MINISTRY OF DEFENCE, GOVERNMENT OF INDIA

NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN

(SHORT TITLE: NOS-DCP)

CGBR 771

2015 Edition

DIRECTORATE OF FISHERIES & ENVIRONMENT
COAST GUARD HEADQUARTERS
NEW DELHI 110 001

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Foreword

By an Office Memorandum of the Ministry of Defence dated 07 March 1986 and further, by amendment to the Government of India (Allocation of Business) Rules, 1961 vide Gazette notification dated 12 December 2002, the Indian Coast Guard has been designated as the Central Coordinating Authority for combating oil spills in Indian waters and undertaking oil spill prevention and control.

The National Oil Spill Disaster Contingency Plan or NOS-DCP for short, together with the allocation of functional responsibilities to the various Ministries and Departments of the Government of India for oil spill response in the maritime zones of India was approved by a Committee of Secretaries to the Government of India on 04 November 1993.

The NOS-DCP was originally promulgated in July 1996 and subsequently updated in 1998, 1999, 2000, 2002 and 2006 to include additional information.

This 2014 edition of the NOS-DCP has been completely revised to reflect current international norms and best practices, key relevant national regulations, experience gained since publication of the first edition in July 1996 and valuable inputs received from stakeholders to the national plan as part of the process of revision.

The NOS-DCP was originally designed for responding to oil spill disasters in Indian waters. However, in view of India being in the process of acceding to the OPRC-HNS Protocol of 2000, this 2014 edition of the NOS-DCP has been revised in a manner such as to facilitate national preparedness and response to HNS incidents also and thereby fulfil India's obligation to have in place a national plan to respond to HNS incidents, as a State party to the OPRC-HNS Protocol.

(AA Hebbar)
Deputy Inspector General
Director (Fisheries & Environment)

New Delhi
09 April 2015

Abbreviations

BMC	Biodiversity Management Committee
CCA	Central Coordinating Authority
CEFIC	European Chemical Industry Council
CIC	Chief Incident Controller
CMG	Crisis Management Group
CMT	Crisis Management Team
COMAPS	Coastal Ocean Monitoring and Prediction System
COMCG	Commander Coast Guard Region
COMDIS	District Commander (of the Coast Guard)
DDMA	District Disaster Management Authority
DGCOMM CENTRE	Directorate General of Shipping Communication Centre
DGH	Directorate General of Hydrocarbons
DGICG	Director General Indian Coast Guard
DGS	Directorate General of Shipping
DOSC	Deputy On-scene Commander
DOS-CMG	District Oil Spill Crisis Management Group
E & P	Exploration and Production
ECC	Emergency Control Centre
EEZ	Exclusive Economic Zone
EG	Environment Group
EHS	Environment, Health and Safety
ELO	Environmental Liaison Officer
ENVIS	Environmental Information System
ERDMP	Petroleum and Natural Gas Regulatory Board (Codes of practices for Emergency Response and Disaster Management Plan) Regulations 2010
ESC	Environmental and Scientific Coordinator
ESI	Environment Sensitivity Index
ETV	Emergency Towage Vessel

FLIR	Forward-Looking Infrared Imager
FPSO	Floating Production Storage and Offloading Vessel
HNS	Hazardous and Noxious Substances
IACS	International Association of Classification Societies
IAP	Incident Action Plan
IBA	Important Bird Areas
IBC Code	International code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
IC	Incident Controller
ICE	International Chemical Environment
IGC Code	International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk
IMDG Code	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
IMSBC Code	International Maritime Solid Bulk Cargoes Code
IMT	Incident Management Team
INCOIS	Indian National Centre for Ocean Information Services
INMARSAT	International Maritime Satellite system
IOPC Fund	International Oil Pollution Compensation Fund
IR	Infra-red
ISCO	International Spill Control Organization
ISU	International Salvage Union
LAG	Local Action Group
LEL	Lower Explosive Limit
LNG	Liquefied Natural Gas
LOS-CMG	Local Oil Spill Crisis Management Group
LPG	Liquefied Petroleum Gas
LST	Local Action Group Support Team
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978
MAS	Maritime Assistance Service
MHA	Ministry of Home Affairs

MMD	Mercantile Marine Department
MoD	Ministry of Defence
MoEF	Ministry of Environment, Forest and Climate Change
MoES	Ministry of Earth Sciences
MoPNG.	Ministry of Petroleum and Natural Gas
MoU	Memorandum of Understanding
MRC	Marine Response Centre
MRCC	Maritime Rescue Coordination Centre
MRU	Marine Response Unit
MSDS	Material Safety Data Sheet
MSI	Mangrove Society of India
MSV	Merchant Sailing Vessel
NCMC	National Crisis Management Committee
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NEBA	Net Environmental Benefit Analysis
NEC	National Executive Committee
NGO	Non-Governmental Organisation
NOSC	National On-scene Commander
NOS-CMG	National Oil Spill Crisis Management Group
NOS-DCP	National Oil Spill Disaster Contingency Plan
OCU	Offshore Control Unit
OIM	Offshore Installation Manager
OISD	Oil Industry Safety Directorate
ONGC	Oil and Natural Gas Corporation
OOSA	Online Oil Spill Advisory
OPRC	International Convention on Oil Pollution Preparedness, Response and Co-operation
OREI	Offshore Renewable Energy Installation
OSC	On-scene Commander
OSCP	Oil Spill Contingency Plan
OSD	Oil Spill Dispersant

OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organisation
OSV	Offshore Supply Vessel
P & I	Protection and Indemnity
PPM	parts per million
RCC	Rescue Coordination Centre
ROSC	Regional On-scene Commander
RWMC	Reef Watch Marine Conservation
SBB	State Biodiversity Board
SCBA	Self-contained Breathing Apparatus
SCR	Special Casualty Representative
SCU	Salvage Control Unit
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SIC	Site Incident Controller
SLAR	Side-looking Airborne Radar
SMCU	Salvage Monitoring and Control Unit
SOP	Standard Operating Practice / Procedure
SOPEP	Shipboard Marine Pollution Emergency Plans
SOSC	State On-scene Commander
SOS-CMG	State Oil Spill Crisis Management Group
SPM	Single Point Mooring
SRC	Shoreline Response Centre
STN CDR	Station Commander
STS	Ship-to-Ship Transfer
TEZ	Temporary Exclusion Zone
TOVALOP	Tanker Owner’s Voluntary Agreement concerning Liability for Oil Pollution
UNCLOS	United Nations Convention on the Law of the Sea
UV	Ultra-violet
VHF	Very High Frequency

1. Introduction

India is a party to the United Nations Convention on the Law of the Sea (UNCLOS) and has an obligation to protect and preserve the marine environment. The Forty-second amendment to the Constitution of India obliges the State to endeavour to protect and improve the environment. This plan is a measure of fulfilment of the obligation on the State under the Law of the Sea Convention and the Constitution of India.

1.1 BACKGROUND

The responsibility for co-ordination of marine oil spills at sea was transferred to the Coast Guard from the Directorate General of Shipping on 07 March 1986. Consequent to the transfer of responsibility, a draft National Oil Spill Disaster Contingency Plan (NOS-DCP) was prepared by the Coast Guard on 14 April 1988 and circulated to all concerned agencies for offer of comments. The final draft was approved by the Committee of Secretaries on 04 November 1993. The NOS-DCP was published in July 1996 and circulated among one hundred ninety agencies, units, and organisations out of which sixty seven were identified as participating agencies. Among the participating agencies, thirty seven were identified as resource agencies.

The NOS-DCP has been in operation since July 1996 and brings together the combined resources of:

a. the Government of India including that of the Indian Coast Guard;

b. the State Governments including emergency services; and

c. the shipping, ports, and oil industries.

The delineation of the functional responsibilities of the various Ministries and Departments at **Appendix A** as agreed by a Committee of Secretaries details such matters as:

a. enactment and administration of legislation;

b. prevention and control;

c. monitoring and surveillance; and

d. combating of marine pollution.

As per the amendment to the Allocation of Business Rules of 12 December 2002, the responsibilities of the Ministry of Defence through the Coast Guard organisation include matters related to:

a. Central Coordinating Agency for combating oil pollution in various maritime zones;

b. implementation of national contingency plan for oil spill disaster;

c. surveillance of maritime zones against oil spills;

d. combating oil spills in various maritime zones except within jurisdiction of ports and oil installations; and

e. undertaking oil spill prevention and control, [and] inspection of ships (except within ports) and offshore platforms in the country.

The national contingency plan hierarchy, outlined in Figure 1, consists of:

a. National Oil Spill Disaster Contingency plan;

b. Regional Oil Spill Disaster Contingency Plans;

c. District Oil Spill Disaster Contingency Plans;

d. State and Union Territory plans, and

e. port, and industry plans.

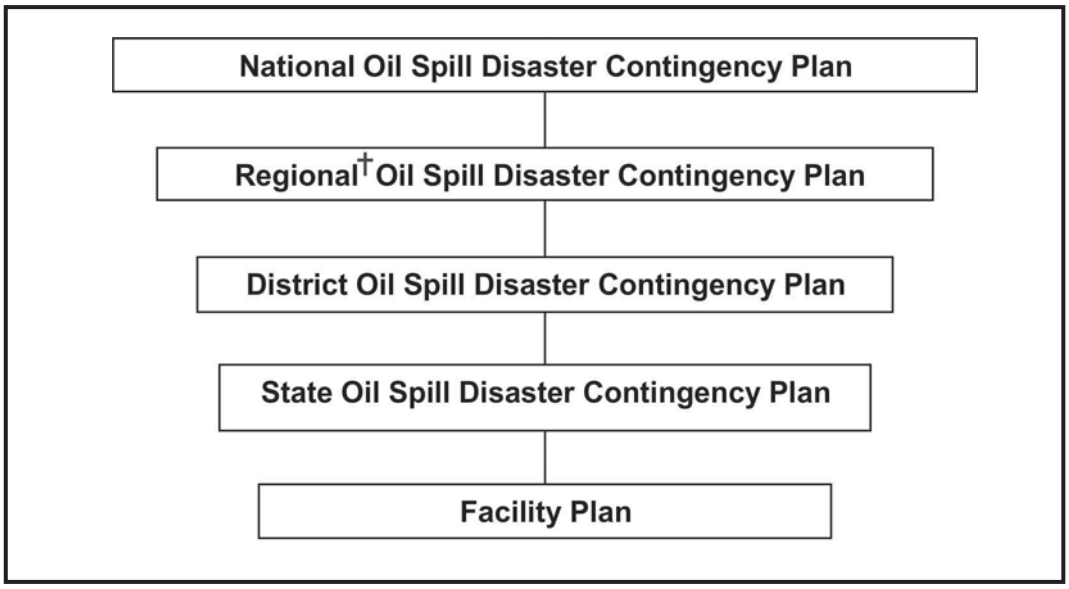

Figure 1. Hierarchy of contingency plans

This Plan, the National Oil Spill Disaster Contingency Plan, prescribes procedures and provides information required to implement the National Plan.

1.2 THREAT OF SPILLS

India is the second largest consumer of oil equivalent primary energy in the Asia-Pacific region after China. About 70% of the world oil demand is ferried along the Indian coastline. The major ports in India handle over 7,000 POL tankers each year. Over eighty companies are in operation in 228 offshore blocks and fields and the whole of the sedimentary basin area is likely to be covered by exploration activities by 2015.

Oil spills may occur from ships either accidentally or due to illegal operational discharges. Accidental discharges may involve the escape of bunker fuel or oil cargo resulting from a marine incident. Oil spills may also be caused by accidental discharges from petroleum terminals and facilities and the offshore petroleum exploration and production industry. The threat is largely a function of the types of oil and bunkers and operational issues such as the degree of navigational hazards, the weather and shipping density.

Worldwide, about 200 million tonnes of dangerous goods and hazardous materials are transported by sea each year. Most are carried in deep-sea and regional trade. It is estimated from a survey in 2008, that about 4.5 million tonnes of HNS cargo were handled in India annually. HNS cargoes are also shipped in small vessels for coastal shipping and constitute about ten percent of the HNS cargo handled by the ports. A wide variety of dangerous goods and chemical and other noxious or hazardous substances are shipped to, from and around India in specialised chemical tankers, in bulk chemical tanks carried in other vessels, or in packaged form as container or loose cargo consignments.

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† *The term regional when used in this NOS-DCP refers to the context specified in the Coast Guard Act, 1978. Region Northwest refers to Gujarat and Daman; West refers to Maharashtra, Goa, Karnataka, Kerala, Lakshadweep and Minicoy Islands; East refers to Tamil Nadu and Andhra Pradesh; Northeast refers to Odisha and West Bengal; and Andaman and Nicobar refers to the Andaman and Nicobar Islands, and their respective territorial waters and exclusive economic zones.*

These chemicals can enter the marine environment as a result of accidental or deliberate releases. Accidental releases can occur as a result of natural disasters, human error or due to technical and mechanical faults in chemical transfer and storage equipment. Intentional releases could include the dumping of chemical wastes, acts of war, terrorism or sabotage. Incidents involving vessel groundings, collisions, fire, explosion, cargo reaction etc. could also cause chemical spills from vessels involved.

1.3 OBJECTIVES OF THE PLAN

The objectives of the plan are:-

a. to establish an effective system for detection and reporting of spills;

b. to establish adequate measures for preparedness for oil and chemical pollution;

c. to facilitate rapid and effective response to oil pollution;

d. to establish adequate measures for crew, responders, and public health and safety, and protection of the marine environment;

e. to establish appropriate response techniques to prevent, control, and combat oil and chemical pollution, and dispose-off recovered material in an environmentally sound manner; and

f. to establish record-keeping procedures to facilitate recovery of costs.

g. to maintain the evidences for the purpose of identifying the polluter and taking suitable administrative, civil or criminal action against the polluter.

1.4 SCOPE OF THE PLAN

This plan is action oriented and covers such aspects as reporting, communication, alerting, assessment, operations, administration, finances, public relations and arrangements with other contiguous states. The plan assigns responsibility for various tasks to relevant government departments and agencies, identifies trained personnel, equipment, and surface craft, and aircraft and means of access to these resources.

This plan delineates functions of various departments and agencies for the operational responsibility for marine incidents which could result due to spillage of oil into water. The plan also provides the framework for co-ordination of integrated response by various government departments and agencies to protect the environment from the deleterious effects of pollution by oil.

This plan outlines combined stakeholder arrangements designed to allow a rapid and cooperative response to marine oil spills within the defined area. Plans prepared by coastal State authorities, port authorities, and occupiers of offshore installations underlie this national plan. These local plans provide detailed information on the local response to marine incidents and also describe any arrangements for mutual support.

This plan also coordinates the provision of national and international support.

This plan parallels similar documents dealing with the Government of India's responsibility for saving life at sea, for search and rescue and for caring for survivors brought ashore.

This plan co-exists with incident and security plans operated by ships, ports and offshore installations. Mutual respect between those in command and control of this plan and those in charge of all other relevant plans is imperative to ensure that all of the plans can continue to function efficiently, whatever the circumstances.

1.5 DEFINITIONS

"Ship" means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms.

"Offshore installation" means an installation, whether mobile or fixed, which is used or intended to be used for underwater exploration and exploitation of crude oil, petroleum, or other similar oils, under lease, license, or

other form of contractual arrangement and includes any installation which could be moved from place to place under its own motive power or otherwise; or, a pipeline.

“Oil” means petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products, other than petrochemicals subject to the provisions of Annex II of MARPOL 73/78 and includes the substances listed in Appendix I to Annex I of MARPOL 73/78 as amended.

“Oily mixture” means a mixture with any oil content.

“Crude oil” means any liquid hydrocarbon mixture occurring naturally in the earth whether or not treated to render it suitable for transportation and includes crude oil from which certain distillate fractions may have been removed; and crude oil to which certain distillate fractions may have been added.

“Facility” means a sea-port facility, a terminal within a port operating under a concessionaire agreement, a single point mooring within a port, or an offshore installation.

“Noxious liquid substance” means any substance indicated in the Pollution Category column of Chapter 17 or 18 of the International Bulk Chemical Code (IBC Code) or provisionally assessed under the provisions of Regulation 6.3 of MARPOL 73/78 as amended as falling into Category X, Y or Z.

“Harmful substance” means any substance which, if introduced into the sea, is liable to create hazards to human health, harm living resources and marine life, damage amenities or interfere with other legitimate uses of the sea, and includes those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code).

“Hazardous and noxious substance” as defined in the IMO OPRC-HNS Protocol means any substance other than oil which, if introduced into the marine environment is likely to create hazards to human health, harm living resources and marine life, damage amenities or interfere with other legitimate uses of the sea.

“Incident” means an event involving the actual or probable discharge into the sea of a harmful substance, or effluents containing such a substance.

“Discharge”, in relation to harmful substances or effluents containing such substances, means any release howsoever caused from a ship and includes any escape, disposal, spilling, leaking, pumping, emitting or emptying. Discharge does not include dumping within the meaning of the London Convention 1972; or release of harmful substances directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources; or release of harmful substances for purposes of legitimate scientific research into pollution abatement or control.

“Pollution damage” means loss or damage caused outside the ship by contamination resulting from escape or discharge of oil from the ship, wherever such escape or discharge occurs, provided that compensation for impairment of the environment other than losses or profit from such impairment actually undertaken or to be undertaken; and the costs of preventive measures and further loss or damage caused by such measures.

“Preventive measures” means any reasonable measures taken by any person after the incident to prevent or minimize pollution damage.

1.6 GEOGRAPHICAL AREA

The plan applies to all incidents of marine casualty or acts relating to such casualty occurring with grave and imminent danger to Indian coast line or related interests from pollution or threat of pollution in the sea by deliberate, negligent or accidental release of oil, ballast water, noxious liquid and other harmful substances into the sea including such incidents occurring on the high seas.

