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INDIAN COAST GUARD

(MINISTRY OF DEFENCE)

PROCEEDINGS
OF THE
20th NOS-DCP AND PREPAREDNESS MEETING
09 APR 2015

Directorate of Fisheries & Environment, Coast Guard Headquarters, National Stadium Complex, New Delhi – 110001
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राष्ट्रीय स्टेडियम परिसर/NATIONAL STADIUM COMPLEX
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EP/0720/20th Meeting

Date : 24 Apr 15

Proceedings of the Twentieth National Oil Spill Disaster Contingency Plan (NOS-DCP) and Preparedness Meeting held at Goa on 09 April 2015

1. The Twentieth National Oil Spill Disaster Contingency Plan (NOSDCP) and Preparedness meeting was held at The International Centre Goa, Dr. E Borges Road, Dona Paula, Goa on 09 April 2015. Vice Admiral HCS Bisht, AVSM, Director General, Indian Coast Guard, chaired the meeting. The meeting witnessed an active participation from various government departments, ports and oil companies. 88 representatives from 46 organizations attended the meeting.

2. In his inaugural address, the Chairman welcomed the delegates from various Ministries, Departments of the Central and State Government, Regional Commanders of Indian Coast Guard, members from major ports and oil handling agencies. The Chairman recalled the spillage from tanker Southern Star 7, consequent to its collision with an empty tanker in the Sela River, Bangladesh in December 2014 and said that it was a reminder of the fragility of Sunderbans and similar eco-sensitive areas in our waters, following any oil spill. The Chairman dwelled over the initiatives by the Coast Guard since the last meeting in May 2014 towards enhancing the national oil spill response preparedness such as exemption from the application of SEZ rules for vessels responding to oil spill emergencies or participating in oil spill response exercises. The text of the Chairman's inaugural address is placed at **Annexure 'A'**.

3. The inaugural address was followed by a release ceremony in which the Chairman released the comprehensively revised NOS-DCP 2015 edition in presence of Director, INCOIS, Hyderabad and Director, NCSCM, Chennai and the Director, INCOIS released the operational version of Online Oil Spill Advisory (OOSA) system. Dr. TM Balakrishnan Nair, Scientist 'F' & Head-ISG briefed the participants on OOSA and the associated activities of INCOIS. A handout of the presentation is placed at **Annexure 'B'**.

4. Comdt (JG) Deepak Yadav, Dy Director (FE) presented an overview of NOSDCP activities since the last meeting in May 2014. A handout of the presentation is placed at **Annexure 'C'**

5. Dr. R Ramesh, Director, NCSCM made a presentation on "Coastal Zone Mapping". The presentation highlighted the various projects of NCSCM. A handout of the presentation is placed at **Annexure 'D'**.

6. DIG AA Hebbar, TM, Director (FE), CGHQ made a presentation on "Fisheries dimension of oil spill". The presentation highlighted the socio-economic impact of oil spills on fisheries and the imperatives for preparedness. A handout of the presentation is placed at **Annexure 'E'**.

7. The important issues discussed and deliberated upon during the NOSDCP meeting are tier-I facilities at MbPT, preparation of local contingency plan, surveillance system by ports against illegal discharge, tier-1 response time in offshore fields, subsea well intervention system and subsea OSD system, shoreline response trailer in coastal states as a part of actionable agenda of previous meetings followed by need for tier-1 facilities at ports and oil agencies when commencing operations, integrated legal systems for oil pollution response, sharing of oil spill response experience, environment sensitivity mapping in contingency plan, oil spill crisis management group in coastal States, spill tracker buoys, approval procedure for application of oil spill dispersant and utilization of oil pollution cess under new agenda. The discussions and decision on actionable points of previous meetings and new agenda points are placed at **Annexure 'F'** and **Annexure 'G'** respectively.

8. In his concluding address, the Chairman appreciated the ongoing efforts by all agencies and requested the members to take further necessary action on points deliberated during the meeting, in a timely manner. He also emphasized that agencies and stakeholders can meet periodically for sharing concerns on pollution preparedness. In conclusion, the Chairman reiterated that cooperation and coordination amongst all stakeholders is vital to make the seas pollution free. The text of the Chairman's concluding address is placed at **Annexure 'H'.**

9. A summary of actionable points is placed at **Annexure 'J'.** The programme of the meeting and the list of delegates attended the meeting are placed at **Annexure 'K'** and **Annexure 'L'** respectively.

