be the endeavour of the Port to secure the following areas too i.e. Ernakulam Wharf, Barge berth for fertiliser raw material.
- The security personnel would have to frisk and record the entry as well as exit of each individual to and from the facility after the warning emergency siren.
- Respective Wharf superintendents would have to ensure that all the casual labour are assembled in the assembly area where they have to conduct a head count.
- It should be the duty of the security to check the undercarriage of the vehicle entering the port area for evacuating the affected people. This is for protection from bomb threat.
- In the event of receiving a bomb threat over telephone, the security should ensure that the area mentioned by the caller is completely evacuated and isolated and searched for any suspicious object.
- An unclaimed bag or an object suspected to be a bomb, should be brought to the attention of the bomb squad of the police force..





- A hotline arrangement should be provided for contacting Navy and Coast Guard.
- The area to be cordoned off should be done by using ropes or markers or tapes classifying the same as out of bound for general public.
- In the event of a ship being impounded at the berth, continuous vigil to be maintained by installing tempo*r*ary search lights for lighting up the berth.
- The security in-charge should be directly in touch with the SHO of Harbour Police Station on wireless in the event of any civil unrest or other security requirement.
- In the event of anchoring the impounded ship within the territorial water the Coast Guard has to be notified and close contact with Coast Guard to be maintained for ensuring the security of the ship.
- On receiving an alarm for ammonia leak, only controlled access to Cochin Port will be allowed after getting permission from the Dy. Conservator.
- Control watch towers have to be provided all along the Mattancherry Channel face of the Willingdon island. This would help in monitoring the movements all along the port boundary.
- The complete area should be well lit up by the tower mounted lights to ensure that all the areas are visible to the security personnel at all time.
- The areas like COT / Puthuvypeen and Vallarpadam as well as the Vypeen should be also flood lit to enable visual check to be maintained by the security staff.
- In addition to the watch-tower and the tower lights, it is recommended that there be continuous patrolling of the whole port area.





- Special communication facilities should be given to the security personnel posted near the Ammonia tank terminal for early warning.
- The security personnel should be asked to ensure that the route leading to and from the port is kept free of any hindrance.





# CHAPTER – 7 COMMUNICATION SYSTEMS





#### CHAPTER – 7

### COMMUNICATION SYSTEMS

#### 7.1 GENERAL

Timely communication of an impending disaster may be life-saving for many people. Effective hazard communication is treated as the single most effective way of limiting losses both in terms of life and property by way of actuating preventive or remedial actions.

The various aspects covered in this chapter are:

- 1. Communication infrastructure
- 2. Sounding of early warning notification
- 3. Siren Warning Systems

#### 7.2 Communication

Multimodal channel of communication should be made available in the Port for

effective communication in event of any emergency:

- VHF link local (within the port)
- Telephone link (within the port)
- Hotline link between Chairman's office as well as the FOC-In-C, , Southern Naval Command, (JOR)
- Link between Indian Meteorological Department (IMD) and Port Control
- Satellite link with other ports
- Hotline link between the Main Emergency Control Centre (MECC) at port control and administrative building and the Intermediate Emergency Control Centre (IECC) close to CIFT on the Willingdon Island.
- it is recommended that all the important officials be given a mobile phone.
- Local cable TV network for telecasting the emergency to the public at large along with do's and dont's.
- IMMARSAT is also available at the Port.

The telephone numbers of key members of the Emergency Co-ordinating team are given in Annex I.





#### 7.3 Communication Function

Communication functionary as appointed by the Cochin Port Trust shall perform the following duties:

- To ensure all available communication links remain functional.
- To quickly establish communication links between incident site and the control room
- To ensure that previously agreed inventory of various types of communication equipment is maintained in working condition and frequent checks carried out and records maintained.

To maintain record of significant voice communications with timings received/passed from the primary control room.

#### 7.4 Sounding Early Warning Notification

Raising of an alarm holds the key in minimizing the extent of damage to both life and property. The key to raising of an alarm lies in the early warning for notification of an impending disaster. Cochin Port should have a minimum of three modes of raising an alarm:

- Raising of flag atop the signal room building
- Siren/hooter
- Public Address system

In addition to three modes of raising an alarm there could be other modes of doing the same i.e. by providing the following annunciation system:

- Break glass fire alarm
- Blow horn speakers mounted on vehicles
- Notification of an alarm through VHF link
- Local Doordarshan Kendra, Local cable TV operators like ACV, Citichannel etc.
- Local AIR (Radio)

The raising of alarm becomes critical for the following events:





- An impending cyclone or any natural disaster on receiving an information from IMD or the Doordarshan.
- A toxic release
- Release of LNG/LPG.
- A major fire elsewhere in the Port

#### Raising of an alarm for Natural calamities:

#### Cyclone

- On receiving the information from the Main Emergency Control Centre (MECC) the signal room operator has to raise the flag for the expected intensity of the cyclone ranging from 1-11 as being the case as the signal for the ship as well as the people.
- In addition to notifying the signal room MECC has to notify the Chairman/Dy. Chairman, Harbour Master and the Sr. Commandant, CISF over the VHF link.
- The Chief Fire Officer has to be informed for sounding the alarm and to be on standby.
- The Deputy Conservator is responsible for issuing communication both through VHF (verbal) as well as by Fax (written).
- The Dy. Commandant, CISF to inform the local police department

CISF to coordinate warning and evacuation .