The plan also covers all incidents in any part of the sea, or inland, that are likely to affect the maritime zones of India, that includes all the Territorial Waters and the Exclusive Economic Zone (EEZ) of India, as detailed in

Figure 2, and the High Seas where an oil or chemical spill has the potential to impact on Indian interests in the maritime zones of India.

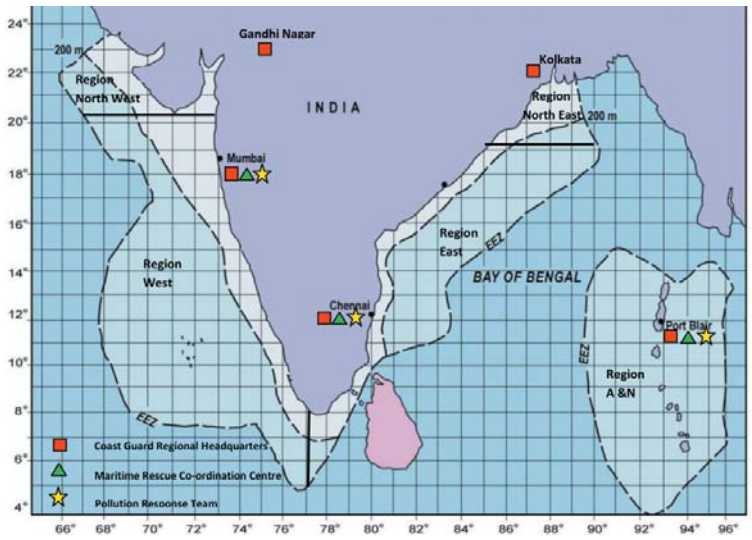

Figure 2. National pollution response areas

1.7 DESIGNED SPILL SIZE

The NOS-DCP is established in order to facilitate the national response to oil spills of any magnitude within Indian waters as specified in Figure 2. The designed spill size for planning and operational reasons is 10,000 tonnes. This spill size was decided at the meeting with national plan stakeholders as the appropriate level for which to plan national equipment inventory and other resource requirements. It takes into account that the oil exploration and production industries hold membership with private international oil spill response organisations for access to their equipment stockpiles.

1.8 LEGISLATION

1.8.1 INTERNATIONAL CONVENTIONS

India has been active at the International Maritime Organization in the development and implementation of many of the IMO Conventions that specifically address pollution from ships. These conventions are implemented in India by the Merchant Shipping Act, 1958. The IMO Conventions relevant to this national plan are as follows:-

- International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969
- International Convention on Salvage, 1989
- Wreck-removal Convention, 2007
- International Convention on Civil Liability for Oil Pollution Damage, 1992
- International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972
- The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009

1.8.2 INTERNATIONAL CODES AND GUIDELINES FOR HNS

- The International Maritime Dangerous Goods Code (IMDG Code);
- The International Maritime Solid Bulk Cargoes Code (IMSBC Code);

- The International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code or IBC Code) applies to ships built after June 1986;
- The International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (International Gas Carrier Code or IGC Code) applies to ships built after June 1986.

1.8.3 REGULATORY FRAMEWORK

The key regulations which are applicable to prevention and control of marine oil pollution are outlined at Table 1.1 to 1.3 and other related statutes on management of hazardous and noxious substances are listed at Table 1.4 and 1.5.

Part XA	Part XA Limitation of Liability
Part XB	Civil Liability for Oil Pollution Damage
Section 356 C	Issuance of Pollution Prevention Certificate
Section 356 I	Oil Reception Facilities at Ports
Section 3356 J	Power to give notice to polluting Ship
Section 356 K	Power to take measures for preventing or containing oil pollution
Section 356 L	Power to give directions to certain ships
Section 356 M	Oil Pollution Cess
Part XC	International Oil Pollution Compensation Fund
Part XIII	Wreck & Salvage

Table 1.1. Applicable National Regulations-Merchant Shipping Act, 1958

The Merchant Shipping (Regulations of Entry of Ships into Ports, Anchorages and offshore facilities) Rules, 2012 ● Requires insurance coverage against maritime claims and established procedures and policies for their supervision ● Requires vessels to be classed with a IACS member class society
The Merchant Shipping (Civil Liability for Pollution Damage) Rules, 2008
The Merchant Shipping (International Fund for Compensation for Oil Pollution Damage) Rules, 2008
The Merchant Shipping (Prevention of Pollution by Garbage from Ships) Rules, 2009
The Merchant Shipping (Prevention of Pollution by Sewage from Ships) Rules, 2010
The Merchant Shipping (Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form) Rules, 2010
The Merchant Shipping (Control of Pollution by Noxious Liquid Substances in Bulk) Rules, 2010
The Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 2010
The Merchant Shipping (Carriage of Cargo) Rules, 1995 for Ships Carrying Dangerous Cargoes

Table 1.2. Applicable National Regulations-Rules under Merchant Shipping Act, 1958

Coast Guard Act, 1978	
Section 14	Protecting marine environment and to prevent and control marine pollution.
	Measures for the safety of life and property at sea and collection of scientific data
Indian Ports Act, 1908	
Section 6	Pertaining to powers in all navigable water bodies and ports
	Rules for vessel movement
	Regulation of berths, stations, and anchorages to be occupied by vessels
	Regulation of oil and water mixed with oily waste handling and its discharge and disposal at any port
Inland Vessels Act, 1917	
Entire act	Roles of vessels owners and rights of State Government to survey vessels
Oil Industry Safety Directorate-Standard OISD-GDN-200 Guidelines for Development of Contingency Plan for Oil Spill Response	

Table 1.3. Applicable National Regulations- Other related Acts and Guidance

The Environment (Protection) Act, 1986 (amended 1991) and Rules there under
The Environment (Protection) Rules, 1986 (amended 2004)
The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (amended, 1994 and 2004)
Hazardous Materials (Management, Handling and Trans-boundary Movement) Rules 2008
The Environment Prior Clearance Notification, 2006
The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
Bio-medical Wastes (Management and Handling) Rules. 1989

Table 1.4. Relevant statutes on management of HNS under the EP Act, 1986

The Factories Act, 1948 (amended 1987) ● State Factory Rules
The Dock Workers (Safety, Health & Welfare) Act, 1986 ● Covers handling of dangerous goods (IMDG class cargoes) ● Applicable to all Major Ports
The Inflammable Substances Act, 1952
The Public Liability Insurance Rules, 1991 (as amended 1992 and 1993)
The Petroleum Act, 1934 ● The Petroleum Rules, 2002
The Insecticide Rules, 1968 (amended 2000) ● The Insecticide Rules, 1971 (amended 1999)
The National Environment Tribunal Act, 1995
The National Green Tribunal Act, 2000
The Explosives Act, 1884 (amended till 1983) ● The Gas Cylinder Rules, 2004 ● The Static and Mobile Pressure Vessels (Unfired) Rules, 1981 (amended 2002) ● The Explosives Rules, 1983 (amended 2002)
National Disaster Management Guidelines for Chemical Disasters, 2007

Table 1.5. Other relevant statutes on management of HNS

1.8.4 JURISDICTION

In keeping with the Law of the Sea Convention, India's jurisdiction under the Maritime Zones of India Act, 1976 extends over the Exclusive Economic Zone (EEZ) up to 200 nautical miles seaward of the baseline and the Territorial Sea extends to twelve nautical miles from the baseline.

Both, the Union Government and State Government have concurrent jurisdiction for environment in the territorial waters of India.

The Central Government has jurisdiction in the EEZ.

The States have jurisdiction over the territorial waters, and the Central Government has jurisdiction over waters seaward of this point (although in some cases the Central Government has jurisdiction over the whole of India).

1.8.5 LEGAL BASIS

The legal basis for this national plan is section 14 of the Coast Guard Act, 1978 which vests the Coast Guard with duties to preserve and protect the marine environment and to prevent and control marine pollution and take such measures as it thinks fit in performance of its duties.

1.9 INTENDED USE OF THE PLAN

The NOS-DCP was originally designed for responding to oil spill disasters in Indian waters. However, in view India being in the process of acceding to the HNS Protocol, this 2014 edition of the NOS-DCP has been revised in such a manner as to facilitate national preparedness and response to HNS incidents also and thereby fulfil India's obligation to have in place a national plan to respond to HNS incidents, as a State party to the OPRC-HNS Protocol.

2. Emergency Organisation

2.1 EMERGENCY ORGANISATION OIL SPILL DISASTERS

Figure 2.1 depicts the emergency organisation for oil or chemical spill disasters and the interactive linkages among various agencies for synergised management of oil spill disasters.

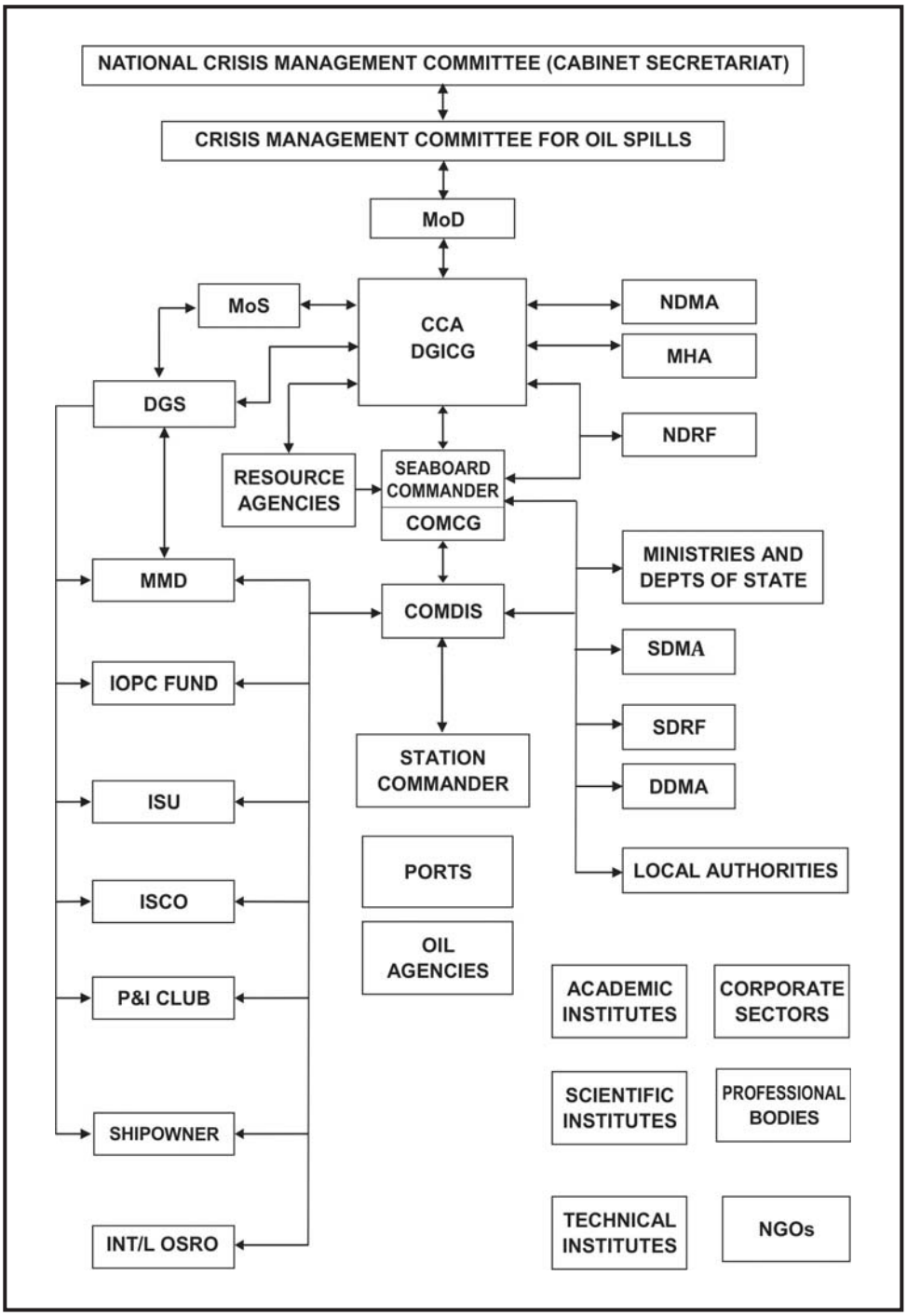

Figure 2.1. Emergency Organisation for Oil or Chemical Spill Disasters

2.2 EMERGENCY MANAGEMENT STRUCTURE

The National Disaster Management Act, 2005 guides the national disaster management structure. According to the Act, at the apex operational level, the National Executive Committee (NEC) headed by the Union Home Secretary coordinates and guides the work of different departments of the Government of India in times of crisis.

The National Crisis Management Committee (NCMC) headed by the Cabinet Secretary constitutes institutional framework at the apex level and deals with major crises which have serious or national ramifications. NCMC is supported by the Crisis Management Groups (CMGs) of the various Central nodal ministries and assisted by NEC as may be necessary.

2.2.1 NATIONAL LEVEL CRISIS MANAGEMENT GROUP FOR OIL SPILLS

The Defence Secretary is the Chairman of the national level CMG for marine oil spill emergencies, or NOS-CMG. The composition of the NOS-CMG is at **Appendix B1.**

Functions of the NOS-CMG

The NOS-CMG is the apex body to deal with major oil pollution incidents and to provide expert guidance for handling major oil spills.

The NOS-CMG would perform the following functions:-

a. continuously monitor the post incident situation arising out of a major oil pollution incident and suggest measures for prevention and to check recurrence of such incidents;

b. arrange, in the event of an oil pollution incident, all manpower, equipments, resources, and financial assistance as may be necessary;

c. conduct post-accident analysis of such major oil pollution incidents and evaluate responses; and

d. review the adequacy of national and other contingency plans, and suggest measures to reduce risks of oil pollution from sea ports and oil installations.

The NOS-CMG will meet on as required basis.

2.2.2 STATE LEVEL CRISIS MANAGEMENT GROUP FOR OIL SPILLS

The State Government of a coastal state would constitute a State level Crisis Management Group for management of oil pollution incidents, termed SOS-CMG.

The recommended composition of the SOS-CMG is at **Appendix B2.**

The SOS-CMG co-opts any person whose assistance or advice is considered useful in performing any of its functions, to participate in the deliberation of any of its meetings.

The SOS-CMG meets at least once a year.

Functions of the SOS-CMG

The SOS-CMG is the apex body in the State to deal with major oil pollution incidents and to provide expert guidance for handling major oil pollution incidents.

The SOS-CMG would:-

a. review at least once a year, local oil spill contingency plan for the State, local and all facility oil spill contingency plans with a view to examine its adequacy and forward a report to the Central Coordinating Authority (CCA) for oil spills;

b. nominate personnel to the Local Action Group (LAG) and Local Action Group Support Team (LST) and review the status of these teams;

c. assist the State Government in managing oil pollution incident at a site in the State;

d. assist the State Government in the planning, preparedness and mitigation of major oil pollution incident at a site in the State;

e. continuously monitor the post incident situation arising out of a major oil pollution incident in the State and forward a report to the Central Coordinating Authority for oil spills;

f. review the progress report submitted by the District Crisis Management groups;

g. respond to queries addressed to it by the District Crisis Management groups;

h. publish a list of experts and officials in the State who are concerned with the management of oil pollution incidents.

2.2.3 DISTRICT AND LOCAL LEVEL CRISIS MANAGEMENT GROUP

The recommended composition of the District Crisis Management Group (DOS-CMG) and the Local Crisis Management Group (LOS-CMG) for oil spills is specified at **Appendix B3** and **B4** respectively.

The DOS-CMG shall meet at least once in six months and send a report to the SOS-CMG;

The LOS-CMG shall meet every quarter and forward a copy of the proceedings to the DOS-CMG.

Functions of the DOS-CMG

The DOS-CMG is the apex body in the district to deal with major oil pollution incidents and to provide expert guidance for handling oil pollution incidents;

The DOS-CMG would:-

a. review all the facility oil spill contingency plans prepared by the occupier of Major Accident Hazards installation viz., sea ports and oil installations for the preparation of the district oil spill contingency plan;

b. assist in the preparation of the district oil spill contingency plan;

c. assist the district administration in the management of oil pollution incidents;

d. continuously monitor every oil pollution incident;

e. ensure continuous information flow from the district to the NOS-CMG and SOS-CMG regarding oil pollution incident situation and mitigation efforts;

f. forward a report of the oil pollution incident within fifteen days to the SOS-CMG; and

g. conduct at least one full scale mock-drill of an oil pollution incident at a facility each year and forward a report of the strength and the weakness of the plan to the SOS-CMG.

Functions of the LOS-CMG

The LOS-CMG is the body in the industrial pocket to deal with oil pollution incidents and coordinate efforts in planning, preparedness and mitigation of an oil pollution incident.

The LOS-CMG would,

a. prepare local oil spill contingency plan for the industrial pocket;

b. ensure dovetailing of the local oil spill contingency plan with the district oil spill contingency plan;

c. train personnel involved in oil pollution incident management;

d. educate the population likely to be affected in a oil pollution incident about the remedies and existing preparedness in the area;

e. conduct at least one full scale mock-drill of an oil pollution incident at a site every six months forward a report to the DOS-CMG; and

f. respond to all public inquiries on the subject.

Each of these CMG at the State, District and Local level may invite wider participation to ensure that all interests are represented and their resources and services are considered.

2.3 EMERGENCY COORDINATION STRUCTURE

The Indian Coast Guard is designated as the competent national authority for oil spill response in the maritime zones of India.

The Director General Coast Guard (DGCG) is the Central Coordinating Authority (CCA) for oil spills and has the overall responsibility to ensure that appropriate response is made to any incidence in the seas around India. He will direct the various aspects of the pollution response operations and will be assisted by the Seaboard Commander and Commanders, Coast Guard Region Northwest, West, East, Northeast, and Andaman & Nicobar as required, depending on the proximity to the scene of contingency. The Regional Commanders will in turn be assisted by the Coast Guard District Commanders in the coordination of response to oil pollution within a coastal State.