10. This is for information and necessary action.

(AA Hebbar)
Dy Inspector General
Director (Environment)

Annexure 'A'

(Refers to para 2)

INAUGURAL ADDRESS BY THE DGICG

Special invitees Dr. SSC Shenoi, Director, INCOIS, Dr. R Ramesh, Director, National Centre for Sustainable Coastal Zone Management, Regional Commanders of the Indian Coast Guard, representatives of various ministries and departments of the central and state governments, members representing ports and oil handling agencies, members representing other stakeholders, and distinguished participants,

Good morning and a very warm welcome to the 20th NOSDCP and Preparedness meeting here at Goa. Before I proceed further, I would like to mention that it is indeed a humbling experience for me to chair my first meeting of the NOSDCP.

1. The spillage from tanker Southern Star 7, consequent to its collision with an empty tanker in the Sela River, Bangladesh in December 2014 was a reminder of the fragility of Sunderbans and similar eco-sensitive areas in our waters following any oil spill. Fortunately for all of us, apart from a threat of spill at Bombay High and a minor spill hinterland, there has been no major oil spill in our waters. I nevertheless appreciate all the good work being put in by everyone to gear up for oil spill contingencies. I also appreciate your participation in this important forum. As we are all aware, the objective of this annual meeting is to review our preparedness and response capabilities, with the common aim to prepare ourselves to respond to any oil spill contingency in Indian waters. In the course of the meeting, we shall take stock of our capabilities and limitations and also review the progress made on the various issues since the last NOS-DCP meeting held at Chennai on 12 May 14.

2. I took over the reins of this fine service on 01 February this year, and I must admit that the quantum of work being done by the service is really noteworthy. To briefly state a few key initiatives since the last NOS-DCP meeting, we have worked tirelessly to come up with a comprehensively revised National Oil Spill Disaster Contingency Plan that meets international standards. The national plan was originally promulgated in Jul 96 and thereafter updated on numerous occasions. The draft revised NOSDCP was released during the 19th NOSDCP meeting at Chennai on 12 May 14 and we are indeed thankful to all the stakeholders for their valuable comments. The

revised NOSDCP reflects current international norms and best practices, key relevant national regulations and experience gained since its first publication.

3. Alongside our progress on the national plan, INCOIS has scientifically validated its Online Oil Spill Advisory system. Dr SC Shenoi, Director, INCOIS who is with us here today will agree that the system places India amongst a select list of countries which have indigenously developed capabilities for prediction of trajectory of oil spills.

4. Mapping of environmental sensitivities is an integral part of contingency planning and has been a grey area in the facility level plans. The Indian Coast Guard has incorporated detailed guidelines on the subject in the revised NOSDCP and also coordinated with National Center for Sustainable Coastal Management, Chennai to integrate the ESI mapping standards in their coastal zone GIS mapping project. We shall be hearing more about the niche project in the presentation by Dr Ramesh who is the Director of the NCSCM.

5. It may be recalled that NATPOLREX-V, the national level pollution response exercise conducted by the Coast Guard in December 2013 witnessed the first ever participation of Indian Air Force Hercules C 130-J. The utilization of IAF C-130J aircraft for deployment of Aerial Dispersant Spray System has since been integrated into the national plan. The Coast Guard is working closely with Lockheed Martin, the aircraft manufacturers and the equipment manufacturers for progressing the case for acquisition of the equipment and its certification which will significantly strengthen our national response capability.

6. In the 17th NOSDCP meeting in May 2012, it was brought out that harbour craft operating in SEZ ports are prohibited by Rule 34 of the SEZ Rules, 2006 from leaving the SEZ, thereby inhibiting their response oil pollution contingencies in such ports. The Coast Guard pursued the case with the Ministry of Commerce and Industry and harbour craft are now exempted from the application of the SEZ Rules when required to respond to oil spill emergencies under the direction of Coast Guard as per the National Plan and also when they are participating in scheduled oil spill response exercises under the directions of the Coast Guard.

7. Distinguished delegates would be aware that consequent to m.v. MSC Chitra oil spill in Mumbai in 2011, the Indian Coast Guard had submitted a proposal to mandate pre-contractual arrangements by all ships entering Indian ports with OSRO. The approach paper was circulated by the Ministry of Defence and valuable comments were received from various Ministries and

Departments. The approach paper with suggestions duly incorporated is now awaiting consideration of the Cabinet Secretariat.

8. We have not only been working on national initiatives but also at the international level, such as facilitating the regional oil spill contingency plan under the auspices of the South Asia Cooperative Environment Program of the United Nations and development of national plans for Maldives and Sri Lanka.