- The hospital staff should be kept on standby
- On receiving a cyclone warning from the meteorological department the progress/movement of the cyclone should be monitored on a hourly basis this can be done by using the website or by direct contact.
- Fixed and mobile cargo cranes, locomotive equipment to be secured and anchored.
- All cargo shed doors, windows to be closed
- Emergency repairs to building roofs and windows
- Cargo shifted to safer place/emergency clearance
- Portable generators mounted on trailers
- Stand by arrangements for evacuation and shelter
- Food and water for minimum 48 hours





- All communication equipments to be tested and put on
- Senior Hydrographic Surveyor to apprise the Harbour Master regarding actual and predicted tides.

The procedure for communication in case of natural calamities is given in Figure-





Figure-7.1 Procedure for Communication in case of Natural Calamities

#### Toxic/ Inflamable gas leak

On receiving a gas leak report from Ammonia Terminal/ Ship siren should be sounded

- While evacuating personal in case of toxic release, the security staff has to ensure that they move in cross wind direction (i.e. perpendicular). In the event of a toxic alarm all the fire safety team stationed at Cochin Port fire station should be supplied with gas masks/ breaking apparatus and kept standby to attend the emergency.
- While raising the alarm, it should be ensured that the schools located on the Willingdon Island are the first to be informed.





The District Magistrate/ District Collector and RDO, Fort Kochi, shall also be kept informed about the emergency depending on its gravity.

The procedure for raising alarm in case of toxic leakage is given in Figure-7.2.







Figure- 7.2 Procedure for Communication in case of Toxic Release

Fire





- In the event of receiving a fire call, a fire alarm should be raised by sounding of the siren.
- The Chief Fire Officer shall be informed first and then the alarm will be raised. It should be ensured that the information is passed on to the Control room. The list of Fire Fighting facilities at Cochin Port is given at Annex-II
- The hospital staff should be kept on standby alert.

The procedure for communication in case of Fire & Explosion Response is given in Figure-7.3.



Figure- 7.3 Procedure for Communication in case of Fire **Responsibility of Fire and Safety Functionary** 

The main responsibilities of fire and safety functionary are:




- To immediately take charge of all firefighting operations upon sounding of the alarm.
- To instruct the designated officer to immediately inform all essential personnel not residing within the audible range of the emergency siren.
- To guide the fire fighting crew and provide logistics support for effectively combating the fire.
- To barricade the area at appropriate locations in order to prevent the movement of vehicular traffic.
- To assist in rescue and first aid operations.
- To organize relieving groups for fire fighting.

## Transportation

- In the event of an accident pertaining to involving a barge or any ship or tanker at the channel or in the back waters within Port limits, the VHF channel should be used to inform the emergency control centre located at Willingdon Island as well as CISF commandant. Apart from this the Chief Fire Officer should also be informed about the emergency.
- While raising the alarm special instruction pertaining to cordoning off the affected area should be issued.
- In the event of spill on the road the concerned Terminal Manager should inform the emergency control room located at Willingdon Island. Surface spill containment (Chemical resistant) booms should be immediately taken to the site.
- The hospital staff should be asked to be on standby.
- Arrangement for Transport of victims to Hospital/Dispensaries
- Mobilization of all available vehicles at the port for emergency use..
- Arrangement of the duty rotation of the drivers to meet with the emergency situation.
- The police department should be informed in order to effect the cordoning of all the approach roads leading to the accident sites. At the same time all the roads shall be kept clear of any hindrance to prevent the movement of the vehicles.
- In case an Oil Spill was to happen then the notification to the Deputy Conservator is a must and he has to notify the Manager (Marine Pollution Control) at the Port.
- Alarm for an Oil spill should be raised by calling up the Indian Navy as well as the Indian Coast Guard.
- Arrangement of vehicles from Other Sources.

## Earthquake





• Frequency of tremors as reported in the Newspapers T.V. and Radio The procedure for communication in case of Earthquake is given in Figure- 7.4.



Figure- 7.4 Procedure for Communication in case of Earthquake

## Oil Spill

The communication plan in case of oil spill is given in Figure-7.5.







Figure- 7.5 Procedure for Communication in case of Oil Spill Emergency

## **Oil Tanker Berth Emergency Plan**

The Emergency Communication Plan for oil tanker berth is given in Figure-7.6.









## 7.5 Siren Warning Systems

Raising the alarm is the first step in the implementation of Onsite Emergency Plan/Disaster Management Plan (DMP). Essentially there would be various alarms for sounding of an emergency including fire, building collapse and flooding. The alarms are basically used to notify people of an impending disaster or an event, which is likely to snowball into a major disaster.

The various categories of alarms are as follows:

• Cyclone alarm (11 levels)





- Toxic and Flammable gas release
- Fire
- Flooding
- Building collapse
- All clear

The various means of communicating or raising of alarm, portside as well as the townships at Cochin, would be in the following order:

- Raising of flag on top of the signal room for indicating the severity of cyclone.
- Blowing of the siren having a short blast followed by a long blast and repeating it 3 times for indicating evacuation from the port/jetty/township.
- Blow horns in the vehicles being used by CISF.
- Usage of VHF link to inform of a leak in the pipeline during unloading operation to both the ship as well as to the terminal.
- Using telephone as well as fax to inform the main emergency control room of a gas leak or fire.
- Establishing contact with the District Collector at Ernakulam and requesting for help.
- Public Address System would be used to inform the public at large in the township to ensure that they do not travel in the direction of the disaster and assemble at the assembly point as designated.





# CHAPTER - 8 TRANSPORTATION AND OTHER REQUIREMENTS





## CHAPTER - 8

## TRANSPORTATION AND OTHER REQUIREMENTS

## 8.1 Transportation

Emergency situations in the port may call for evacuation of the people. Various means of transportation can be utilized for evacuation purpose. As soon as this Emergency Action Plan comes into force, list of vehicles should be checked for their availability. The vehicle pool so formed shall be controlled by Secretary - CPT under the overall supervision of the Dy. Chairman, CPT.