The NOS-CMG and/ or SOS-CMG as appropriate, will provide management, operational, technical and environmental advice and support to the Combat Agency as required. This may include support for the management of the response.

During major incidents, the overall response strategy shall be formulated by relevant Coast Guard Seaboard Commander and Regional Commanders and implemented by Chief Incident Controller (CIC) and the Incident Management Team (IMT). During lesser incidents, the CIC shall be responsible for overall response strategy. The CIC shall keep the Statutory Agency informed of progress with the response. The response actions will be supported by the LAG and LST.

2.3.1 NATIONAL PLAN WORKING GROUP

The National Plan Working Group will provide advice to the Central Coordinating Authority for oil spills on the strategic policymaking and funding direction for the National Plan. It will support the CCA by considering the overall operational aspects of the National Plan. It will consider issues such as the NOS-DCP, oil spill response equipment and training, fixed wing aerial dispersant spraying and contingency plan audits. It will address research, development, technology and the environmental and wildlife interests of all the parties to the National Plan.

The composition of the National Plan Working Group is at **Appendix B5.**

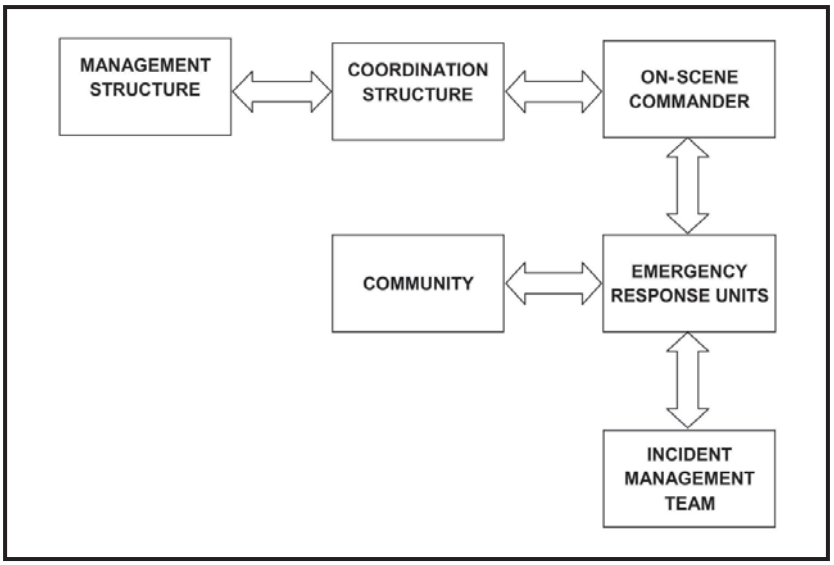

Figure 2.2. Block diagram of national structure for coordination of oil spill emergencies in Indian waters

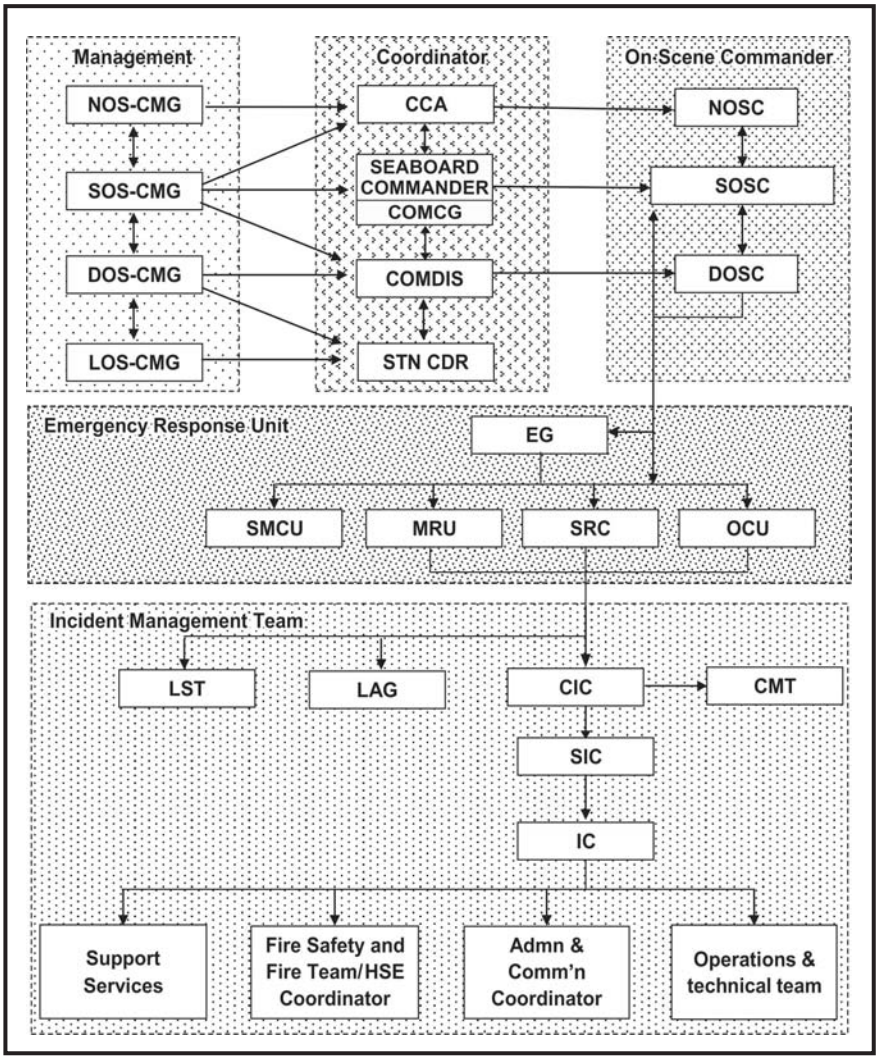

Figure 2.3. Organogram of national structure for coordination of oil spill emergencies in Indian waters

2.3.2 PRE-DESIGNATED ON-SCENE COMMANDERS

The Director (Environment) at Coast Guard Headquarters serves as the National On-scene Commander (NOSC) in the event of a spill of national significance.

The Regional Pollution Response Officer will be the Regional On-Scene Commander (ROSC) and act as the representative of the Regional Commander to co-ordinate all activities at the scene of pollution through the relevant District Commander (COMDIS) in the vicinity of the region/area. The ROSC will pass on regular reports to the Regional Headquarters and the Coast Guard Headquarters, of his assessment, and of resources and assistance required.

The Coast Guard District Commanders will designate an officer as Pollution Response Officer for the district who will act as the District On-scene Commander (DOSC) and lead the initial response team to the scene of incidence within his area of jurisdiction under the overall guidance of the Regional Pollution Response Officer. He will be responsible for the following:-

a. Directing the employment of needed resources for prevention of pollution, containment, cleanup, and disposal of any pollutants, and restoration of the site;

b. Providing a focal point of information for all agencies concerned;

c. Preparing cost analysis and detailed report covering all aspects of the spill; and

d. Collecting samples for possible analysis.

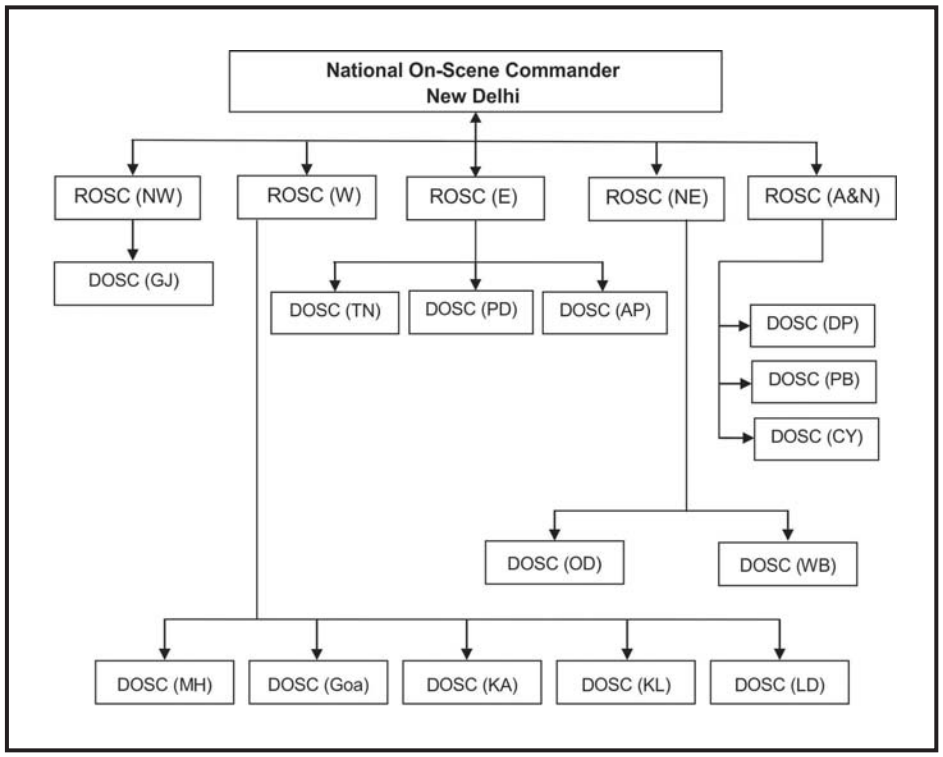

Figure 2.4. Organogram of pre-designated On-scene Commanders

2.4 EMERGENCY RESPONSE UNITS

In managing the counter pollution response to an incident, the hierarchy of aims is:

- First, to prevent pollution from occurring;
- Second, to minimize the extent of any pollution that occurs;
- Third, to mitigate the effects of that pollution

Separate, but linked emergency response units would direct operations in the event of an incident requiring response under this plan, as indicated at Table 2.1.

Sl	Response Unit	Title	Role
a	Salvage Monitoring and Control Unit	SMCU	To monitor and control salvage operations
b	Offshore Control Unit	OCU	To direct response action at offshore installations
c	Marine Response Unit	MRU	To direct response action at sea
d	Shoreline Response Centre	SRC	To direct shoreline response
e	Environment Group	EG	To provide environmental and public health advice to all these response units
f	Emergency Control Centre	ECC	To monitor operations to contain any potential pollution within an offshore installation and its reservoir and a port facility jurisdiction

Table 2.1 . Emergency Response Units

Not all incidents require all these emergency response units. However, the arrangements for managing the incidents must allow for the possibility of salvage operations, action at sea and action on shore taking place simultaneously. The SMCU may be co-located with the MRU, or ECC, if need be.

Each oil installation and sea-port facility shall have the provision of an Emergency Control Centre (ECC) preferably with a back-up arrangement. The ECC shall be away from potential hazards and provide maximum safety to personnel and equipment. Preference should be given to a non-combustible building of either steel frame or reinforced concrete construction. The ECC should have at least two exits and adequate ventilation

Each emergency response unit including the ECC should be provided with the following basic supplies and dedicated equipment:-

- a copy of the relevant Oil Spill Contingency Plan (OSCP);
- maps and display charts and diagrams showing buildings, roads, underground fire mains, important hazardous material and process lines, drainage trenches, and utilities such as steam, water, natural gas and electricity;
- situation boards (continuously updated to present a summary of the current situation and response actions being taken);
- aerial photographs, if possible, and maps showing the site, adjacent industries, the surrounding community, high-ways, rivers, etc., to help determine how the disaster may affect the community so that the proper people can be notified, adequate roadblocks established, and the civil authorities advised;
- sufficient telephone lines to enable full liaison with outside bodies;
- names, addresses, and telephone numbers of employees, off-site groups and organizations that might have to be contacted; all telephone lists being reviewed for accuracy on a scheduled basis and updated, as necessary;
- dedicated and reliable communication equipment; enough telephones and at least one fax line to serve the organization for calls both on and off-the-site;
- fixed and portable two-way radio equipment to keep in contact with activities on-scene and to maintain continuity of communications when other means fail;
- plan board, logbook, voice recorder, television, DVD and Video facilities for playing back records from aircraft and helicopters, as well as monitoring media coverage of the incident with a person assigned to

record pertinent information and to assist in investigating cases, evaluating performance, and preparing reports;

- emergency lights so that operations can continue in the event of power failure;
- photocopy, fax and e-mail facilities; and
- dedicated computers with LAN/ internet facility to access the installation data and the latest and updated soft copies of all standard operating practices (SOP) etc.

The shoreline response centre (SRC) in coastal States may be equipped as required, with specifications for ECC as guidelines.

Each response unit will be supported by an Administration Team responsible for the general management of the unit and provided personnel for:

- communication links between the units;
- the distribution of messages within the units;
- keeping records of messages and expenditure;
- taking minutes during meetings to record decision;
- typing services;
- updating situation boards and charts; and
- providing catering to the units.

The relevant Indian Coast Guard MRCC acts as a communication hub and provides communication support for all response units.

2.5 FACILITY LEVEL INCIDENT MANAGEMENT TEAM

The facility oil spill contingency plan (OSCP) shall identify the safe transition from normal operation to emergency operations and systematic shut down, if any, and the delegation of authority from operations personnel to emergency response personnel. For this purpose, persons in charge of sea ports and oil installations shall identify in the facility OSCP an emergency response organization with appropriate individuals to perform designated responsibilities through specified lines of authority with succession planning and actuating the response management in accordance with relevant contingency plan requirements. Responsibilities for decision making shall be clearly shown in an emergency organization chart. The plan shall identify each responder's position, mission, duties and reporting relationship.

Overall objectives of the facility oil spill emergency control organization shall be:

- to promptly control oil pollution problems as they develop at the scene;
- to prevent or limit the impact of oil pollution on other areas and off-site;
- to provide emergency personnel, selected for duties compatible with their normal work functions wherever feasible, with duties and functions assigned making full use of existing organizations and service groups such as fire, safety, occupational health, medical, transportation, personnel, maintenance, and security;
- to provide for employees who must assume additional responsibilities as per laid down procedure of the facility OSCP in the event of oil spill contingency;
- to provide for round-the-clock coverage, with shift personnel being prepared to take charge of the emergency control functions or emergency shutdown of system, if need be, until responsible personnel arrive at the site of emergency; and
- to provide for an alternate arrangement for each function.

The emergency organisation shall be based on an incident command system to provide a standardised organisational structure that is flexible yet provides compatibility between agencies and events, whilst ensuring accountability and standardised records. The system clearly defines roles and responsibilities and provides interoperability between resource agencies. The structure also allows for the ability to escalate or downsize the response as required.

Figure 2.5 is a typical facility level Incident Management Team (IMT) for control of an oil spill emergency. An entity can merge the functions as per their other statutory requirements and based on level of risk and range of operations. The organisation shall have to address all services and support system required and available to it.

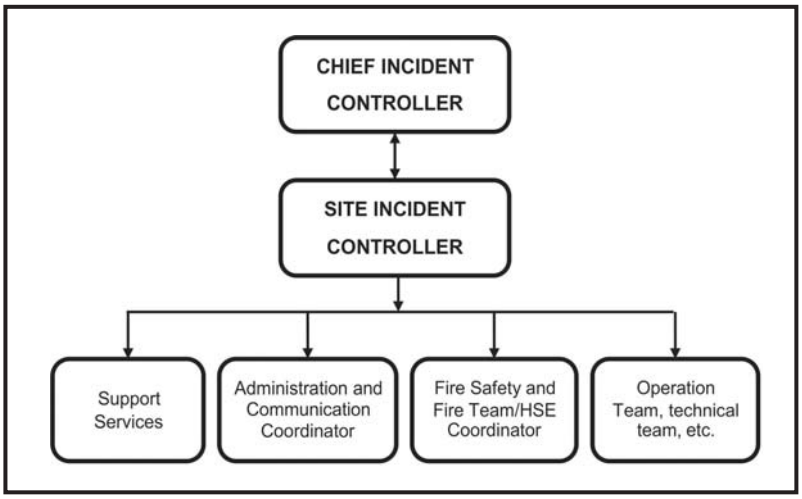

Figure 2.5. Typical facility level IMT for control of an oil spill

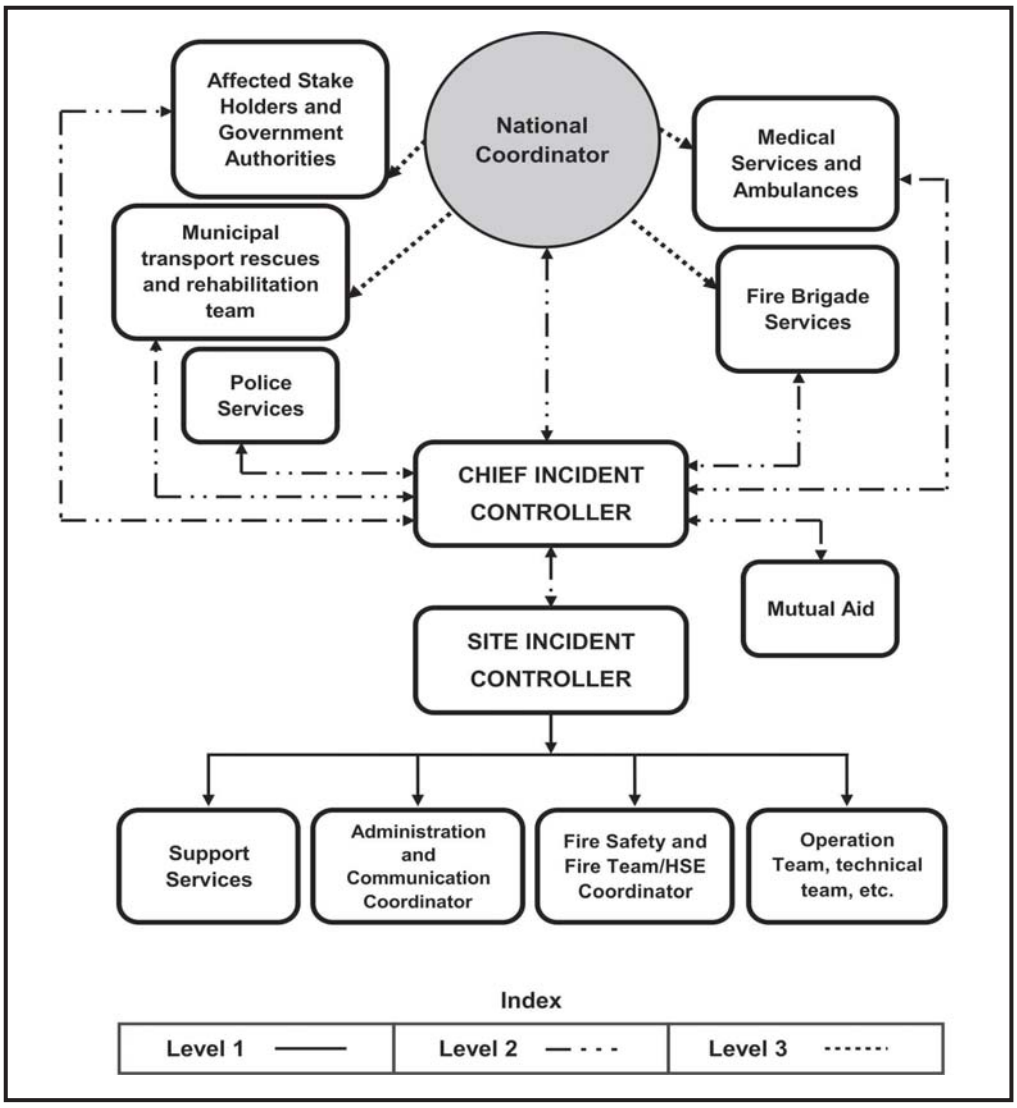

Figure 2.6. Basic oil spill emergency organogram

Support Services include Communication Services, Engineering/ Maintenance Services, Medical and Occupational Health, Human Resource and Welfare Service, Security, Media/ Public Relations, Transport and Logistics, Finance, Contract and Procurement and Environmental Services.