9. Perhaps, all of us will agree on the fact that even the best of equipment would be in vain if we do not maintain adequately trained and motivated manpower to respond to contingencies and regularly rehearse our response procedures. In fact, we have been witnessing a growing interest and participation of the industry stakeholders in our IMO OPRC level 1 and level 2 training programs. Since the last NOSDCP meeting, the Indian Coast Guard has trained 148 personnel of various stakeholders in IMO level I course, apart from 63 personnel in IMO level II course. I would request all stakeholders to appoint adequate numbers of trained personnel to respond to oil spill contingencies.

10. Distinguished participants would be aware that the Coast Guard has instituted numerous measures, through issuance of Chairman NOSDCP Circulars, to enhance the preparedness for oil spills. These include the requirement of installing radar oil spill detection system at sea ports and oil handling facilities, requirement of pre-booming of tankers at alongside berths and SPMs, or equivalent arrangements and measures for prevention and control of oil pollution from FPSOs and FSUs operating in Indian EEZ. However, compliance has been far from satisfactory and I would urge all stakeholders to take urgent steps for fulfillment of the requirements set out these Circulars.

11. Local Contingency Plan of the coastal States for responding to oiling of their shorelines is another area meriting consideration. While the plans are in various stages of drafting and approval, they would be futile without identification of risk, allocation of adequate numbers of trained personnel, and response equipment and resources. I would, therefore, urge the coastal States to pursue their crisis management plans for shoreline response in all earnest.

12. Before I conclude my address, I must also mention that the action taken report and agenda proposals that we have received indicates the keen interest and active participation of all stakeholders. I have also taken note of the suggestion that stakeholders may be given more time

to present their views and directed that a consultation meeting may be held with stakeholders after the table-top exercise during the forthcoming NATPOLREX.

13. Needless for me to say that, in spite of the numerous hurdles and hindrances, we have pulled together quite appreciably thus far. Nevertheless, I would like to emphasize that it is important for persons in charge of ports and oil installations to put in place necessary preventive measures and maintain adequate preparedness for any oil spill contingency which is only possible, if everyone works together towards this common goal.

14. I wish to reiterate that the aim for the conduct of this NOSDCP meeting is to review our preparedness for oil spill contingencies and work towards its enhancement. With these opening remarks I look forward to successful deliberations in the meeting.

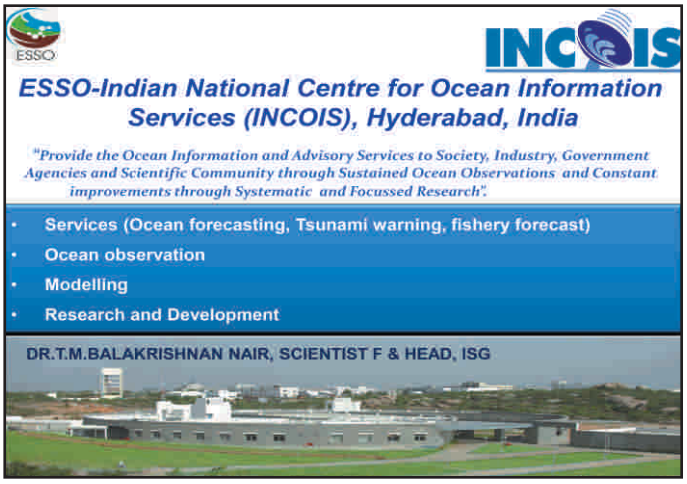
Jai hind

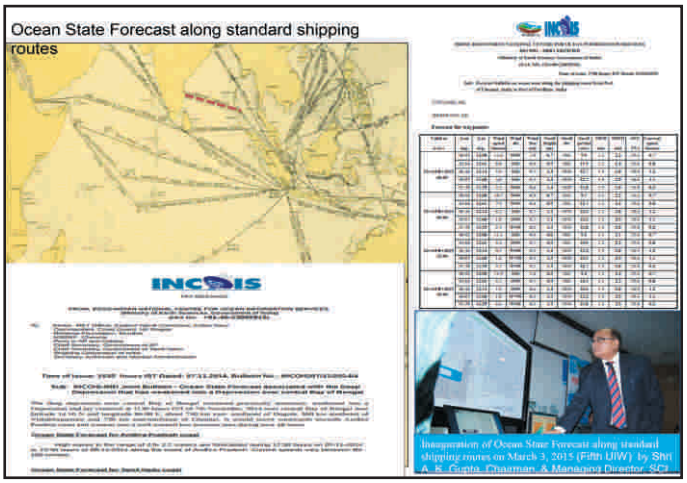
'VAYAM RAKSHAM'