Additionally Secretary, CPT may hire vehicles from the private vehicles contractors for emergency response.

## 8.2 Contact with Railways & KSRTC

Secretary of the Port will ensure smooth movement of workers/employees. He may get in touch with the officers of Southern Railway/ KSRTC and apprise them about the situation so that the movement of staff is not affected. Contact details of Railways and KSRTC persons is given in Annex I.

## 8.3 Generator Sets

Wherever generator sets are required whether at Willingdon Island, Vallarpadam, Vypeen PuthuVypeen and Bolghatty, the following officers shall be contacted, who shall immediately hire/procure or provide in whatever manner the DG sets giving preference to the operational area.

- Executive Engineer (Electrical)
- Assistant Executive Engineer (Electrical)

## 8.4 Boats

In the event of an emergency like a major gas leak it would be very critical to





evacuate all the people from the Willingdon Island as fast as possible.

In order to undertake a mass evacuation from the Willingdon Island, the fastest means would be the boat. The number of boats required to evacuate approximately 10,000 people would be quiet considerable. However, the same is possible with the assistance from Indian Navy and Coast Guard.

Kerala State Water Transport Department and the Kerala State Inland Navigation Corporation will be able to assist in evacuating people.

Ferry operators can also be called upon to provide boats for evacuating the people from the Willingdon Island as well as other Islands like Mattancherry, Puthuvypeen and Vypeen.

## 8.5 Fire Tugs

All the tugs in service in Cochin Port have fire monitor mounted on top of them. Hence the fleet of tugs can be used as a first response boats for basic fire fighting. In addition to this the Indian Navy also has a tug with fire fighting facility, which can also be requested for at the time of need.





# CHAPTER – 9 MEDICAL AID AND RELIEF CENTRE





## CHAPTER – 9 MEDICAL AID AND RELIEF CENTRE

## 9.1 GENERAL

In the event of a disaster like toxic release it would be the responsibility of not only Cochin Port but also of the facility operator from where the release has been affected to suggest and provide antidote for the same. In the event of a toxic release Cochin Port is expected to assess the population likely to get affected by the toxic gas, based on the prevailing wind direction. The first response in terms of mutual aid would be to provide gas mask and immediately relocate the people staying in the affected zone to a location, which is upwind/ crosswind, and not falling in the cone of affected zone. Cochin Port hospital has adequate capacity to handle first aid cases of chemical exposure and burns, the affected people can then be shifted to hospitals in Ernakulam. The contact details of the hospitals in and around the project area are given in Annex I. The locations of hospitals are shown in the map at Annex III

## 9.2 Health Care Management

- Requisite medical resources will be mobilized under the overall charge of the Health and Medical functionary.
- The operational response will be coordinated from the control room.

## 9.3 Management During Ammonia Release

In the event of a toxic release, terminal operators like FACT would take lead in providing medical aid since they have best knowledge of antidotes that could be given or administered in the event of a toxic release.

#### Infrastructure

Cochin Port Hospital will have medical personnel trained in antidote administration to the affected personnel at the Port. Cochin Port Hospital to





ensure that gas mask are made available i.e. equivalent to a minimum of the total number of beds present in the hospital. In absence of this, alternative arrangements like use of wet cloth may be made. Well-equipped ambulances will be pressed into service during such emergency. Additional ambulances may be mobilized from private hospitals and other agencies during emergency. A mutual aid agreement should be developed to aid in formulating a medical aid response team for each of the industrial terminals i.e. FACT, IOC and the other terminals like Ganesh BenzoPlast etc. at the Port. Helipad and an airport present on Willingdon Island would facilitate the evacuation by air from the site.

#### Burns ward

A burns ward at the Port Hospital will attend the 3<sup>rd</sup> degree burns if the need be. Till such time, facilities in Cochin city for treatment of burns should be identified and contact details should be maintained. This assumes importance owing to the large quantity of the flammable chemicals being handled/stored in the various terminals. Those affected by the Toxic gas have to be administered with the ammonia exposure treatment, which is given below preferably under doctor's supervision.

## FIRST-AID AND MEDICAL MANAGEMENT IN EVENT OF AMMONIA LEAK SYMPTOMS

Skin Contact

- Irritation
- Bums that are very painful
- Itching and tingling sensation
- Painful ulcerations (Diagnosis by physician)
- Shock can occur due to pain (Diagnosis by physician)
- cold sweat pale complexion
- rapid and weak pulse
- cold hands and feet
- tendency to faint

Eye Contact





- Highly painful irritation of eyes and eyelids
- Watering of eyes
- Burns and irreparable damage to mucous membranes of eyes
- Victims will keep their eyelids tightly closed
- Serious lesions in eyes

#### Inhalation

- a) Symptoms of very acute poisoning:
  - **3.** Irritations of nose, throat, and eyes
  - Burning
  - Difficulty in breathing
  - Acute pulmonary edema
  - Chemical pneumonia or bronchitis
  - Sudden death
- b) Symptoms of acute poisoning:
  - Irritation of nose and eyes
  - Tingling sensation in respiratory tract
  - Coughing.
  - Sneezing
  - Risk of chemical bronchitis
  - Risk of acute pulmonary edema

#### Ingestion

- Immediate burning sensation in mouth, throat, and stomach
- Strong saturation
- Pain in swallowing ,
- Edema of the glottis
- Nausea and voicing of blood
- Rapid breathing
- Stomach cramps
- State of shock
  - cold sweat pale complexion
  - rapid and weak pulse
  - Cold hands and feet
  - tendency to faint
  - Risk of stomach perforation





#### First - Aid

Skin Contact

- Immediately remove- the victim from the affected area and take him to the nearest shower.
- Remove contaminated clothes
- Use emergency showers with large quantity of running water
- Wash splashed surface of skin with weak and dilute acids such as lactic acid
- Apply skin ointment such as SOFRAMYCIN.