The number of staff required to fill positions in the IMT of the emergency organisation can be varied according to the size and complexity of the incident and the number of staff available. In a major incident all positions may be filled, but in a lesser incident one person may fill a number of positions. In a very small incident, the Site Incident Controller (SIC) will be able to carry out all management functions.

Persons in charge of sea ports and oil installations ensure that persons with appropriate experience and skills are identified so that they can be appointed to the various positions in the emergency organisation in the event of a marine pollution incident. If agency input into a response is required, the Coast Guard may place its liaison officer/s within the IMT, so as not to burden personnel that will be fully engaged in response activities.

The concerned Coast Guard Commander takes overall responsibility for management of the response in the event of a tier 2 or tier 3 oil spill and assumes charge of senior government, industry and media liaison.

2.5.1 CHIEF INCIDENT CONTROLLER

Persons in charge of sea ports and oil installations shall identify appropriate individuals to act as a Chief Incident Controller (CIC). The CIC is responsible for the management and coordination of response operations at the scene of a pollution incident to achieve the most cost effective and least environmentally damaging resolution to the problem.

During a major incident, the CIC is responsible to the relevant Coast Guard Commander for the operational aspects of the response.

The Chief Incident Controller (CIC) shall have overall responsibility to protect personnel, site facilities, and the public before, during, and after an emergency or disaster. The CIC shall be present at the ECC for counsel and overall guidance. Responsibilities of the Chief Incident Controller shall include the following:-

a. preparation, review and updation of the OSCP;

b. assessment of situation and declaration of an oil spill emergency;

c. mobilisation of main coordinators and key personnel;

d. activation of ECC;

e. taking decision on seeking assistance from mutual aid members and external agencies;

f. continuously reviewing situation and deciding on appropriate response strategy;

g. taking stock of casualties and ensuring timely medical attention;

h. ensuring correct accounting and position of personnel after the emergency;

j. ordering evacuation of personnel as and when necessary;

k. taking decision in consultation with local Coast Guard and District Authorities, when a tier 2 or tier 3 spill is to be declared.

2.5.2 SITE INCIDENT CONTROLLER

The Site Incident Controller (SIC) shall be identified by the Chief Incident Controller and will report directly to him. SIC should be nominated by the entity in each shift of 24 hours. During lesser incidents, the SIC shall have overall responsibility for managing the response. Persons in charge of sea ports and oil installations should ensure that the SIC is assisted by a response team with appropriate planning, operational, technical, scientific, chemical, environmental, logistical, administrative, financial, and media liaison skills.

Responsibilities of the Site Incident Controller shall include the following:-

a. to maintain a workable oil spill emergency control plan, establish emergency control centers, organize and equip the organization with OSCP and train the personnel;

b. to make quick decisions and take full charge;

c. to communicate to the ECC where it can coordinate activities among groups;

d. to be responsible for ensuring that appropriate local and national government authorities are notified, preparation of media statements, obtaining approval from the CIC and releasing such statements once approval received;

e. to ensure that the response to the oil pollution emergencies is in line with entity procedures, and to coordinate business continuity or recovery plan from the incident;

f. to co-ordinate any specialist support required for the above purpose; and

g. to decide on seeking assistance of mutual aid members and external agencies.

2.5.3 ADMINISTRATION AND COMMUNICATION COORDINATOR

Responsibilities of the administration and communication coordinator shall include the following:-

a. to coordinate with mutual aid members and other external agencies;

b. to direct them on arrival of external agencies to respective coordinators at desired locations;

c. to mobilize oil spill responders and resources for facilitating the response measures;

d. to monitor mobilization and demobilization of personnel and resources;

e. to provide administrative and logistics assistance to various teams;

f. to be responsible for all financial, legal, procurement, clerical, accounting and recording activities including the contracting of personnel, equipment and support resources; and

g. to be responsible for the management of the ECC.

2.5.4 SUPPORT SERVICES

The following additional coordinators will be nominated at the sea ports and oil installations and delegated the specific responsibilities falling under the basic functions of SIC and/ or CIC :-

- Human Resources Services Coordinator
- Logistics Services Coordinator

In any response there is a vital need to ensure that response personnel are provided with adequate resources to enable an effective response to be mounted. The Logistics Services Coordinator shall ensure that all resources are made available as required. This includes the procurement and provision of personnel, equipment and support services for operations in the field and for the management of resource staging areas.

- Media and Public Relations Coordinator

The Media and Public Relations Coordinator shall ensure adequate liaison between the incident management team and the media. All queries received from the media should be directed to this person. Before releasing any information, the Media and Public Relations Coordinator's action should have the approval of either the relevant Coast Guard Commander or CIC, depending on the size of the spill.

- Operations and Technical Coordinator

The Operations and Technical Coordinator is responsible for the provision of scientific and environmental information, maintenance of incident information services, and the development of Strategic and Incident Action Plans. He shall ensure the distribution of all information to the Incident Management Team and to all response personnel generally. He is responsible to the CIC for all response operational activities. This includes ensuring that the requirements of Incident Action Plans (IAP) are passed on to operational personnel in the field, and for ensuring that the plans are implemented effectively.

- Environmental and Scientific Coordinator

The State Government shall pre-appoint the Environmental and Scientific Coordinator (ESC), either on a State, regional or local area basis. During a spill response, the ESC will normally form part of the Operations team. In this role the Operations Team is to provide the CIC with an up-to-date and balanced assessment of the likely environmental effects of an oil spill. The Planning Section will advise on environmental priorities and preferred response options, taking into account the significance, sensitivity and possible recovery of the resources likely to be affected. In major incidents, the ESC may directly advise the relevant Coast Guard Commander.

2.6 LOCAL ACTION GROUP AND LOCAL ACTION GROUP SUPPORT TEAM

2.6.1 LOCAL ACTION GROUP

The Local Action Group (LAG) provides support to the Union and State Governments in the event of a major oil pollution incident, specifically in the roles of response managers, and response team leaders. Each coastal State nominates personnel to the LAG as indicated in table 2.2, except Goa, Puducherry, Daman and Diu, Lakshadweep and Minicoy, and Andaman and Nicobar which will nominate one response team leader instead of five.

Role	Positions per State
Planning Coordinator	1
Operations and Technical Coordinator	1
Logistics and Administration Coordinator	1
Response Team Leader	5

Table 2.2. Composition of Local Action Group

2.6.2 LOCAL ACTION GROUP SUPPORT TEAM

The Local Action Group Support Team (LST) is required to support an incident. The following roles have been identified for a national capacity:

- Environmental Advisers
- Finance & Administration Officer
- Wildlife Officer
- Equipment Operator
    - Offshore Containment/Recovery
    - Inshore Containment/Recovery
    - Engine driver and Laskar
    - Vessel-based dispersant spraying
    - Shoreline Assessment
    - Shoreline Cleanup

The Equipment Operator role has been broken down into areas of specific expertise. Equipment Operators may be competent in more than one area. Training of LST is the responsibility of the respective coastal States with support of the sea ports, oil agencies, Coast Guard and other government agencies, non-governmental organisations, etc.

Each coastal State would identify personnel to fulfil these roles, as these personnel would be required when responding to major incidents within their own jurisdictions, and will become part of the LAG when succession planning. Sea ports and oil installations are expected to nominate personnel to these positions.

Certified personnel of private oil spill response organisations may also be considered for such roles.

During a National Plan incident, the Chief Incident Controller or the relevant Coast Guard Commander may require personnel from other coastal States to become part of the Incident Management Team or the incident response team. A formal requisition will be issued to the State Disaster Management Authority or District Disaster Management Authority.

A requisition for personnel will include :-

- roles or skills required (e.g. Planning Officer);
- number of personnel required to fill each role;
- contact name, address, and time of where personnel are to initially report; and
- brief overview of the work to be undertaken.

Suitable personnel will then be selected from the LAG or the LST of the coastal State, unless special circumstances exist.

This procedure does not apply to the activation of LAG and LST personnel from within the State where the incident has occurred. In such circumstances, the relevant combat or statutory agency is responsible for activation in accordance with applicable contingency plans or State arrangements.

The maximum release period will be ten days (including travel time) unless the LAG/ LST member's organisation has consented to a different period.

Personnel will remain in the employment of their own agency, and all entitlements in relation to their contract of employment will remain unchanged.

The individual's employer will initially meet all costs. Costs include salary, travel, accommodation, incidental expenditure, and where appropriate overtime expenses. The loaning agency may recover such costs by forwarding deployment cost details, including supporting documentation, directly to the polluter or the Directorate General of Shipping for cost recovery purposes.

2.7 ENVIRONMENT ADVICE AND MONITORING

Response to any maritime incident requiring a regional or national response would involve the establishment of an Environment Group. All those involved in operations at sea (including salvage) and shoreline clean up need timely environment advice.

The Environment Group would:-

a. perform a purely advisory role;

b. advise on environment aspects and public health impacts of the incident and associated response operations both, real and potential;

c. being a common facility, provide comprehensive advice to all response units and represent all environmental and public health interest considered being at risk;

d. as well as provision of expert advice based on immediately available and prepared data and information, may encourage the collection of real time environmental data by the relevant government agencies; such environment data may provide accurate baseline data of vulnerable environmental features immediately before impact of the pollution plume, so that risk can be identified and the damage can be quantified;

e. track the success of preventive and counter pollution measures throughout the incident, and begin to assess the overall long term environment impact, dependent on timely provision, from each response unit, of all relevant information on the fate and modeling of pollutants, and each unit's forecasts, plans actions and outcomes; and

f. if a marine pollution incident is expected to have a significant impact on the marine environment, or the shoreline, to promptly make arrangements to begin to monitor and assess the impact in the longer term.

Response units will make all reasonable efforts to consult the Environment Group, or its chair, about any proposed action that is likely to have lasting impact on the environment. If time does not permit the response unit to consult before acting, it will circulate a written report to the Environment Group and all other response units as soon as possible after the action (or decision) has been taken.

The statutory environment protection or fishery authority will consult locally with members of the standing Environment Group.

The Coast Guard would initiate the request on the relevant civil administrative authority for the formation of the Environment Group. The core membership of the Group would come from the relevant statutory authorities and include relevant civil administration authorities, forest and wildlife authorities, fisheries authorities, Block Development Officer, local public health officials and relevant non-governmental organisations for appropriate expert advice. The Group may also include a Coast Guard representative.

The chair decides when it is necessary to convene the Environmental Group at the scene of the incident and appoint an Environment Liaison Officer for each response unit established.

2.8 COMMUNITY

Support of the local community is essential for the success of any response operation, particularly shoreline response. The community will include volunteers from the National Cadet Corps, National Disaster Mitigation Resource Centres, National Service Scheme, Nehru Yuva Kendra, and Non-Governmental Organisations.

The specialized National Disaster Response Force may be called in addition to the community volunteers.

2.9 24-HOUR EMERGENCY ADVICE CENTRE

Ensuring access to the initial risk assessment capability 24-hours a day, 365 days a year should be a central element of the contingency planning to deal with chemical spills on water. At a national level, there would ideally be one contact point for ensuring immediate access to information on chemical hazards. It would be linked to the ICE (International Chemical Environment) scheme – a voluntary programme, co-ordinated through CEFIC, to create an international network for chemical distribution incidents. The aim of ICE is to ensure that information on the chemical hazards posed by an incident, practical help and, if necessary and possible, appropriate equipment is provided to the emergency services to minimise adverse effects.

However, it will take time to have a complete database in India and to establish an agency for monitoring the origin of chemicals, its hinterland movements, the destination, the customer, the chemical characteristics, the possible threats, the response to such threats and the likely threat to environment. In the interim, it is necessary that as much information available through open sources and from the manufacturers and exporters of the chemical substances that are moved from the Indian ports is gathered and a database maintained by Indian Ports Association or other suitable organisation, for supporting an effective spill response.

3. Division Of Responsibility

3.1 STATUTORY AND COMBAT RESPONSIBILITIES

Responsibilities for responding to oil spills in Indian waters are shared between the Indian Coast Guard, State Governments, Port Authorities and Corporations, and the oil industry. Liability for clean-up of both, oil and HNS spills remains with the polluter.

3.1.1 STATUTORY AGENCIES

The Statutory Agency is responsible for the institution of prosecutions and the recovery of cleanup costs on behalf of all participating agencies. The Statutory Agencies for oil spills are appended at table 3.1.

Source / Location	Statutory Agency
from ships	the relevant Designated Authority under the Merchant Shipping Act, 1958
from offshore installations and upstream pipelines	the relevant Designated Authority under the Petroleum Act, 1934
from shore terminals, refineries and downstream pipelines	the relevant Designated Authority under the Petroleum and Natural Gas Regulatory Board Act, 2006
in major ports	the relevant Port Authority under the Major Ports Act
in non-major ports	the relevant Designated Authority in the Coastal State, or Union Territory

Table 3.1. Statutory Agencies for oil spills

3.1.2 COMBAT AGENCIES FOR OIL SPILLS

Combat Agencies have the operational responsibility to take action in order to respond to an oil spill in the marine environment in accordance with the relevant contingency plan. The Combat Agency responsible for responding to marine oil spills in various locations is at table 3.2.

Source / Location	Combat Agency
at oil terminals	The relevant oil company or terminal operator using industry mutual-aid arrangements as required. Should a situation develop where the necessary response is beyond the oil company or terminal resources, or mutual-aid arrangements, responsibility for control will transfer to the Statutory Agency, with response assistance from other National Plan stakeholders as required
in ports	The port operator or responsible State Government authority, with response assistance from other National Plan stakeholders as required
within shoreline and in intertidal zones	The responsible State Government authority with response assistance from other National Plan stakeholders as required
beyond baseline	The Ministry of Defence via Indian Coast Guard, with response assistance from other National Plan stakeholders as required. In incidents close to shore when oil is likely to impact the shoreline, the State Government via the Statutory Agency will be the Combat Agency for protecting the coastline, whilst DG Shipping assumes responsibility for ship operational matters, for example, containing the oil within the ship, organizing salvage, etc.
spills emanating from offshore petroleum ops	The relevant company with assistance from the Statutory Agency and other National Plan stakeholders as required

Table 3.2. Combat Agency for oil spills

The responsibility for overseeing response action for oil spills, other than those from offshore petroleum operations, is as follows:

- within shoreline and intertidal zones – the State designated Statutory Agency
- beyond baseline – Indian Coast Guard, as the Statutory Agency.

The Combat Agency shall, as soon as possible, undertake preventive and cleanup action or may request another agency to act on its behalf. Regardless of which agency has lead responsibility, other agencies shall assist as far as is practical, in accordance with requests from the Combat Agency. In circumstances where the incident has exceeded, or is likely to exceed, the effective response capacity of the Combat Agency, or the response is not being conducted effectively, the Statutory Agency may assume control of the response.

A response by a Combat Agency and/ or Statutory Agency does not in any way indicate an admission of liability for the source of the spill or for acceptance of the costs of a spill or for cleanup which remains with the polluter. Liability for a spill is to be determined by due legal proceedings. Any response by a Combat Agency and/or Statutory Agency in good faith and any consequences thereof, direct or indirect, shall be immune from proceedings in any court of law in any State.

3.1.3 COMBAT AGENCIES FOR HNS SPILLS

Combat Agencies are the response organisations which are to be set up by the Chemical Industries that are responsible for the maritime transportation of the chemical and HNS materials that are manufactured, processed, stored, exported or imported by them through ships. The combat agencies are to maintain adequate response resources at strategic places to respond to a chemical or other hazardous or noxious substance spill in the marine environment in cooperation with the statutory authorities in accordance with the relevant contingency plan. Table 3.3 outlines the Combat Agencies for responding to chemical spills in various locations.