If the skin is inflamed, painful or shows blisters:

- Apply a dry sterile dressing
- Keep him warm using a blanket.
- Take him to the nearest hospital immediately
- Make the victim lie down in a quiet place on the back with his head down and legs raised until medical help is received.

## Eye Contact

- Immediately remove the victim from the affected area
- Wash eyes with large quantities of running water keeping his eyelids open
- If great pain continues after washing, put one or two drops of anaesthetizing eye salve, or one drop of BENOXINATE (NOVESINE) at 0.4% into the eye. (The first aider should be trained.)
- Administer few drops of boric acid solution to reduce pain. Lactic acid can also be used.
- To prevent eye inflammation, eye drops with anti-biotics may be used. If internal injury is caused due to ammonia, SOFRACART and ACTROQUINE eye drops could be used. (under medical advice)
- For external injury to the eye, wash the eye with water and then apply ointment SOFRAMYCIN. After first-aid, medical service team will refer the victim to an

After first-aid, medical service team will refer the victim to an ophthalmologist and inform him about the nature of the accident.

## Inhalation

- If the victim is conscious and inhalation is mild:
- Remove the victim from the affected area to a well-ventilated area.
- Loosen the clothes
- Keep him warm using a blanket
- Place the patient on his back with his head and back elevated
- Olive oil can be given by mouth for relief from throat irritation





- If the victim is coughing badly, make him inhale a gauze pad soaked with a little ethyl alcohol or a few drops of ether.
- Administer medical oxygen under low pressure using a pulmotor or similar type of vital equipment.
- If the victim is unconscious but breathing Remove dentures or partial plates.
- Administer medical oxygen under low pressure using a pulmotor or similar type of vital equipment.
- Do not give anything to drink.
- If breathing has ceased then Immediately shift the *victim* from 'the affected area and:
  - \* loosen his clothes
  - \* lay him down-on his stomach
  - \* begin artificial respiration
- Immediately administer medical oxygen under low pressure using a pulmotor or similar type of equipment .
- As soon as *the* victim begins to breathe or to move, lay him down with his body raised and continue to administer oxygen.
- The physician Will keep the victim under medical supervision for at least 48 hours as there is risk of pulmonary edema and microbial infection

## Ingestion

- Ask him to rinse his mouth liberally with cold water.
- If possible, give him cold water, milk with one or two raw eggs, lemon or orange juice and vinegar.
- If the victim suffers from shock:
  - make sure that he doesn't catch cold.
  - lay the victim down with his head lowered.
  - keep him warm using a blanket.
- The physician will keep the victim under observation. The period of treatment depends on the type of injury

## 9.4 First-Aid For Burns

If a burn victim is in shock, the shock should be treated first.

## First degree bums





This involves only the superficial layers of the skin and *seldom* require a physician's care. When they first occur, the burned area should be placed under running cold tap water for ten minutes.

If the burn is extensive, the patient should lie in a tub of cold water with the faucet running. After this, the areas can be covered with plain Vaseline gauze dressings, or any other mild soothing ointment.

## Second degree burns

These go through all but the deepest layer of skin. The average layman can make the diagnosis readily by comparing normal skin to the burned areas, Where the top layers are obviously missing.

There is a serum ooze from the surface and blister formation. When this type of burn is first incurred, the following measures should be instituted:

- Burned areas should be placed under cold running water for ten to fifteen minutes.
- After the water treatment, dirt or adherent clothing should be gently washed off with cotton or toilet tissue and a mild soap.
- Large amounts of fluids should be taken by mouth.
- Clean gauze pads, or a clean handkerchief should be used to cover the burned areas. Ointments should not be applied to this type of burn.
- Blisters should not be opened.

A physician's care should be sought as soon as possible. Until then a pain relieving medicine may be given.

## Third and fourth degree burns

These extend through all layers of skin and may involve underlying tissues. First aid should consist of the same treatment a for second degree burns. These people may be more likely to display shock, and treatment for this complication must be prompt.





## 9.5 Infection Control Liaison Officer (ICLO)

In addition to the above mentioned, the fire department along with the Chief Medical Officer of the Port have to facilitate infection control programme in the event of a natural disaster like Earthquake. The objective of the above mentioned programme would be to ensure infection control at the incident area, and any other area, wherein emergency teams are involved.

The fire team in consultation with the Chief Medical Officer and the District Medical Officer should be provided with information on epidemiology. Modes of transmission, prevention of diseases including, but not limited to, meningitis, childhood communicable diseases, herpes virus, hepatitis A, hepatitis B, hepatitis non-A/non-B or hepatitis C, human immunodeficiency virus, tuberculosis, lice, and scabies. Information on applicable government regulations shall also be provided. The department shall designate one member after consulting the Port Chief Medical Officer as well as the 'Chief Medical Officer of the District as the infection control liaison officer.

The Infection Control Liaison Officer shall be responsible for maintaining communication among the fire department, Port Chief Medical Officer, Chief Medical Officer - District administration and health care professionals. When notified of an exposure, the infection control liaison officer shall investigate the incident and notify all members who were potentially exposed and ensure that those members receive appropriate medical follow-up. He is also responsible for maintaining the documentation of the exposure.

The fire department shall instruct the infection control liaison officer to ensure that the members have accessed to appropriate immunization programmes, including vaccination against hepatitis B. The department shall ensure that all





members involved in infection control have adequate immunity determined through consultation with the physician, to tetanus, diphtheria, rubella, measles, polio, mumps and influenza.

In addition to the abovementioned, the emergency team members should have access to tuberculosis screening at least annually.

Exposed area should be thoroughly washed, using water on mucosal surfaces and soap: and running water on exposed surfaces. If soap and running water are not available alcohol or other skin cleaning agents that do not require running water can be used.

All exposures should be notified to the Infection Control Liaison Officer (ICLO) within 3 hours from the time of exposure.

Members engaged in emergency patient care, shall be provided with medical gloves.

Cleaning gloves shall be reusable, heavy duty, mid forearm length and designed to provide limited protection from abrasions, cuts, snags and punctures and provide a barrier against body fluid and disinfection.

Members shall not eat drink, smoke, or apply cosmetics till they are disinfected. Masks, splash-resistant eyewear, and fluid-resistant clothing shall be present on all fire department vehicles that provide emergency medical operations; prior to any patient care situations during which large splashes of body fluids can, occur, such as situations involving spurting blood or childbirth. Masks, splash-resistant eyewear and fluid-resistant clothing shall be donned by the members who will be providing treatment.





Resuscitation equipment, including pocket masks, shall be available on all fire department vehicles as well as ambulances *(this includes the speed, boat)* that provide emergency medical operations.

At the fire station as well as the hospital, disinfection facility shall be provided and it should not be adjoining the kitchen, living, sleeping or personal hygiene areas.

The disinfecting facility should be provided, with floor drains and should have a minimum of two sinks with hot and cold faucets.

Disinfecting facility shall be labeled as such and should be equipped with rack shelving of non-porous material. The rack shelf for keeping infected trays of objects should not be porous otherwise the same shall contaminate the other decontaminated objects.

#### 9.6 TRAINING

- Training sessions need to be provided in which personnel are briefed on their specific duties in an emergency.
- To provide training to all emergency responders. The concerned personnel are shown how to wear and properly use of personal protective clothing and devices.
- Periodic drills to be conducted to test the overall efficiency and effectiveness of the emergency response plan and emergency response capabilities.

#### General:

The types of training required for emergency response personnel with responsibilities in any or all phases of the response is based upon the types of incidents most likely to occur and the related response and planning activities.

## Responsibility, Frequency and Procedure for Evaluation

The Concerned officer is responsible for evaluating the effectiveness of the on-

site emergency plan. Emergency mock drill should be conducted at an interval of





two months. Experts should be invited to observe the mock drill in order to know their response and opinion. The recommendations following the discussions will help to identify the loopholes in the plan and response capability of the organization. Such periodic recommendations of the mock drill should be kept in order to update the plan.

The Concerned officer should be responsible to update their on-site emergency plan regularly. A regular review of the plan at least once in a year should be carried out to replace outdated information or to incorporate the results of mock drill.





## CHAPTER –10 EVACUATION ROUTES AND TEMPORARY SHELTERS





## CHAPTER –10

## **EVACUATION ROUTES AND TEMPORARY SHELTERS**

## 10.1 GENERAL

In case of a general emergency one of the first duties of the Main Incident Controller is to alert outside authorities and advice them about the actions that should be taken to protect the public if any. The most significant risk affecting the local population is that of a toxic materials release.

## **10.2 EVACUATION ROUTES**

The evacuation route could be by three ways

- Land
- Water
- Air

The evacuation routes are briefly described in the following paragraphs:

## Land

There are two approaches to the port area of W/Island by bridges from the Ernakulam main land, one close to the Southern Naval Command Headquarters and the other from Link road bridge. The bridge linking the mainland (Ernakulam) to Willingdon Island close to the Naval base connects old NH 47 and this goes through the main city. The Link road NH 47A links the Willingdon Island to the NH47 and NH 49 (Cochin-Madurai).

ICTT at Vallarpardam is connected to NH 47 & NH 17 through a 4 lane road with a route length of 17.2 Km .

Port facilities at Puthuvypeen area is connected to the Ernakulam main land through the Gosree bridges.

## Water





Since it is a port, the water route is ideal for a get away in the event of an emergency. There are two channels which are a part of the Cochin Port i.e. Mattancherry channel and the other being the Ernakulam channel and the same could be used for evacuation in the event of an emergency from the Cochin Port. In addition to this, the port is also connected to the mainland by a series of inland waterways which would be the ideal for evacuating the people from the island in the event of an emergency.

## Air

2 nos. of Helicopters with dedicated personnel could be used as a medium for air evacuation, should evacuation be required from Puthuvypeen or Vallarpadam in the event of a major emergency.

## **10.3 CONTINGENCY PLANNING FOR EVACUATION**

The steps to be followed for contingency planning involving evacuation are listed as below:

- Identification of the disaster
- Ascertaining the extent of damage
- Assess the number of affected people
- Arrange for co-ordinating the assembly of the affected people at the designated areas.
- Arrange for transportation of the people from the assembly point to safe shelters.
- The mode for evacuating the people assembled in front of the Priyadarsini park. will be from the New Embarkation Jetty
- The signal room building will form the Local Emergency Control Centre till such a time the new LECC is setup close to the CIFT. (Timber yard)
- Assembly point for the Pilot, CN-type quarters will be the Parrison tank farms.
- The Customs jetty would be the fastest means of evacuating people from the above mentioned assembly point.
- For the Warehouse workers the open area in front of each of the warehouse shall be the assembly point. It shall be the responsibility of





individual operator to evacuate the personnel. The main roads i.e. Bristow road/Indira Gandhi road shall be the escape route.