Source/ Location	Combat Agency
at chemical terminals near a maritime area	The relevant chemical company or terminal operator under industry arrangements, under the provisions of NDMA guidelines or under the provisions of the Chemical Accidents Rules 1996 established by the Ministry of Environment and Forests. If the response is beyond the capacity of the chemical company or terminal resources, the Statutory Agency like Port Trusts or NDMA will respond with assistance from the combat agencies maintained exclusively to address the maritime chemical spills.
In ports	The chemical industry/ exporter/ importer/ polluter through a tie-up with combat agencies and the relevant port as specified in the relevant contingency plan, with response assistance from other National Plan stakeholders as required.
within shorelines and inter-tidal zones	The relevant chemical company or terminal operator under industry arrangements/ polluter, under the provisions of NDMA guidelines or under the provisions of the Chemical Accidents Rules 1996 established by the Ministry of Environment and Forests. The polluter and the responsible State/UT Statutory Agency with response assistance from other National Plan stakeholders as required.
in the maritime zones of India	The Indian Coast Guard with response assistance from the combat agencies and other National Plan stakeholders as required. In incidents close to shore when chemicals are likely to impact the foreshore, the State/UT via the Statutory Agency will organize the Combat Agency for protecting the coastline, while DG Shipping assumes responsibility for ship operational matters and international coordination, e.g. organising salvage, claims, etc.

Table 3.3. Combat Agency for chemical spills

3.2 ALLOCATION OF RESPONSIBILITIES

3.2.1 MINISTRY OF DEFENCE

The Ministry of Defence with administrative responsibility for the Coast Guard organisation is the Ministry responsible for central coordination of oil spills of national significance in coastal and marine environment of various maritime zones.

3.2.2 INDIAN COAST GUARD

The Indian Coast Guard (ICG) is responsible for maintaining and implementing the National Oil Spill Disaster Contingency Plan. The Indian Coast Guard is also responsible for acting as the Central Coordinating Agency for combating of oil pollution in various maritime zones, except in the waters of ports and within five hundred meters of offshore exploration and production platforms, coastal refineries, and associated facilities such as single buoy mooring, crude oil terminal and pipelines.

As the Central Coordinating Authority for combating oil pollution, the Coast Guard will additionally:-

a. review the progress reports submitted by the State Crisis Management Groups;

b. respond to queries addressed to it by the State Crisis Management Groups and the District Crisis Management Groups;

c. publish State-wise list of experts and officials who are concerned" with the handling of oil pollution incidents.

3.2.3 MINISTRIES AND DEPARTMENTS OF THE GOVERNMENT OF INDIA

As outlined at section 1.1, an executive decision of the Committee of Secretaries on 04 November 1993 serves as the reference for obligations of the various Ministries and Departments of the Government of India in support of the NOS-DCP. The agreed functional responsibilities are at **Appendix A.**

3.2.4 STATE GOVERNMENTS

The State Governments of coastal states are responsible for coordinating the district and local administration and operation of the National Plan for shore line response and as per the provisions of the National Disaster Management Act, 2005.

The State and District Authorities will provide a wide range of site-specific information and resources, either in relation to environmental impacts, or response activities through authorities, such as Transport, Conservation and Resource Management Departments, Environmental Protection Authorities, emergency services, port/ harbour authorities, and local conservation groups.

3.2.5 SUPPORT AGENCIES

The responsibilities allocated to various support agencies for implementation of the National Oil Spill Disaster Contingency Plan are described below.

The Navy/ coastal state authorities/ port authorities will make their communication/ operation centres facilities available to receive and disseminate reports of marine pollution accidents.

The Indian Navy and the Indian Air Force will provide fixed wing aircrafts or helicopters to conduct aerial surveillance or provide logistic support in movement of men and materials to the incident site. They will also provide ground to air communication link at the site for use by the on scene Commander.

The Port Authority will provide tugs and pollution control equipment at the incident site within port limits.

The Ministry of Shipping, and Ministry of Petroleum and Natural Gas will provide tankers or tank barges for storage of recovered oil or oil in water emulsions, and will arrange for storage and eventual disposal of recovered oil.

The Director General of Shipping, Ministry of Shipping, will be responsible for all negotiations with the vessel, cargo owners, and insurers and will also conduct all negotiations regarding compensations and indemnification.

The Ministry of Environment, Forest, and Climate Change and Ministry of Agriculture will provide scientific advice regarding species at risk, shore-line sensitivity, restriction of fishing activities, use of dispersant chemicals, beach cleaning methods, etc.

The Ministry of Finance will provide authorisation for expenditure and funds for initial response and ensure adequate financial records are maintained.

Coastal state authorities/ district administration/ departments/ public works/ civil defence corps will provide personnel and equipment, as required, for shoreline clean-up and ensure safety and protection of the local population and resources.

3.3 SPECIALIST ADVICE AND ASSISTANCE

Specialist technical advice is available to response managers from a variety of sources. Advice can vary from the fate of oil, selection and deployment of pollution control equipment, and dispersant use, to the associated environmental effects of an oil spill. Specialist advice can also be provided in relation to the safety and stability of ships.

The range of specialist environmental and operational technical advice in the event of an oil spill in the marine environment that can be provided by varied departments and organisations of the Government of India and other agencies is enumerated in the succeeding paragraphs.

3.3.1 DIRECTORATE GENERAL OF SHIPPING

a. Issuance of statutory notice to the polluting ship as per the provision of Merchant Shipping Act, 1958.

b. Invoking relevant provision of the Merchant Shipping Act, 1958 in case the polluting ship fails to take action as required by the act to prevent or minimize pollution.

c. Advising concerned affected ports or other entities to deal with evidences for the purpose of raising claims on accounts of damage caused by the pollution and initiating legal action against the polluter.

d. Reporting such incidents to the Flag State of the ship or the neighbouring Coastal State which is effected due to pollution.

e. Supervising salvage operations while dealing with oil pollution casualty if requested by the affected ports or other entity.

f. Investigating oil pollution contravention under the provisions of MS Act, 1958.

g. To keep Ministry of Shipping, Government of India and other concerned authorities posted on the pollution, action taken, progress report on combatment and follow-up action till normalcy of situation.

h. To advice Indian Coast Guard on pollution related matters under the provision of Merchant Shipping Act, 1958 whenever requested.

j. To take administrative and legal action for processing claims against damages incurred by Coast Guard and other agencies relating to any other oil pollution incidents.

k. Advice concerned agencies to collect evidences for the purpose of claims pollution ships.

l. To advice the receiver of wreck with respect to pollution aspect and response.

m. To advice Indian ship-owners to mobilize ships for the purpose of oil transhipment if required.

3.3.2 INDIAN REGISTER OF SHIPPING†

a. To provide advice relating to ship safety, structural integrity and stability of marine casualties.

b. To depute representatives to attend to a casualty and salvage at the SMCU when established.

3.3.3 MARITIME RESCUE CO-ORDINATION CENTRE

a. In addition to coordinating the rescue and saving of life, to provide drift calculations and advice on offshore currents.

b. Enabling messages to be communicated directly to vessels, during an incident, with its range of communication facilities including International Maritime Satellite (INMARSAT) systems.

3.3.4 DG SHIPPING COMMUNICATION CENTRE

To provide advice relating to ship safety, structural integrity and stability of marine casualties and other details of the ship through coordination established with the Flag State of the stricken vessel.

3.3.5 MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

a. To develop and implement national policy, programs and legislation to protect and conserve India's natural environment including regulation of dumping of wastes at sea, declaration and management of marine protected areas in Indian waters and conservation of listed threatened, migratory and marine species.

b. To advise on matters relating to the Environment Protection from Dumping at Sea including the permitting and reporting of emergency dumping of material at sea.

c. To advise on potential impacts of oil spills on threatened marine and migratory species, such as seabirds, marine turtles, whales and dolphins.

d. To advice on likely to impact of oil spill on marine protected areas in Indian waters.

e. To provide advice on habitats in marine protected areas, seabirds, marine mammals, marine invertebrates and macro algae, along with advice on rates of hydrocarbon biodegradation, dispersal and the use of dispersants.

f. To determine policy for usage of dispersants in the sea areas of the territorial waters over which the state exercises jurisdiction.

3.3.6 ARCHEOLOGICAL SURVEY OF INDIA

a. Conduct underwater archaeological studies in Indian Waters.

b. Assist/ advise in protection and maintenance of cultural heritage of the nation near to shore.

c. Documentation of underwater sites and ancient shipwrecks.

3.3.7 INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES

a. To provide ocean state forecast.

b. To provide software based prediction of the trajectory of spilled oil.

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† *IRS is a classification society and a Recognised Organisation which provides independent third party technical inspection and certification services for ships, marine craft and structures and offshore and industrial projects.*

3.3.8 INDIAN NAVY

a. Augment aerial surveillance capability of Coast Guard as necessary in the area when oil spill has occurred.

b. To make arrangements for oil transhipment operations from any tanker which has caused or is causing or is expected to cause oil spillage.

c. Promulgate general cautionary messages.

3.3.9 INDIAN AIR FORCE

a. Augment aerial surveillance capability of Coast Guard as necessary in the area when oil spill has occurred.

b. To make available its aircraft for aerial monitoring of spills and aerial spraying of oil spill dispersants and mobilisation of response resources.

3.3.10 MINISTRY OF EARTH SCIENCES/ DEPARTMENT OF OCEAN DEVELOPMENT/ NATIONAL INSTITUTE OF OCEANOGRAPHY

a. Mapping of ecologically sensitive areas in the coastal and offshore region in consultation with Ministry of Environment and Forests.

b. Review of the sensitivity mapping listed by other agencies.

c. To provide scientific support through Coastal Ocean Monitoring and Prediction System (COMAPS) Centre and Units in investigations of oil pollution monitoring during oil spills and also deployment of its research vessels for this purpose, whenever necessary.

d. To organise research on impact of pollution on marine life based on actual oil pollution incidents.

3.3.11 MINISTRY OF AGRICULTURE/ DEPARTMENT OF ANIMAL HUSBANDARY, DAIRYING AND FISHERIES

a. To arrange for suitable fishing vessels on which oil dispersant equipment can be mounted if the local action group concerned is unable to mobilise this requirement locally.

b. Sensitivity mapping of the sea areas, particularly within the territorial waters with specific information on fish breeding grounds.

c. To provide Fishery Survey of India vessels for spraying of oil spill dispersants or other response measures.

3.3.12 MINISTRY OF PETROLEUM AND NATURAL GAS AND OIL AGENCIES

a. To assist, when required, in consultation with DG Shipping, with chartering of tanker/s for oil transhipment operations.

b. To make available anti-pollution equipment and chemicals as are available with them.

c. To assist in the storage ashore of oil transhipped from wrecked or damaged tanker.

d. To assist in the assessment of the value of the oil transhipped.

e. To provide equipment and personnel resources and advice on a range of issues, including oil characteristics and local industry resource availability.

f. To depute an Industry Adviser to the MRC during response to a major oil spill.

3.3.13 SHIPPING CORPORATION OF INDIA

a. To arrange for tankers or ships or tank barges for transport and collection of recovered oil.

b. To arrange for any personnel required to assist oil transshipment operation or to assist otherwise as may be required.

3.3.14 MAJOR PORTS/NON-MAJOR PORTS/OIL TERMINALS/OIL INSTALLATIONS/SPM OPERATORS

a. To be in charge of the overall co-ordination of oil pollution response actions in jurisdiction.

b. To identify suitable tugs, vessels and crafts when required for the operations.

c. To identify surface crafts, on which dispersant spraying equipment can be mounted, and which can be used for rigging the boom.

d. To ensure that for the purpose of part XIII of the Merchant Shipping Act, 1958, actions are taken by the various authorities under the overall legal responsibility of the receiver of wrecks.

e. To ensure that at least the minimum equipment are kept available locally at all times.

f. To arrange for training of personnel expected to be engaged in above operations.

g. To arrange for periodical mock drills and exercises so as to keep equipment and personnel on continuous readiness for oil spill response operations.

h. To consult the ICG, DG Shipping, OISD or other authority, when further advice/ assistance is required.

j. To keep the ICG apprised of actions being taken.

3.3.15 COASTAL STATE GOVERNMENTS AND STATE POLLUTION CONTROL BOARDS

a. To take all suitable measures to prevent pollution on shoreline.

b. To render all possible assistance to the coordinator of the On Scene Commander, Local Action Group and District Commander particularly in accordance with the contingency plan.

c. To maintain adequate quantity of basic pollution response equipment like deflective booms, fence booms, spray equipment along with specialised equipment for beach protection and shoreline cleanup.

d. To identify suitable type of tug/boat/fishing vessel in consultation with On-Scene Commander/ Coast Guard for mounting the dispersant spraying equipment.

e. To identify places for waste oil disposal/ pits.

f. To take actions as applicable to the major ports, in respect of incidents at ports under jurisdiction.

3.3.16 MERCANTILE MARINE DEPARTMENT

a. To assist the coordinator of local contingency plan if requested.

b. To provide a technical advice to local group if requested.

c. To identify surface craft to assist Coast Guard for pollution response if requested.

d. To assist Coast Guard if requested or instructed by DG Shipping to examine ships for efficiency of anti pollution equipments as per the provision of Merchant Shipping Act, 1958.

3.3.17 LOCAL FISHERIES AUTHORITY

a. To assist/advise Local Groups in identifying the rich fishing grounds so as to give priority for protection of such grounds from oil spills as well as use of dispersants.

b. The local action groups in consultation with Coast Guard regional headquarters to identify the fishing vessels suitable for mounting the oil spill dispersant equipment.

3.3.18 COASTAL OIL REFINERIES AND CRUDE OIL TERMINALS

a. To assist the local action group in the implementation of the Local Action Plan.

b. To assist the local action group in obtaining from their headquarters available additional equipment and chemicals if and when required.

c. To assist in chartering of tankers to undertake transportation / transhipment operations.

d. To arrange for the storage of oil transhipped.

e. To assess value of oil transhipped and cost of refining or disposal as the case may be.

3.3.19 OFFSHORE OIL INSTALLATIONS

a. Occupiers of offshore oil installations are to maintain an oil spill contingency plan meeting specified requirements and maintain appropriate manpower, equipment and resources for oil spill response taking into consideration any guidelines and suggestions that may be issued by the Government of India/ Coast Guard from time to time.

b. To periodically forward a list of response inventory to the Coast Guard for scrutiny, evaluation and updating holdings.

c. To provide response equipment, material, trained personnel, and ships when required by the Coast Guard/ OSC on as available basis and without affecting safety of operations.

d. To immediately combat oil pollution around its installations up to 500 metres and continue to provide equipment, material, trained manpower, sampling efforts, and vessels as may be required by OSC when such oil spill spreads beyond 500 metres.

e. To provide data on crude oil and oil discharges.

f. To provide data on sub-sea pipe lines as required by OSC or MRC or CG MRCC.

g. To provide transhipment facilities in case the offshore installation, or any agency under its control is the polluter.

h. To provide staging facilities for helicopters in the offshore areas when engaged in pollution response in the vicinity whether or not the installation and agencies under its control are the polluters.

3.3.20 RECEIVER OF WRECKS

a. To assist Local Action Groups in whatever manner necessary and possible.

b. To take all actions necessary under Part XIII of the Merchant Shipping Act, 1958 (In this connection, the receiver of wreck shall consult the DGS, as and when required).

c. In situations where he has the local responsibility for certain actions and/ or operations, he may authorise other agencies, who are better equipped.

3.3.21 BOMBAY NATURAL HISTORY SOCIETY

a. Advise in restoration and cleaning of affected wildlife.

b. Assist in estimating affected birds, mangroves in the area.

c. Identifying, monitoring and mitigating the adverse impact of oil spill to the bio-diversity.

d. Identifying Important Bird Areas (IBA).

e. Environmental Information System (ENVIS) Centre to study Avian Ecology.

f. Ecological Benchmarking in association with corporates, government and other NGOs.

3.3.22 CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

a. Assist in estimating the effect of spill to fish and livelihood of fishermen in the area.

b. Assist in identifying the types of fishes in the area.

c. Assist in restoration of fishing in area after cleanup.

d. Assist in estimating the Economic loss due to ban of fishing in the affected area.

e. To understand the fluctuations in abundance of marine fisheries resources in relation to change in the environment.

f. To develop suitable mariculture technologies for finfish, shellfish and other culturable organisms in open seas to supplement capture fishery production.

g. To act as repository of information on marine fishery resources with a systematic database.

h. To provide consultancy services.

3.3.23 INTEGRATED COASTAL AND MARINE AREA MANAGEMENT PROJECT DIRECTORATE

a. Responsible for preservation and conservation of marine environment in India.

b. Identify the high risk areas.

c. Promulgate the sensitivity mapping and area of priority.

3.3.24 MANGROVE SOCIETY OF INDIA†

a. To protect and conserve Indian mangroves by adopting environment friendly, scientifically sound techniques/methodologies.

b. To build up their capacities for protection and conservation of Indian mangroves.

c. To act as watchdog and advise in matters concerning the conservation of mangroves.

d. To train younger generations and will create awareness amongst them to conserve and protect mangroves.

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† *Mangrove Society of India (MSI) is a non-profit and non-political organization working for protection, conservation and sustainable use of mangroves. Many of its members are consultants/advisers to various Government agencies. Some are on the National and International mangrove committees. MSI has affiliation with research and government institutions, corporate houses, NGO's and stakeholders etc. from Maharashtra, Gujarat, Kerala, Karnataka, Tamil Nadu etc.*

e. To organise alliances and networks with partners to develop an appropriate developmental perspective to conserve mangroves.

f. To organize issue-based Forums to achieve appropriate solutions to mangrove protection.

g. Capacity building of port and oil agencies, Central government and other state government agencies, stakeholders etc. by providing necessary training for their personnel.

h. To assist and coordinate activities pertaining to mangrove restoration consequent to oil pollution.

j. To play an active role in ensuring the participation of local people in making decisions in respect of mangroves.

k. To provide necessary scientific information in respect of mangroves.