- Assembly point for the port employees working near UTL berthand South Coal Berth will be UTL passenger Terminal.
- While evacuating the people from this area, the wind direction should be always borne in mind. The evacuation should be preferably in direction perpendicular to prevalent wind direction (cross wind).
- On hearing the evacuation siren it should be the endeavour of the pilots to assemble at the jetties as per the direction of the Deputy Conservator. At the same time if the boats can also be summoned to the jetties it would greatly reduce the evacuation time.
- After sounding the evacuation signal it should be the endeavour of the CISF at Toll Gates as well as the main gates to prevent the ingress of unauthorized personnel into the port premises.
- The Navy Colony evacuation shall be the responsibility of the Southern Naval Command, which could be done by using the Naval boats as well as vehicles.
- As far as the Taj Vivanta is concerned it should be advised to cater to its own needs by way of using its boat stationed at its own jetty.
- The security personnel should always be aware of the location of first aid box on the jetty. He should be always in touch with the Main Emergency Control Centre.
- If possible a speed boat should be stationed at Vypeen for speedy evacuation of the sick and the injured from any of the island to the mainland or to the Port hospital.
- In the event of an impending natural disaster, the residents of port colonies should be moved to the nearest passenger jetty for further evacuation by the water ways.
- The vehicle carrying civilian should be given the first priority in traffic movement.
- Contract labour at site should be given second priority in terms of vehicle movement towards the jetty and the Port official the last priority.
- In the event of sudden cyclonic or any Gas leak information without warning then the first reaction should be to prevent the road traffic from Ernakulam from entering the Willingdon Island.
- In the event of the waterway being difficult then the people should be asked to move towards the Cochin Harbour Terminus railway station and then take available means of transport to reach safe location. This action is to be taken up only after the Port Officials gives instructions.





- Before undertaking evacuation of people by road, a survey should be undertaken by the security staff to ascertain that there are no road blocks or tankers/container lorries parked blocking the road.
- While on a survey for assessing the evacuation route, constant communication link should be maintained with the Main Emergency Control Room as well as with the individual assembly point station from where the evacuation is to be undertaken.
- In the event of complete evacuation of W/Island, relief rail coaches should be arranged from Ernakulam SouthIndividual vehicle operators should be asked not to panic and maintain speed of not more than 30 km an hour while taking the evacuation route indicated by the port official. No deviation from the route should be encouraged, since the same could have fatal consequences.
- As far as possible people should be advised not to use their vehicles since any breakdown of the same on the evacuation route would act as an obstacle to the vehicles being used for evacuation.

## 10.4 ASSEMBLY POINTS AND ESCAPE ROUTES

- •
- The assembly points for the workers-in workshop is the area next to Toll Gate
- The Customs Colony as well as the guests from Taj Vivanta, Pilot Quarters would have to assemble at the back up area of BTP.
- Assembly point for the personnel from Type II, III, IV, V, VI and VII Type Quarters at North End, Chairman's Quarters and Custom Collector would be the main road next to the park in front of the New Embarkation Jetty
- The escape route for the same would be the Ernakulam Channel and on to the Ernakulam from the New Embarkation Jetty. The evacuation of the people from RNAS area would be done by Perumanoor Jetty on the Ernakulam Channel.
- Merchant Navy Club as well as the residents of the Trident Hotel would have to assemble at Cochin Harbour Terminus Railway station.
- The assembly point for each of the berth would be on the road . used for moving between the adjoining warehouses and the berthing area.
- However for the workers working in the warehouses as mentioned above, the assembly point would be the central road between the two streams of warehouses.
- The staging area for the fire station would be used as assembly point for people working in the vicinity.
- The Public Address (PA) system at the assembly area should be used to announce "do not carry any luggage or belongings just carry as much is





bare essential in clothing."

## 10.5 TEMPORARY SAFE ZONES

In the event of an impending disaster, the affected population at large would have to be transported to intermediate temporary shelter. The temporary shelters identified for Cochin Port are schools located on the Willingdon Island. The temporary shelters would greatly depend upon the emergency condition and the nature of the emergency.

Although the schools and a couple of Godowns have been identified as the temporary shelters their usage would greatly depend upon the instructions from Cochin Port personnel. The shelters are to be used only when there is a threat of Natural Disaster i.e. as safe heavens before relocation.

The event of a natural disaster or a toxic gas release disaster could lead to mass evacuation and setting up of Temporary shelters. However in the event of a toxic release, the setting up of the Temporary shelter would also be difficult and hence it is to be borne in mind by the people of the Island to observe the wind direction and then decide the shelter to be used.

Certain basic amenities also have to be available before the temporary safe shelter can be decided upon which are as follows:

- Water supply
- A huge shelter for putting up the refugees or the affected population.

The structure of temporary shelter need to be of concrete made in order to withstand natural disaster (earthquake) if the need be. It is in this regard that schools with RCC building are ideal as sheltering spaces for the displaced population.





In the event of an impending disaster all the temporary shelters should be provided with wireless sets.

Provision should be made for setting up kitchen for preparing the food for the displaced population. In addition to the food supply, provision for temporary water supply through tankers should also be made.

Prior permission may be obtained from the respective educational institutions for converting the schools into temporary safe shelters.

The principal of individual school should be appointed as a record keeper before taking in the displaced population. The principals and some of the staff members need to be trained in Disaster Management.

It should be borne in mind that the places like Puthuvypeen and the Vypeen Island are the two places where it is likely that the people might show reluctance in leaving their dwellings even on being told of a gas leak. It is therefore necessary to educate the people as to what can go wrong and how they should react to it especially when being told that there has been an incident of Gas leak. The evacuation in the case of the natural disaster would be done by District Administration i.e. the District Magistrate/Collector

## **10.6 TRANSPORTATION NEEDS**

The evacuation of the people away from the Cochin Port Premises would be mostly by waterways or the land route. Transportation by air is not ruled out for the population of the Puthuvypeen.

#### **Evacuation by Land Route**

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It is very important for the transport companies like ferry operator as well as the road transporters to have a mutual aid agreement with CPT with respect to supply of buses/trucks to evacuate the population from Cochin Port in an emergency.

A population of about 15,000 would require a minimum of 250 buses/trucks for evacuating from the assembly areas.

In the event of prior warning of a disaster i.e. 24 hour notice period, road evacuation should be encouraged.

GIDA Bridges connecting Vypeen and Ernakulam mainland can be utilised for speedy evacuation of the injured from Puthuvypeen and Vypeen.

#### Evacuation by Waterway

The Harbour Master to maintain a database of the ferry operators as well as that of the boats (motorized), tugs and launches which can be used for evacuating people by water route i.e. inland water way. The emergency team members responsible for evacuation should be made to wear fluorescent Personnel Floatation Devices/ Life jackets while carrying out evacuation of the people from the port. It should be ensured that all the boats have to be provided with Personnel Floatation Devices like lifebuoys as well as lifeline on them.

Night navigation lights should be provided on the boats, launches which are going to be short-listed for being on the list for Emergency Evacuation purposes. The ferry operators as well as the boat operators who are being short-listed for emergency operations should be asked to provide or cater for a wireless set on them. The Port Trust should ensure that all the boats are in seaworthy conditions by checking them periodically. Port should consider appointing a Pilot to be in-





charge of the inspection for sea worthiness of the boats before listing them as an emergency boat.

At the same time the port could consider catering for a speed boat for speedy evacuation of the injured from any of the Islands i.e. Puthuvypeen or Vypeen or Willingdon Island.

When it comes to evacuation, the Chairman of the port can always request the commander-in-chief Southern Naval Command to assist them in evacuation. All the passenger jetties shall be labeled as Assembly areas. Security posted at the passenger jetty should ensure that there is no crowding of the area hampering the evacuation.

## **10.7 TEMPORARY EVACUATION CENTRE**

The temporary evacuation centre shall be looked after by the following officers:

- Administration Department shall ensure that Temporary Evacuation Centres are established in the schools/community centres of Willingdon Island as well as in Vypeen Island. The list of schools at W/Island and Vypeen area are given in Annex I.
- Executive Engineer (CMI) shall ensure adequate quantity of water supply at all the temporary evacuation centres.
- C.M.O. shall ensure that necessary medicine and medical assistance at the temporary evacuation centres is available.
- /Deputy secretary shall take care of the requirement for food for the evacuees in temporary evacuation centres.

The contact details of hotels for providing food packets in the event of emergency are given in Annex I.





## ANNEXURE – I

## Contact details of the Control Rooms





## ANNEX I

S.No.	Name of Organization	Tel. No.	
1.	Port Control Room	0484-2582525, 2667105	
2.	Collector's Control Room	0484-2423001	
3.	Police Control Room	0484-2366100	
4.	All India Radio	0484-2422543	
5.	India Meteorological Department -	0484-2668443	
	Cyclone Detection Centre		
6.	Doordarshan	0484-2422266	
7.	Navy	0484-2879999, 2872207	
8.	Cochin International Airport	0484-2610115	

## Contact details of the Control Rooms

## Contact Numbers of the Emergency Coordinating team

S.No.	Name and Designation	Telephone Nos.	
		Office	Residence/mob.
	INTERNAL		
1.	Chairman, CoPT	0484-2668200,	0484-2668100,
		2668566,	2582900,
		2582002	9847049020
2.	Dy. Chairman, CoPT	0484-2666592,	
		2582003	
3.	Dy. Conservator	0484-2666417,	0484-2666002,
		2582500	2582950
			9847049023,
4.	Chief Fire Officer, CoPT	0484-2666555	9846377403
5.	Chief Medical Officer, CoPT	0484-2666402,	0484-2666605,
		2582700	2582970
6.	Dy. Chief Medical Officer	0484-2666457	9847049026
7.	Traffic Manager	0484-2666418,	0484-2666419,
		2582700	2582920
			9447055054
8.	Secretary	0484-2666412,	9847049028
		2582100	





S.No.	Name and Designation	Telephone Nos.	
		Office	Residence/mob.
9.	Commandant, CISF	0484-2666579,	0484-2667723,
		2582150	2582914,
			9847049055
10.	Harbour Mastor	0484-2666410,	0484-2667725,
		2582501	9847049056
11.	Dock Master	0484-2667721,	0484-2582055
	DOCK Waster	2582520	0404-2002900
12.	Manager Marine Pollution	0/18/1-2582511	9400179043
	Control	0+0+-2002011	3400173043
13.	Hyd. Surveyor	2666871-2504	9446140859
14.	Sr. Marine Surveyor	2666871-2504	9446447017
	EXTERNAL		
1.	District Collector, Ernakulam	0484-2423001	0484-2372902
2.	Fire Service	101/0484-	-
		2312101	
3.	Blood Bank	0484-2354886,	-
		2361549	
4.	Fire & Rescue Services	0484-2206131	9497920105
	(Divisional Officer)		
5.	Fire & Rescue Services	0484-2205550	9497920115
	(Asst. Divisional Officer)		
6.	Fire & Rescue Station, Aluva	0484-2624101	-
7.	Fire & Rescue Station, Club	0484-2355101	-
	road, Ernakulam		
8.	Fire & Rescue Station,	0484-2205550	-
	Gandhi Nagar, Ernakulam		
9.	Dist. Medical Officer,	0484-2360802	9946105484
	Ernakulam		
10.	Superintendent, General	0484-2870227,	-
	Hospital, Ernakulam	2361251	
11.	Commissioner of Police	0484-2385000	9497996990
	Kochi		