3.3.25 NATIONAL BIODIVERSITY AUTHORITY

a. To regulate and advise the Government of India on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.

b. To advise the Central Government agencies on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources; and advise the State Governments in the selection of areas of biodiversity importance to be notified under Sub-Section (1) of Section 37 as heritage sites and measures for the management of such heritage sites.

c. The State Biodiversity Boards (SBBs) are to advise the State Governments, on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits arising out of the utilization of biological resources.

d. The local level Biodiversity Management Committees (BMCs) are to promote conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity.

3.3.26 REEF WATCH MARINE CONSERVATION†

a. To conduct education, awareness, training and capacity building programs for stakeholders.

b. To provide expertise through its Information Network of institutions and individuals working on marine and coastal issues for development of OSCPs and incident response.

c. To provide environmental information / education on biodiversity hotspots.

d. To provide policy support.

e. To facilitate a dialogue and consensus at various levels for conservation, management and sustainable utilization of coastal and marine resources / ecosystems in the development of protection priorities in OSCPs, NEBA and incident response.

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† *Reef Watch Marine Conservation is dedicated to the protection of India's marine heritage. RWMC's efforts have put many coral species and marine fauna under the Wildlife Protection Act, and it has been nominated as a Member of the National Board for Wildlife, Govt. of India in May 2007*

3.3.27 MS SWAMINATHAN RESEARCH FOUNDATION †

a. To provide advice on conservation of mangrove wetlands and sustainable utilization of their resources.

3.3.28 WILDLIFE TRUST OF INDIA

a. To assist in managing or preventing wildlife crises and mitigating threats to individual wild animals, their populations and habitats through holistic strategies and practical interventions.

b. To maintain national database on wildlife protected area and share the data with stakeholders for development of OSCPs and incident response.

3.4 INTERNATIONAL ASSISTANCE

In the event of a major oil spill incident, it is likely that additional overseas assistance may be sought from overseas in accordance with the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 1990). In such cases, customs and immigration authorities of ports and air ports need to provide immediate facilitation for temporary import of equipment and personnel in order to transfer them in the scene of action expeditiously.

If resources in addition to the national resources are required to respond to an incident in India, then Oil Spill Response Limited (OSRL) will be called out invoking the membership of the concerned oil company. OSRL is a company based in Singapore, Bahrain and Southampton and is part of the Global Response Network. The Global Response Network is a collaboration of seven major oil industry funded spill response organisations whose mission is to harness cooperation and maximise the effectiveness of oil spill response services worldwide.

The Indian Coast Guard, in accordance with current MoU and relevant International Conventions, may also assist neighbouring countries in relation to oil spill incidents in their waters.

3.5 CROSS BORDER INCIDENTS

In case of incidents close to International Maritime Boundary Line, or incidents which are likely to result in trans-boundary pollution, high-level consultation and cooperation will be maintained with the Competent National Authority or Authorities of concerned State(s), with due regard to the provisions of any Regional Contingency Plan or Memorandum of Understanding or other arrangement, with an objective to ensure a clear delineation of responsibility for the response.

In case of incidents close to State or Union Territory borders, high-level consultation and cooperation will be maintained between the two Statutory Agencies, with an objective to ensure a clear delineation of responsibility for the response.

3.6 NATIONAL PLAN KEY CONTACTS

The Contact Directory listing contact details for key National Plan personnel is at **Appendix C.**

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† *The Coastal Systems Research Programme of the MS Swaminathan Research Foundation aims at integrating ecological security of coastal areas and the livelihood security of coastal communities, in a mutually reinforcing manner, to achieve sustainable management of coastal resources.*

4. Preparedness Management

4.1 RISK FACTORS

The location of national resources is based on a risk profile of Indian waters. The risk is profiled based on data relating to the pollution of Indian waters by discharges of oil or chemicals from ships. The following are recognized as important risk factors:

- Type of oil/product
- Geographic location
- Weather
- Sea conditions
- Coastline
- Vigilance
- Traffic density
- Time of day
- Navigation hazards
- Terminal design
- Condition of facilities
- Legislation
- Vessel quality/ age/ sea worthiness
- Vessel types/ sizes
- Types of operation
- Quantities handled
- Frequency of handling
- Training program
- Risk of collision
- Risk of grounding
- Hazards to navigation
- Negligence and competence of the owner/operator, master or crew
- Stowage and control of cargoes
- Environmental factors including tidal flow and weather, etc.

4.2 RESPONSE POLICY

The primary aim of an oil spill response is to:

- protect human health and safety;
- minimise environmental impacts; and
- restore the environment, as near as is practicable, to pre-spill conditions.

The environmental impact of an oil spill can be minimised by good management and planning, and by the response actions put into effect by the Combat Agency. Such actions will largely depend on several factors:

- the type of oil(s) involved;
- the size of the spill;
- the location of the spill;
- the prevailing sea and weather conditions at the spill site; and
- the environmental sensitivity of the coastline/site impacted.

4.3 LEVELS OF RESPONSE

Under the NOSDCP, oil pollution preparedness and response requirements are categorised into three 'tiers'. The tiered approach to oil contingency planning indentifies resources for responding to spills of increasing magnitude and complexity by extending the geographic area over which the response is coordinated. It provides a convenient categorization of response levels and a practical basis for planning. The NOSDCP recognizes three levels of tiered response.

4.3.1 TIER 1

Tier 1 is concerned with preparedness and immediate response to a small spill within the capabilities of facility operator or port authority. Seven hundred tons will be the upper limit of 'tier-I; however, the risk assessment of oil pollution and the surrounding environment will determine the required level of response preparedness and reflected in the standard of inventory for ports, oil agencies and coastal States.

The agencies should have capability to provide first response to oil spill in their areas. The capability includes trained manpower and equipment. In cases where additional resources are required, these will generally be available from the local port authority, or from adjacent industry operators under mutual aid arrangements or locally from the Indian Coast Guard.

4.3.2 TIER 2

Tier 2 is concerned with preparedness and response to a spill that requires the co-ordination of more than one source of equipment and personnel. 'Tier 2' describes a wide range of spill sizes and potential scenarios response assistance for which can come from entities within a port area or from national sources outside the immediate geographic area.

The resources of the Combat Agency will need to be supplemented by other local, regional, and national resources.

4.3.3 TIER 3

Tier 3 is concerned with a major spill requiring the mobilization of all available national resources and depending upon the circumstances, will likely involve mobilization of regional and international systems. It is this tier of response where positive advance customs arrangements are critical to facilitate a successful effort.

The Combat Agency will require local, regional, national and possibly international assistance. International resources will be facilitated by the Statutory Agency through the Ministry of External Affairs.

4.4 RESOURCE AGENCIES

The list of government departments and agencies that will act as resource agencies as required to support the combating of marine oil pollution is at **Appendix D.**

4.5 CONTINGENCY PLANNING

Statutory Agencies supported by Combat Agencies, are primarily responsible for ensuring that contingency plans are developed at national. state, regional and local levels, and that these plans complement adjacent plans.

Statutory Agencies may be supported by National Plan State Committees and will provide advice and support to Combat Agencies during pollution incidents.

The National Oil Spill Disaster Management Plan will be maintained by the Indian Coast Guard Headquarters with inputs from, and in consultation with, stakeholders to the national plan.

The Regional Oil Spill Disaster Management Plan will be maintained by the Regional Headquarters of the Indian Coast Guard at Gandhinagar, Mumbai, Chennai, Kolkata, and Port Blair with inputs from, and in consultation with, stakeholders to the regional plan.

The District Oil Spill Disaster Management Plan will be maintained by the District Headquarters of the Indian Coast Guard in each coastal state with inputs from, and in consultation with, stakeholders to the district plan.

The Local Contingency Plan for shoreline cleanup will be maintained by the Coastal State with inputs from, and in consultation with, stakeholders in the respective coastal state. The local contingency plan should include the following or a cross reference to where such advise can be located:

- the mechanism for escalating the response in accordance with the tiered response concept; guidance on what equipment and personnel is at the disposal of the SRC, including neighboring local authority resources;
- arrangements for establishing working accommodation and catering arrangements for members of the SRC and Environment Group and other groups involved in the incident who may need to be in the area away from their own base;
- arrangements for handing the media, including the logistics of their presence;
- temporary, intermediate and final sites and routes for the recovery, rescue or final disposal of waste.
- maps, clearly depicting sensitive sites, access points, terrain types etc;
- guidance on the health and safety of workers involved in preventing measures and clean-up activities;
- financial implications of coastal pollution and actions that can be taken for cost recovery.

Every ship is required by MARPOL regulations to maintain a SOPEP approved by the Flag State Administration. The Merchant Shipping (Prevention of Pollution by Oil) Rules, 2010 requires maintenance of a pollution emergency plan by Indian ships approved by the Administration or Recognized Organisation acting on its behalf.

Every sea port facility and offshore oil installation and every oil installation on shore with risk of marine oil or chemical pollution is required to maintain a facility contingency plan approved by the Coast Guard.

The elements of the Facility Contingency Plan are at **Appendix E1**. The Guidelines for contingency plan for pipelines carrying petroleum products and chemicals is at **Appendix E2**. Mapping of environmental sensitivities is integral to the contingency plan. Guidelines for ESI mapping are at **Appendix E3**. A Certificate of Endorsement and Certificate of Compliance is required to be submitted along with a facility contingency plan, formats for which are placed at **Appendices E4,** and **E5** respectively. An MSDS is required to be submitted by ports, terminals, installations, in respect of each oil or chemical handled at such facilities, format for which is placed at **Appendix E6**.

The facility contingency plans are to be updated at least annually and revised at least once in every five years or whenever there is a significant change in any of the elements underlying the plan. The occasions for revision could include, but may not be limited to, an addition to capacity, change in traffic density, change in risk, etc. A revision of a facility contingency plan will necessitate fresh approval.

The Ministry of Shipping will provide to the Ministry of Defence and the Indian Coast Guard, and update from time to time, the list of sea port facilities required to maintain a facility oil spill contingency plan.

The State Government of the coastal states will provide to the Ministry of Defence and the Indian Coast Guard, and update from time to time, the list of port facilities required to maintain a facility oil spill contingency plan.

The Ministry of Petroleum and Natural Gas will provide to the Ministry of Defence and the Indian Coast Guard, and update from time to time, the list of oil installations required to maintain a facility oil spill contingency plan.

The Petroleum and Natural Gas Regulatory Authority will provide to the Ministry of Defence and the Indian Coast Guard, and update from time to time, the list of onshore oil installations required to maintain a facility oil spill contingency plan.

Every plan holder will submit an annual return of preparedness to the Central Coordinating Authority viz., the Director General Coast Guard with a copy to the local Coast Guard authority, the District Administration and such other authorities as may be necessary. The format for the annual returns is at **Appendix E7**.

4.5.1 INTEGRATION OF FACILITY, LOCAL, DISTRICT, AND REGIONAL PLANS WITH NOSDCP

This NOSDCP document has been revised taking into account all possible inputs on the subjects from various stakeholders. Every effort has also been made to synergize this document with related international and national regulations, guidelines and documents such as the National Disaster Management Guidelines: Chemical Disasters (Industrial), 2007 and ERDMP, 2010.

4.6 RESPONSE INVENTORY

Tier 1 equipment for pollution response up to 700 tons is required to be held by port facilities and oil terminal and installations.

In addition to the tier 1 equipment, the Indian Coast Guard maintains stockpiles of equipment at its pollution response teams at Mumbai, Chennai, Port Blair and at Vadinar.

The Indian Coast Guard also operates two dedicated pollution response vessels. The third pollution response vessel in the series is in the final stages of commissioning.

Stocks of oil spill dispersant are additionally held at each Coast Guard Station/ Air Station.

The current national inventory is at **Appendix F1.** The standard of inventory for ports, oil agencies, and coastal states is at **Appendix F2.** The national oil spill response capability supported by the concerned Ministries is at **Appendix F3**. Appendix F1 is held by relevant authorities only.

4.7 OIL INDUSTRY ARRANGEMENTS

Combat Agency responsibilities of the oil industry are set out in the Petroleum Act and Petroleum and Natural Gas Act, and Rules. In general, at oil terminals the relevant oil company or terminal operator has Combat Agency responsibility. Should a situation develop where the necessary response is beyond the oil company or terminal resources, the Combat Agency responsibility will transfer to the Statutory Agency. For offshore petroleum operations, the relevant oil company has Combat Agency responsibility, with assistance as required from the Statutory Agency.

Generally the oil industry maintains membership with an oil spill response organisation, such as OSRL, Singapore. M/s OSRL holds a Tier 3 stockpile and provides response training, and other services. The oil industry membership provides for access to OSRL equipment and personnel at Singapore and in the United Kingdom.

In the event that the Statutory Agency takes over the Combat Agency responsibility from the affected company, industry resources will continue to be available to the response.

Each company will designate an **Industry Adviser**. During a tier 2 or tier 3 incident, the Industry Adviser of the affected company will provide a direct high-level linkage to the response organisation. Industry personnel will nominate their personnel to the respective State, District, and Local CMG, Local Action Group, and Local Action group Support Team (LST). Each company will designate its CIC and IC.

4.8 MUTUAL AID

Since combating major emergencies might be beyond the capability of individual unit, it is essential to have mutual aid arrangements with neighbouring industries. Consideration shall be given to the following while preparing mutual aid arrangements:-

a. Written mutual aid arrangements are to be worked out to facilitate additional help in the event of tier 2 emergencies by way of rendering manpower, medical aid or fire fighting equipments, etc. a copy of which shall be forwarded to DGICG, the concerned Coast Guard Regional Commander, and other concerned authorities.

b. The mutual aid arrangement shall be such that the incident controller of the affected installation shall be supported by neighbouring industries on call basis for the support services materials and equipment already agreed. Further, all such services deputed by member industry shall work under the command of the site incident controller of the affected installation.

c. Mutual aid associations shall conduct regular meetings, develop written plans and test the effectiveness of their plans by holding drills. Drills are essential to establish a pattern for co-operation, detect weaknesses in communications, transportation and training. Periodic drills also help develop experience in handling problems and build confidence in the organization.

d. To make the emergency plan a success, the following exchange of information amongst the member organizations of mutual aid association is considered essential: -

(i) The types of hazards in each installation and pollution response measures.

(ii) The type of equipment, that would be deployed and procedure for replenishment.

(iii) Written procedures which spell out the communication system for help and response. This is also required to get acquainted with operation of different pollution response equipment available at mutual aid members and compatibility for connecting at users place.

(iv) Familiarization area of operations and drills for access and exit details carried out by mutual aid members.

4.9 INSPECTIONS

The preparedness of ports and oil handling agencies will be inspected periodically, by nominated Coast Guard officers, acting on behalf of the Central Coordinating Authority, and if deemed necessary, jointly with the concerned statutory authority. The periodicity and manner of such inspections will be as decided by the Central Coordinating Authority. The format for the inspections is at **Appendix G**.

4.10 FINANCIAL ARRANGEMENTS

Detailed financial records, including all supporting information, are required, and are of particular importance when submitting claims to the Protection and Indemnity (P&I) insurers, as all claims will be assessed to ensure that the costs are reasonable, and are supported by satisfactory documentation.

Agencies should have in place appropriate systems to ensure that these requirements are met and that these are adequately outlined in contingency plans.

In general, costs will be considered “reasonable” if they result from actions :

- undertaken on the basis of a technical appraisal of the incident;
- sought to enhance the natural processes of recovery; and

- not undertaken purely for public relations reasons.

Capitation costs for deployment of government ships and aircraft shall be as promulgated by the Government of India, Government of any coastal State of India, or any other department or agency of the central or state government.

4.11 RECORD KEEPING AND PREPARATION OF CLAIMS

In order that claims may be processed with minimum delay, it is essential that accurate records are maintained to support claims. It should be noted that claims should be based on expenses actually incurred, that these are made as a direct result of an incident, and that the expenses incurred are reasonable. In the case of economic loss, documentation supporting the claims should demonstrate how the claim has been calculated. The following aspects are to be considered during reponse operations, and preparation of claims:-

- delineation of the area affected describing the extent of pollution and indentifying areas most heavily contaminated. This may be best presented as a map or chart accompanied by photographs;
- summary of events including a description of the work carried out in different areas and of the working methods chosen in relation to the circumstantial evidence linking an oil pollution with the ship involved in the incident (e.g. chemical analysis);
- labour costs (numbers and categories of labourers, rates of pay, hours worked, total costs etc);
- dates on which work was carried out (weekly or daily costs); and
- material costs (consumable materials, fuel utilized, food, shelter, etc.).

Preparation of claims shall be guided by the manuals, guidelines etc. published from time to time by the International Oil Pollution Compensation Funds (IOPC Funds) such as the claims manual and guidelines for claims in the fisheries and tourism sector.

4.12 COMMUNICATIONS

In a pollution incident it is important that the CIC has access to adequate communication facilities. In addition to the facilities available through the ECC it is envisaged that port and oil installation Very High Frequency (VHF) radio facilities, the Coast Guard communications networks would be available to coordinate a response. In a major incident it may be necessary to seek assistance from other Government agencies and utilise the Government Radio Network or the emergency services or Naval radio communications network.

4.13 WILDLIFE RESPONSE

When a marine oil pollution incident occurs, it is highly likely that oiling of birds, marine mammals and other wildlife will occur. The impact on wildlife and biodiversity will depend upon the environmental sensitivity, the type and quantity of the pollutant, and the location of the spill. Oiled wildlife attracts both, significant community and media attention. The effectiveness of a spill response is sometimes measured on the success of its wildlife rescue and rehabilitation.

4.14 PLACE OF REFUGE

India is a peninsular country and has a significant passing traffic that is not calling at Indian ports. The coasts are vulnerable to incidents involving passing traffic, particularly during heavy weather in the monsoons.