## Contact details of hospitals in and around the port area

S.	Name of Hospital	Telephone No.
No.		
1.	Port Trust Hospital	0484-2666403/0484-2666401
2.	General Hospital, Ernakulam	0484-2364251
3.	Medical Trust Hospital,	0484-2358002 to 2358008
	Ernakulam	
4.	Lakeshore Hospital, Ernakulam	0484-2701032, 2701033
5.	Lisie Hospital, Ernakulam	0484-2401006,2402308
6.	Lourdes Hospital, Ernakulam	0484-41234564, 4125555
7.	Co-operative Medical College,	0484-2411460
	Kalamassery	
8.	Amrita Institute of Medical	0484-2801234, 2802100
	Science and Research Centre,	
	Edappally	
9.	Govt. Hospital, Fort Kochi	0484-2224444
10.	Govt. Hospital, Mattancherry	0484-2224511
11.	INHS Sanjeevani Hospital, Naval	0484-2662232
	Base Ernakulam	

## Details of schools to be used as Temporary Evacuation shelter

S.No.	Name of School	Contact person	Telephone No.
1.	Kendriya Vidyalaya,Port	Principal	0484-2667102
	Trust		
2.	Bristow School, W/Island	Head Mistress	0484-2666922
3.	Govt. U.P School, Vypeen	Head Master	0484-2492808
4.	Lady of Hope Anglo Indian	Head Master	0484-2502330
	High School, Vypeen		
5.	UP School Ochanthuruth,	Head Master	0484-2502399/
	Vypeen		2503888





## List of Hotels for providing food packets during Emergency

S.No.	Name of Hotels	Tel. No.
1.	Vivanta Taj	0484-6643000
2.	Hotel Casino	0484-3011711
3.	Trident	0484-2669595
4.	The Gateway Hotel Marine Drive	0484-6673300
5.	Merchant Navy Club	0484-2446803

## **Contact details of Railways & KSRTC**

S.No.		Contact person	Telephone Nos.
			Office
1.	Southern Railways	Area Manager	9746769901
2.	KSRTC, Ernakulam	Depot Manager	0484-,2372033

## Contact details of State, Central Government & Public Sector Offices

Particulars	Office no:
STATE GOVERNMENT	
Chief Secretary, Govt. of Kerala	0471-2333147
District Collector / District Magistrate, Ernakulam	04842423001
Director Inspector General -Indian Coast Guard	0484-2218121
R.D.O (Fort Kochi)	0484-2215340
OIL INSTALLATIONS	
Kochi Oil Refineries Ltd	0484-2722067
Indian Oil Corporation Ltd.	0484-2666015
Bharat Petroleum Corporation Ltd.	0484-2720820
Hindustan Petroleum Corporation Ltd.	0484-2315322
FACT	0484-2666739
BSNL District Manager, Ernakulam,	0484-2378282
BSNL, Divisional Engineer, Willingdon Island	0484-2228800
Asstt. Director, Dock Safety, Cochin	0484-2666532
Post Office(North End)	0484-2666270
Railway Police Station	0484-2376359





Jet Airways	0484-2382275
Indian Airlines, Emakulam	0484-2610041
Commissioner of Customs	0484-2668068
Joint Commissioner of Customs	0484-2668366
Development Commissioner, SEZ	0484-2413222
Dy.Development Commissioner,SEZ	0484-2413111
Cochin Port Fire Station	0484-2666555
Naval Fire Station	0484-2872200
Fire Station, Mattancherry	0484-2225555
KSEB	0484-2422214
Mercantile Marine Department	0484-2666489
Port Health Organisation	0484-2666060
RTO Kakkanad	0484-2422246
R.T.O. (Mattanchery)	0484-2229200
STATE POLICE AUTHORITES	
Asst. Commissioner of Police Traffic	0484-394964
Harbour Police Station Willingdon Island	0484-2666005

## State Government Offices & Press

Particulars	Office no:
Indian Express	0484-2402215
Indiavision	0484-2338869
Press Club	0484-2353152

## Public and Private Sector Companies in the Port

Particulars	Office no:
Ganesh Benzo Plast	0484-6533318
Konkan Storage Systems	0484-2666498
HHA tank farms	0484-2668591
KRL	0484-2722067
ICTT	0484-4156100
FACT	0484-2545418
IOCL	0484-2666298
BPCL	0484-2822644
Petronet LNG Ltd.	0484-2502259
IMC Ltd., W/Island	0484-2669604
Other contacts	
Telephone Fault & Complaint	0484-2666600
Water Supply, CoPT	0484-2582465
Ambulance	101





## Annex II

## List of Fire Fighting Facilities and Other Resources at the Port





## Annex II

## List of Fire Fighting Facilities and Other Resources at the Port

Facilities	Kochi Port
Foam Tenders	4
Foam Concentrate quantity	+10000ltr with F/F system
Fire Extinguishers	
• DCP	in tender+55No.portable
• CO <sub>2</sub>	40 no.portable extinguishers
Fire Water Storage Tanks	50000 ltr FW+ sea water
Fire Water Pumps	5
Communication Facility	VHF/telephone
Water Tender	1
Ambulance Vans	1
Hose Pipe	100 x 30 m
Ladders	5
Rubber Hand Gloves	10
Asbestos Suits	Nil
Breathing Apparatus/SCBA	16
Any other Protective Equipment.	portable monitors,OSD
Breathing Air Compressor	1
Fire Proximity Suit	5
Chemical Encapsulation Suit	2
Dry Chemical Powder Tender	1




## ANNEX III

## HOSPITALS IN AND AROUND THE PROJECT AREA





## ANNEX III HOSPITALS IN AND AROUND THE PROJECT AREA