It is rarely possible to deal expeditiously and satisfactorily with a casualty in open sea conditions, and the longer a damaged ship is forced to remain at the mercy of the open sea, the higher the risk of its condition deteriorating and thereby becoming a greater pollution hazard. A place of refuge must provide favourable conditions to enable a ship to stabilize its condition, protect human life, and minimize the risk of environmental degradation.

The International Convention on Salvage 1989 places an obligation on response authorities to take into account the need for cooperation between various parties concerned in a salvage operation, including public authorities, when considering admittance of damaged vessels to ports. It is ideal to pre-designate places of refuge; however, where no pre-designated place exists, it is imperative to have policies in place to enable the selection of a place of refuge.

The State Government is required to adopt specific policies on places of refuge as part of its contingency plan, and these should be followed as appropriate. Regardless of whether places of refuge are pre-designated or not, the following criteria form the basis for their selection:

- adequate water depth;
- good holding ground;
- shelter from the effect of prevailing wind/swell;
- relatively unobstructed approach from seaward;
- environmental classification of adjacent coastline and fisheries activity;
- access to land/air transport; and
- access to loading/unloading facilities for emergency equipment.

Guidelines on places of refuge are at **Appendix H.** The checklist for grant of refuge to a ship in need of assistance developed on the basis of the IMO guidelines is at **Table H-1** and pro forma for Risk Evaluation of place of refuge is at **Table H-2**.

4.15 TRAINING AND EXERCISES

The Indian Coast Guard conducts regular training programs and exercises for personnel likely to be involved in a response to an oil spill in the marine environment. These training programs and exercises are designed to enable India to have sufficient numbers of trained personnel to mount a credible and effective response to an oil spill incident. Joint exercise and training programmes may also be conducted with neighbouring countries to fulfil the requirement of regional oil spill contingency plan.

Training programs are regularly conducted at two levels, which recognise the overall technical complexity of managing an oil spill response and that the associated knowledge required by personnel varies depending on their level of responsibilities.

The two levels of training conducted are:

- Level 2 for middle management personnel responsible for managing the operational response, e.g. incident controllers, their deputies and environment and scientific coordinators, and Fire Brigade (Hazardous Materials) specialists.
- Level 1 for operator level personnel, i.e. those undertaking on-site clean-up operations. In a major incident this would also include supervisors appointed as site managers.

A certificate of level 1 course is deemed to be valid for a period of five years from the date of its issue. It is imperative that personnel designated for oil spill response operations undergo periodic training to maintain currency of certification.

The persons qualified in level 2 course will be designated for carrying out duties as Chief Incident Controller and Incident Controller.

Mock drills and exercises will be conducted by every port facility ad oil installation at such periodicity and at such scales as required by the Central Coordinating Authority. However, such mock drills and exercises shall in any case be conducted at least once every three months and a record shall be maintained of its conduct including the

personnel participated, resources mobilized, etc. Area or regional level exercises will be conducted at least once every six months. National level pollution response exercises will be conducted at least once a year and involve mobilization of stakeholder resources.

In addition, communication mock drills will be conducted by the Coast Guard at the national and area or regional level as required.

4.16 MEASURES TO PREVENT AND CONTROL POLLUTION

The Central Coordinating Authority may notify through Circulars hosted on the Coast Guard website, or any other appropriate means, such reasonable measures as it deems fit, as may be required to be taken by ships, port facilities, and oil installations, to prevent and control pollution or enhance preparedness for response. A list of current Circulars is at **Appendix J** and hosted on the Indian Coast Guard website.

5. Discovery and Notification

Marine pollution or a risk of significant pollution calls for an immediate response. The Indian Coast Guard is the national operational contact point for receipt and transmission of reports of oil pollution in Indian waters.

5.1 DUTY TO REPORT

Masters or other persons having charge of ships and persons having charge of offshore facilities involved in an incident, shall report without delay and to the fullest extent possible to the nearest Indian Coast Guard Maritime Rescue Coordination Centre (MRCC) the particulars of any event on their ship or offshore unit involving a discharge or probable discharge of oil, of any quantity, in Indian waters.

In the event of the ship or offshore facility involved in an incident being abandoned, or in the event of a report from such a ship or offshore facility being incomplete or unobtainable, the obligations shall, to the fullest extent possible, be assumed by the owner, charterer, manager or operator of the ship, or offshore facility, or the agent in case of a ship.

Masters or other persons having charge of ships and persons having charge of offshore facilities shall report without delay and to the fullest possible extent to the nearest Indian Coast Guard MRCC the particulars of any observed event at sea involving a discharge or probable discharge of oil, of any quantity, or the presence of oil in Indian waters.

Persons having charge of sea ports and oil handling facilities in India shall report without delay and to the fullest possible extent to the nearest Indian Coast Guard MRCC the particulars of any event at their sea port or oil handling facilities involving a discharge or probable discharge of oil, of any quantity, or the presence of oil in Indian waters.

Maritime inspection vessels and aircraft of other services including the Air Force, Navy, Border Security Force, Customs department, Forest department, Police, Marine Police, Fisheries Survey of India and Port Pilots, or officials and civil organisations such as Air India and other private aircraft operators shall report without delay to the nearest Indian Coast Guard MRCC any observed event at sea or at a sea port or oil handling facility involving a discharge of oil, of any quantity, or the presence of oil in Indian waters.

5.2 OCCASIONS FOR REPORT

The report shall be made when an incident involves:

a. a discharge above the permitted level or probable discharge of oil or of noxious liquid substances for whatever reason including those for the purpose of securing the safety of the ship or for saving life at sea; or

b. a discharge or probable discharge of harmful substances in packaged form, including those in freight containers, portable tanks, road and rail vehicles and ship borne barges; or

c. damage, failure or breakdown of a ship of 15 metres in length or above which:

(i) affects the safety of the ship; including but not limited to collision, grounding, fire, explosion, structural failure, flooding and cargo shifting; or

(ii) results in impairment of the safety of navigation; including but not limited to, failure or breakdown of steering gear, propulsion plant, electrical generating system, and essential ship borne navigational aids; or

d. a discharge during the operation of the ship of oil or noxious liquid substances in excess of the quantity or instantaneous rate permitted under the MARPOL Convention.

5.3 CONTENTS OF REPORT

Organizations sending information should make every practicable effort to identify, as a basis for decision:

- identity of ships or offshore facilities involved;
- time, type and location of incident;
- quantity and type of harmful substance involved;
- the weather, sea state and tidal conditions in the area;
- assistance and salvage measures; and
- events and actions so far.

5.4 SUPPLEMENTARY REPORT

Any person who is obliged under this Plan, as per the provisions of MARPOL, to send a report shall, when possible supplement the initial report, as necessary, and provide information concerning further developments; and comply as fully as possible with requests for additional information.

5.5 REPORTING PROCEDURES

The report to the Indian Coast Guard MRCC should be made urgently by radio or telephone or facsimile and will be besides any obligation to report to any other authorities, that may be placed on the persons in charge of ships, sea ports, offshore facilities, maritime inspection vessels, aircraft, or officials on government duty at sea. The spill notification *pro forma* for both, oil and HNS is at **Appendix K1**. **Appendix K2** gives the pollution report and message report in accordance with the International Maritime Organisation standards.

5.6 FOLLOW-UP ON REPORTS

The MRCC contacts the ship or offshore installation to ascertain, among other things:

- the nature of incident (collision, loss of containment, etc.);
- the number of people on board;
- the type, size and name of the ship or installation;
- the precise location, course and speed of the ship, and its proximity to other ships, offshore installations, shallow water and the shore;
- information on the ship's cargo, stores or bunkers, and whatever any are dangerous;
- the structural and mechanical integrity of the ship or installation;
- the weather, sea state and tidal conditions;
- any assistance available to the casualty and the intentions of the Master or Offshore Installation Manager (OIM); and
- any measures taking place.

The MRCC initiates any search and rescue response required and then reports any pollution incident or a risk of significant pollution (whether or not known to involve oil or any other hazardous substance, and even if of unknown origin) to the concerned Duty Staff Officer for response action.

Any other organisation (for example, a local authority, harbour authority or environmental organisation) receiving a report of marine pollution of any quantity, or a threat of marine pollution, whether from a ship, offshore installation or unknown sources, should send that information immediately to the nearest Indian Coast Guard MRCC. The MRCC contacts the concerned Duty Staff Officer.

After reporting of a tier 2 or tier 3 incident to the Coast Guard, the Regional On-Scene Commander or/ and the National On-Scene Commander will have responsibility of informing all concerned authorities and will coordinate with appropriate level in the State or/ and Central Government till termination of response.

5.7 INFORMATION FLOW CHART

The flow chart of information flow from the site of an oil spill to the Cabinet Secretariat in the event of an oil spill and its response is depicted in Figure 5.1.

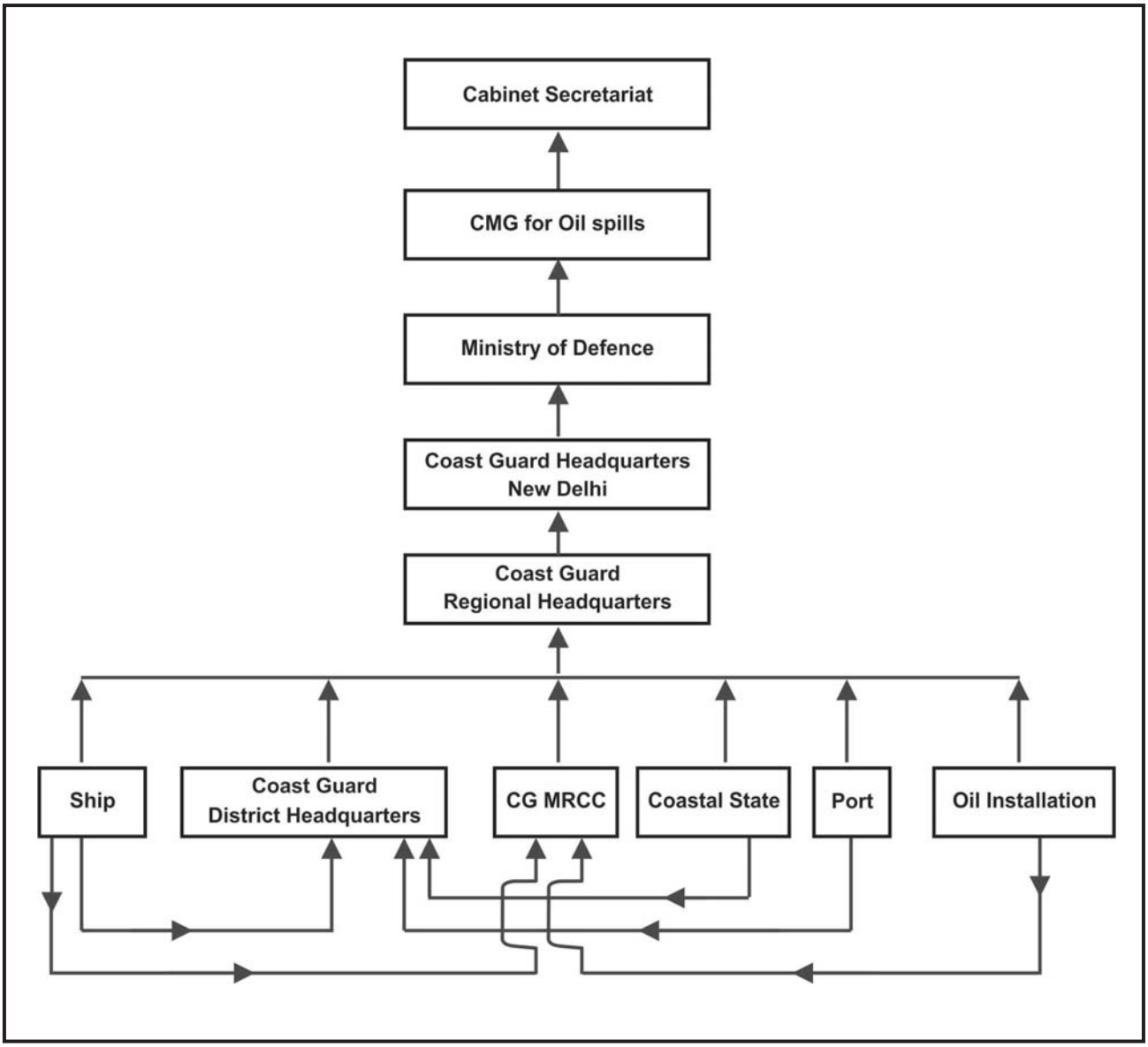

Figure 5.1. Flowchart of information on oil spill response

6. Initial Response

6.1 CRITERIA FOR TRIGGERING REGIONAL OR NATIONAL RESPONSE

Section 4.3 describes the tiered approach to planning for oil pollution incidents. Tier 1 is a spill within the capability of the local authority, harbour authority. Tier 2 requires mobilisation of resources within the region and is beyond the capability of the local authority. Tier 3 requires mobilization of all national and possibly international resources.

When the Indian Coast Guard MRCC is notified of an incident, the Coast Guard District, Regional or Seaboard Commander will decide if a regional or national response is warranted. In the event of an incident involving an offshore installation the decision on the level of response will be in consultation with the owner or operator of the offshore installation involved in the incident. This plan lays down no rigid criteria for triggering a regional or national response. However, the Coast Guard District, Regional or Seaboard Commander may trigger a regional or national response as appropriate if;

- a shipping casualty gives rises to the risk of significant pollution requiring a salvage operation;
- an oil spill from an offshore installation requires the deployment of vessels and/or aircraft by the Indian Coast Guard to contain, disperse or neutralize it;
- an oil spill within the jurisdiction of a port authority requires the deployment of regional or national resources to contain, disperse or neutralize its, or other action beyond the capacity of the harbour authority with support of mutual aid arrangements; or
- a local authority requests the deployment of shoreline response resources and manpower with other states or under national control because the action is beyond the local capacity with mutual aid arrangements.

In a regional response, the Coast Guard Seaboard or Regional Commander may deploy regional Coast Guard equipment and facilities to support the port authorities, contracted responders or local authorities.

In a local response, the Coast Guard has no role other than to maintain records of any pollution for statistical purposes.

6.2 INITIAL ACTIONS

The Coast Guard District, Regional or Seaboard Commander, in coordination with relevant agencies, considers the following initial actions:

- ordering aerial surveillance of the ship, if possible with an experienced observer;
- arranging for inspection of the ship by an IRS surveyor or other qualified person;
- putting on stand-by or deploying:
  - o dispersant spraying aircraft and ships,
  - o Oil recovery equipment,
  - o Booms, or
  - o ETVs or other tugs;
- establishing the availability of salvage and lightering ships;
- moving the ship to shelter;
- exercising the power of intervention;
- obtaining specific weather forecasts;
- requesting control of airspace in vicinity of the casualty; and
- establishing a temporary exclusion zone (TEZ).

The checklists for actions by Coast Guard Headquarters and the Coast Guard Regional Headquarters are at **Appendix L1** and **L2** respectively and held by relevant authorities only.

6.3 ONLINE OIL SPILL ADVISORY

The Online Oil Spill Advisory (OOSA) system has been developed by INCOIS for use by the Indian Coast Guard and other statutory authorities and combat agencies involved in oil spill cleanup and control measures in the event of oil spill. OOSA integrates high resolution current and delivers the trajectory of the spilled oil immediately, and thereby enables planning of clean up activity. On submission of necessary information like location of the spill, date, time, pollutant type and its quantity, the trajectory prediction set up is triggered in the background, along with the forecasted forcing parameters such as wind and currents. The trajectory prediction for a period of forty eight to ninety hours is generated and disseminated to registered users. The OOSA system provides trajectory prediction for both, continuous and instantaneous spills.

All stakeholders to the national plan can register as user and access OOSA under http://www.incois.gov.in/portal/osf/osf.jsp#, or alternately at http://115.113.76.60/OilSpill/Login.jsp

6.4 ACTION AFTER INITIATING A NATIONAL OR REGIONAL RESPONSE

When a threat of significant pollution justifies a regional or national response, the Coast Guard District or Regional Commander notifies the CCA of the incident. The CCA may decide to supplement the response or stand down a national response.

6.5 SITUATION REPORTS IN MAJOR INCIDENTS

In relation to incidents involving ships, the Indian Coast Guard with support of the Directorate General of Shipping takes the lead in providing the Ministry of Defence and other concerned ministries and the coastal state affected or potentially affected by the incident, with situations reports.

In relation to incidents involving offshore installations, the Ministry of Petroleum and Natural Gas takes the lead in providing both, operations and policy advice. The Indian Coast Guard also disseminates situation reports to the Ministry of Defence and other concerned ministries and the coastal state affected or potentially affected by the incident.

6.6 FINAL REPORT

A final closure report of all major incidents viz., tier 2 and tier 3 oil pollution incidents will be submitted post investigations and analysis to the Central Coordinating Authority and other concerned authorities within 45 days of termination of response by the facility or installation where the discharge occurred. The format for the final report is placed at **Appendix M**.

7. Response to Oil Spills

7.1 SALVAGE

If there is a threat of significant pollution the MRCC contacts the salvor or, if not yet appointed, the master or owner of the ship, and the harbour master, if the incident is in a port or its approaches, and offers assistance. The MRCC states that intervention powers may be exercised and instructs those in command of the vessel to provide the Indian Coast Guard information which must include:

- whether the owner has appointed a salvor and, if so, its name and contact details;
- the broad nature of the contract between owner and salvor;
- information on the intentions of the salvor; and
- any other important information that has not yet been gathered.

Simultaneously, as a pollution prevention tactic, the MRCC may also task the contracted emergency towing vessel (ETV) to proceed to the area.

The Indian Coast Guard District, Regional or Seaboard Commander decides whether it is necessary to set up a SMCU based on the merits of the incident. The members of the SMCU are;

- the Indian Coast Guard District or Regional Commander;
- the Salvage Manager from the salvage company appointed by the ship owner;
- the harbour master, if the incident involves a harbour or its services;
- a single representative nominated by agreement between the ship owner and insurers (for both the physical property and their liabilities);
- the District or Regional Pollution Response Officer;
- a Surveyor from the Mercantile Marine Department;
- a Surveyor from the Indian Register of Shipping, if required; and
- an Environment Liaison Officer, nominated by the Environment Group.

In the event that the SMCU is co-located with an MRU, the membership of the SMCU needs to include the members of the MRU with Indian Coast Guard staff fulfilling more than one role.

The Indian Coast Guard District, Regional or Seaboard Commander uses all the information to assess whether the actions proposed are in the public interest. One of the actions could be the consideration of appropriate places of refuge. And what could happen if the current salvage plan goes wrong or the incident escalates in severity.

7.1.1 ACCESS TO THE CASUALTY

If it is necessary for the salvage operation, an Onboard Salvage Team is established in addition to the SMCU comprising a Coast Guard representative, the Salvage Master and crew, and if the ship owner wishes, a Special Casualty Representative (SCR). The Salvage Master will, in consultation with the Coast Guard, strictly monitor and, if necessary, control access to the casualty, establishing any necessary protocols, through the SCR, with the security plan operated by the casualty in compliance with the ISPS Code. Consultation with Coast Guard is essential because every additional body increases the potential problem of rescue, and every additional person increases the risk of confusion as to what the Salvage Master and his crew are doing.

Guidelines on Salvage operations are at **Appendix N**.

7.1.2 THE ROLE OF THE COAST GUARD FOR OFFSHORE INSTALLATION

Incidents occurring at an offshore installation fall under the remit of the installation's oil spill response plan. In general, when there is a release of oil from an installation, the tasks of containing and responding to the oil on the water are identical to when a ship spills oil.

The installation manger is in control of implementation of the emergency plan at the installation, while on shore, the company activates its ECC. The role of the ECC is to support the installation manager offshore.

The company has a duty to implement its plan to contain the spill and minimize the environmental damage caused. There is unlikely to be a need to exercise the Central Government's powers of intervention. Nevertheless, in a major spill, or where there is threat of significant pollution, the Manager of the Offshore Installation, informs the Coast Guard who monitor the progress of the incident as it is being managed at the operator's ECC. The operator also initiates action to set up the Offshore Control Unit (OCU).

The approved oil spill contingency plan for the installation must identify the location for the OCU and it needs to be in close proximity to be operator's Emergency Control Centre. The OCU requires the same support and structure as an SMCU and similar links to their operations units engaged in other tasks including search and rescue, at sea clean up and shoreline clean up, as appropriate. The administrative support required by the OCU will be provided by MoPNG, or any suitable department or organisation designated by the MoPNG.

The members of the OCU are:-

- the Coast Guard Commander;
- the CIC, who acts a link between Coast Guard and the ECC where is a line to the Offshore Installation Manager;
- the Operator's Representative, who represents the interests of the owner, operator, contractors, and liability underwriters of the offshore installation;
- an Environmental Liaison Officer, nominated by the Environment Group, who advises the Coast Guard on the environmental implications of any proposed actions;
- the DGH, who provides the Coast Guard with advice on the importance of the installation to strategic supplies and other matters of public interest; and
- A specialist or technical advisor to the Coast Guard, either from the operator, the DGH or an independent source, who provides advice as circumstances require.

7.1.3 OFFSHORE RENEWABLE ENERGY INSTALLATIONS

This plan also recognizes the increasing number of offshore renewable energy installations (OREI) that are appearing around the Indian coast. It is considered that any major event involving an OREI would most likely be response to a vessel adrift or one that had collided with the installation. OREIs, and wind farms in particular, could potentially impede aerial spraying activities.

7.2 AT SEA RESPONSE

Mechanical containment and recovery of spilled oil at sea shall be the first response option provided that the response results in a net benefit to the environment.

7.2.1 MARINE RESPONSE UNIT

In almost all cases involving a national response, whether ship or offshore installation related, the Indian Coast

Guard establishes a Marine Response Unit (MRU) at the nearest MRCC or suitably equipped port ECC. It contains the following persons, although some of the Coast Guard staff may play more than one role.

- an ICG Pollution Response Officer, to manage sea borne and air borne operations;
- where a ship is involved, an MMD officer to manage cargo transfer operators;
- a Coast Guard Logistics Officer, to organize the deployment of the equipment needed and control all Coast Guard financial commitments;
- if the incident involves a port or its services, a representative of the port authority;
- an officer of the state fisheries department, to advise on the impact on fisheries and to liaise with fishing organisation;
- a local administration official to act as liaison officer with the Shoreline Response Centre;
- an Environmental Liaison Officer (ELO) nominated by the Environment Group; and
- a Defence Public Relations Officer, to liaison with the media

Additional manpower including officers and men will be deputed by the Coast Guard to the MRC to assist in the response.

7.2.2 OPTIONS FOR THE CLEANUP OPERATION

The Coast Guard District or Regional Commander decides on actions to contain, disperse, or neutralise pollution, and to remove potential pollutants from the scene. These decisions include the different methods of response namely, assessment and monitoring, dispersant spraying operations, mechanical recovery operations, and cargo transfer operations.

The aim of any cleanup operation is to minimize the damage (environmental, ecological, amenity or financial) that the spill would cause.

Once oil has been spilled, urgent decisions need to be made about the options available for clean-up, so that environmental and socioeconomic impacts are kept to the minimum. Getting the correct balance is always a difficult process and conflicts inevitably arise which need to be resolved in the best practicable manner. Whilst the ultimate goal of oil spill response is to reduce the impact on the environment, in some cases the response activity is also undertaken as a public relation measure. A measured and an objective decision in the aftermath of an oil spill is critical considering the long term social, economic and long lasting environmental impact. The advantages and disadvantages of different responses need to be weighed up and compared both with each other and with the advantages and disadvantages of natural clean-up to evolve a consensus for selecting the methodology of oil spill response and in defining the scope of implementation of the response. This process is known as Net Environmental Benefit Analysis (NEBA).

The list of Marine Protected Areas and designated coastal wetlands, classification of mangroves in India, and coral reef in Marine Protected Areas are at **Appendix P1, P2, P3,** and **P4** respectively. The Coast Guard decides between the options for clean up bearing in mind the following:

- the limitations on the effectiveness of at sea clean up techniques (selection matrix in respect of booms and skimmers is at **Appendix Q1** and **Q2**);
- the distance from shore of the casualty;
- the type of spill;
- the weather conditions and currents (weather in South-Asian seas is at **Appendix R**); and

- the time needed to deploy resources to the scene.

7.2.3 DISPERSANT SPRAYING

The guidelines on the use of dispersants are at **Appendix S1** and the list of dispersants approved for use in Indian waters is at **Appendix S2**.

7.2.4 FISHING RESTRICTIONS

The State Fisheries Authorities may temporarily prohibit or restrict fishing, on precautionary basis, if resources are, or are likely to become, contaminated to prevent health risk to consumers. A delay in revocation of such prohibition or restrictions must take into consideration the implications for reimbursement of claims for damages from the P&I Club and IOPC Fund. Guidance on sensory testing of seafood following an oil spill and imposition of fishing restriction is published separately by the Coast Guard.

7.3 HARBOUR RESPONSE

7.3.1 POWERS OF PORT AUTHORITIES

For an incident occurring inside the port authority's jurisdiction, the harbour master (or equivalent person) is in control of the incident response from the outset. Harbour masters have powers to direct the time and manner of a ship's entry into, departure from, or movement within a port. This gives a harbour master the power to regulate day to day movements within the port. However, it does not permit the harbour master to prohibit or insist upon entry.

Some port authorities have powers to issue general directions but, unlike the harbour master's powers, these powers are not ship and movement specific. Neither do they enable the port authority to prohibit or insist upon ship's entry into, departure from, or movement within a port.

7.3.2 ROLES OF THE PORT AUTHORITY AND THE COAST GUARD

It is envisaged that many incidents will be handled entirely adequately by implementation the local contingency plan and through the combined efforts of the port authority, salvors, ship owners and crew, and Coast Guard staff from the region. In such cases the Coast Guard may not need to issue any directions. But the Coast Guard will be monitoring the decision and actions being taken and ensuring that they are being taken in the light of full knowledge of the relevant environment sensitivities and an understanding of the effects that might ensure.

7.3.3 COMMAND AND CONTROL CENTRE

The SMCU is located either at the port's own ECC or at the nearest Coast Guard MRCC. Some ports can cope with large salvage operations. In these ports, it may be advantageous to exercise control using port facilities. The harbour master is a member of the SMCU and it may be beneficial to maintain their presence at the port so that they can keep control of to the activities within the port. The decision whether to use the port or Coast Guard facilities for the SMCU would be predetermined in the local plan taking account of many factors, including:-

- the availability and range of communications equipment (radio link with the casualty, salvors, and emergency units on scene, spare telephone lines, e-mail facilities, faxes etc.);
- the need for ancillary equipment such a radar equipment for the control of port traffic;
- the availability of local knowledge such as environmentally sensitive areas, bathymetry, port resources to supplement rescue, salvage and counter pollution efforts;
- size of building and number of rooms available (large rooms for press briefings and communication, quiet rooms for decision making by the SMCU).
- the availability of support staff; and

- location (ease of access, availability parking).

7.3.4 DIVISION OF RESPONSIBILITY FOR CLEAN UP

The responsibility for cleanup of pollution on the water and at jetties wharves/ structure within jurisdiction, and at beach/shoreline owned by the port authority, whatever the source of the pollution, lies with the port authority. Cleanup of shoreline (including land exposed by falling tide) beyond port jurisdiction vests with the local administration.

7.4 SHORELINE AND ON-SHORE RESPONSE

In the early stages of an incident, the local administration establishes a response as per its own contingency plan. When the threat of pollution of the shoreline exceeds the capability of the most affected local administration, the Coast Guard initiates a national plan response, and that local administration (or authorities) sets up a Shoreline Response Centre (SRC).

Each local authority's own contingency plan details the mechanism for escalating the response in accordance with the tiered response concept and specifies how to set up the SRC in the light of its own practices and organisation. These plans also contain the necessary authorisation to each local authority to enable the designated officer directing the SRC to take decision on behalf of the other local authorities concerned.

An SRC needs to contain representative of all the local authority services that may need to participate in the clean-up operation, and representative of all local and port authorities that may become involved. In addition, it contains an Environment Liaison Officer (ELO) nominated by the Chair of the Environment Group.

Guidelines for shoreline response are at **Appendix T**.

7.5 DISPOSAL OF RECOVERED OIL

Disposal of recovered oil is a difficult process. The recovered oil is to be stored in temporary storage devices or pits lined with plastic sheet until transferred to reception facilities. The Guidelines for disposal of recovered oil are at **Appendix U1** and the current list of approved recyclers is at **Appendix U2.**

8. Response to HNS Incidents

8.1 RESPONSE OPTIONS

In many cases, particularly if the release involves a chemical that evaporates or dissolves rapidly, it will not be possible to physically contain or recover the spilled product from the sea. In these cases, the response options may be limited to monitoring and measures designed to mitigate the potential hazards, for example communication to advise local residents to remain indoors or prohibition of fishing.

Following the identification of the hazards posed by the release, including consideration of the effects of fire and potential reactivity, the response operation must evaluate which techniques can be used. It is important to rapidly establish which response techniques are feasible in order to reduce or if possible eliminate the impacts of the hazardous substance on humans and the environment.

In most chemical incidents the rapid communication of relevant information, both internal and external to the response activities is likely to be the most important action that response agencies need to carry out. The polluter will, therefore, maintain continuous liaison with the chemical/ HNS manufacturer and repositories of data (such as the French Centre of Documentation, Research and Experimentation, or CEDRE) regarding HNS properties and response and promptly provide such data to the responders.

8.2 MONITORING

Many chemical spills will be difficult or impossible to observe with the naked eye and it is essential that an appropriate monitoring strategy is put in place to ensure the safety of responders and to confirm predictions of the spread and dispersion of the slick. The type of monitoring implemented will depend on the specific properties and hazards posed by the substance involved.

8.2.1 MONITORING GASES IN AIR

It is essential to systematically monitor the concentrations of chemicals in air throughout any incident involving gases or vapours. Key aspects of monitoring include:

- **Oxygen concentrations** any atmosphere having <19.5% oxygen i.e., an oxygen-deficient atmosphere, should be entered only by personnel wearing self-contained breathing apparatus, monitoring is carried out using oxygen cells.
- **Combustible or explosive gas levels** to identify areas where flammable air/fuel mixtures exist; a value below 10% of the Lower Explosive Limit may be considered safe. Typical instruments are combustible gas detectors and explosimeters. Continuous monitoring must be carried out as the situation and the concentration of gas can change rapidly raising the value over 10% LEL.
- **Toxic substances** to identify areas where toxic substances are present and to establish safe outer limits where it is reasonably safe for unprotected personnel. Instruments must be capable of measuring at ppm level and include gas detection tubes, flame ionization detectors, photo-ionisation devices, IR trace gas detection (these instruments typically provide only approximate levels) and portable gas chromatographs and portable mass spectrometers (these instruments typically require specialist personnel to operate them).

8.2.2 MONITORING THE WATER COLUMN

Monitoring the concentration of chemicals in the water column typically involves two main techniques:

- **Collecting water samples** – these are then transferred for analysis at fixed or mobile laboratories;
- **Use of towed probes** – a number of monitoring devices can be towed through the water column to establish the extent of a slick and to provide real-time data. Typical measurements include: pH, light absorption, electrical conductivity.

8.2.3 MONITORING SURFACE SLICKS

Thin films on the sea surface can damp capillary waves. A number of techniques have been developed that make use of the altered properties of the sea surface:

- **Side-Looking Airborne Radar** (SLAR) makes use of the reduced intensity of the backscatter and the surface slick appears as a darker area on the SLAR image;
- **UV scanners** can identify changes in the UV reflectivity of the sea surface;
- **IR scanners** and **Forward-Looking Infrared Imagers** (FLIR) identify changes in the radiation temperature of the sea surface.

The effectiveness of these techniques differs depending on the properties of the chemical involved and the environmental conditions. Understanding the available resources and their applicability is a key part of the contingency planning process.

8.2.4 MONITORING SUNKEN SPILLS

When a pool of liquid chemical collects on the seabed, there will be a phase boundary between the chemical and the sea water. It may be possible to use echo sounders to locate this phase boundary and hence to identify the area affected by the spill. Monitoring of the concentration of the spilt substance at different depths may also be useful to delineate the area affected.

8.3 RESPONSE TECHNIQUES

8.3.1 RESPONSE TO GASES AND EVAPORATORS

Plume modeling, air monitoring and defensive strategies such as water sprays are commonly used to respond to gas leaks. When applied as a fine droplet, i.e., as a mist and in calm conditions, they can:

- knock down water soluble gases;
- stop, steer or disperse sparingly soluble or insoluble gas clouds;
- reduce the risk of fire and explosion in flammable clouds of gases, by cooling hot surfaces, putting out sparks and suppressing flame formation.

When applying water sprays, it is also important to be aware of consequences such as high volume waste streams and, in extreme cases, contributing to the instability of the vessel.

8.3.2 RESPONSE TO FLOATING CHEMICALS

A chemical that floats on the water surface will spread and form a large contact surface with the air. Depending on its vapour pressure, it may evaporate and give rise to a vapour cloud above the slick. Monitoring of air concentrations is important in these situations to assess fire and explosion risks and health risks. The selection of response technique must also take account of these hazards and the overall objective of the response. It is possible to attempt to contain and recover spills of floaters, but only of those substances that evaporate or dissolve slowly i.e., category F substances. Typical techniques involve:

- **Covering the slick with foam** – for flammable substances, this reduces evaporation and hence reduces possible fire and explosion risks (taking care to use the type of foam appropriate to the chemical involved). It also restricts spread over the water surface and hence can increase the effectiveness of containment and recovery operations. In this case, consideration must be given to the toxicity of the foam to marine life.
- **Application of sorbents** either loose, as mats or in “sausages”. As many low viscosity chemical spills rapidly spread to cover a large surface area, these techniques are most applicable if the spread of the chemical can be confined.

- **Bubble curtains** created by releasing compressed air through a perforated hose may be used to contain floating slicks in shallow, slow-flowing waters.

- **Conventional oil spill response booms and skimmers** may be used to contain and recover spills of floating chemicals. The effectiveness of these techniques depends on the physical properties of the substance involved, as the equipment may not be able to deal with the thin films and low viscosity of some floating chemicals. Compatibility of the equipment with the chemical must also be considered.

8.3.3. RESPONSE TO DISSOLVED CHEMICALS

The potential to contain and recover spills of chemicals that dissolve is extremely limited. Response techniques are generally restricted to forecasting their spread, monitoring and mitigation of their effects. In the case of spills in shallow or confined waters, treating agents can include:

- Neutralizing agents;
- Flocculation agents;
- Oxidizing agents;
- Reducing agents;
- Gelling agents;
- Activated carbon; and
- Ion exchangers.

In practice though, the use of these treating agents is often ineffective as the dosage is difficult to estimate and recovery of the substance may be difficult. Curtain barriers may also be used to contain dissolved chemical spills in shallow and almost stagnant waters. Response to sunken chemicals must consider not only the recovery of the chemical itself, but the removal and treatment of contaminated sediments. The principal technique is that of dredging.

8.4 HNS RESPONSE EQUIPMENT INVENTORY

The broad inventory of equipment for HNS response is at **Appendix V**.

8.5 DISPOSAL

Before commencing any actions that may lead to the recovery of spilled chemical, it is essential that an appropriate and legal disposal route has been identified for both the recovered chemical and any waste generated. Even temporary storage must take proper account of the physical properties of the chemical and its potential to evaporate or leak. Waste streams may be subject to transportation regulations covering hazardous waste, so relevant national regulations must be identified.

9. Plan Review

9.1 PLAN REVIEW

This plan will be kept under review by the Central Coordinating Authority.