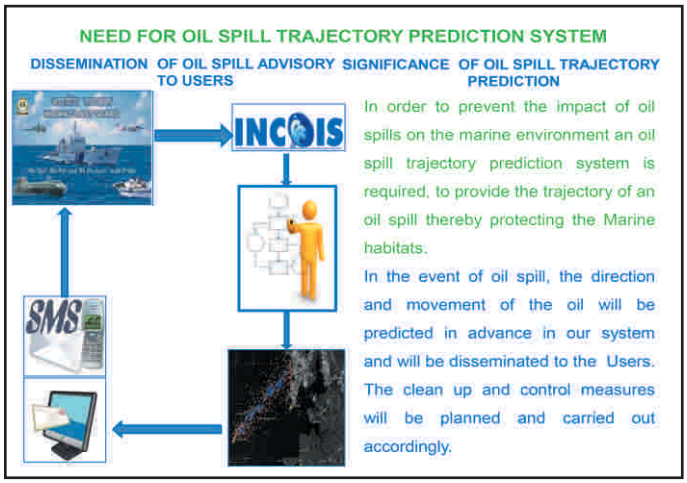
Annexure 'B'

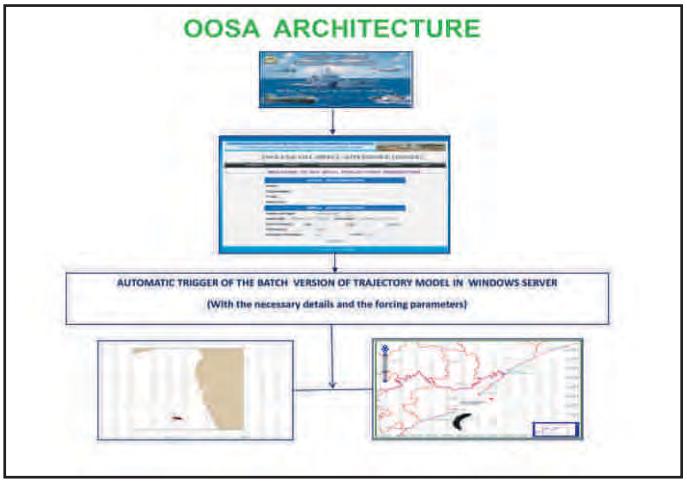
(Refers to para 3)

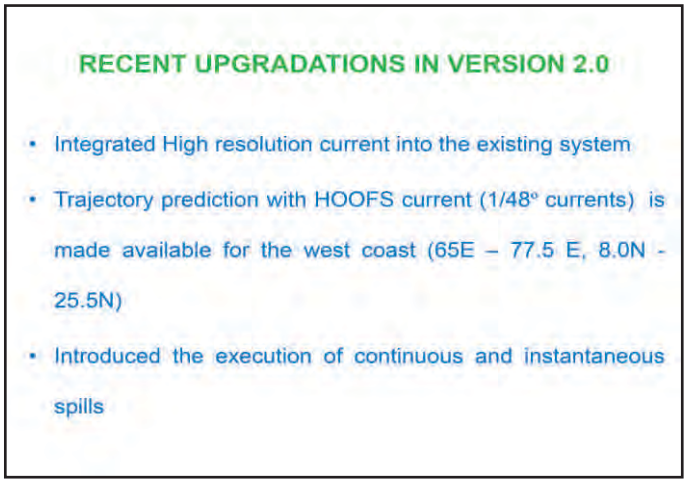
PRESENTATION BY DR. TM BALAKRISHNAN NAIR, HEAD-ISG, INCOIS











Verification of OOSA Ver.2

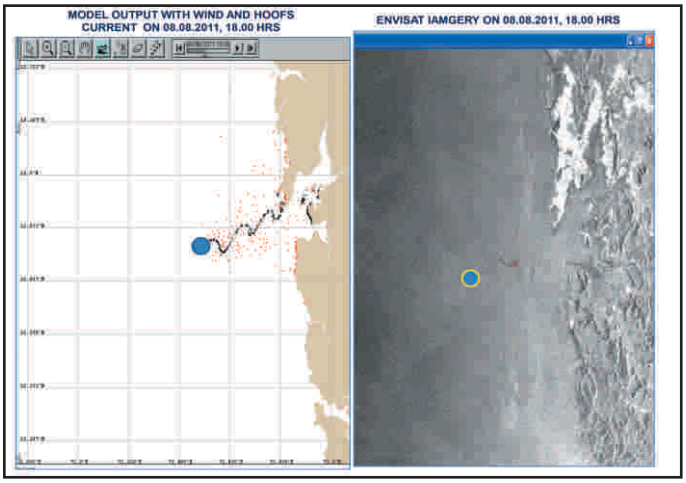
LOCATION : 18°46.287'N,72°29.194'E

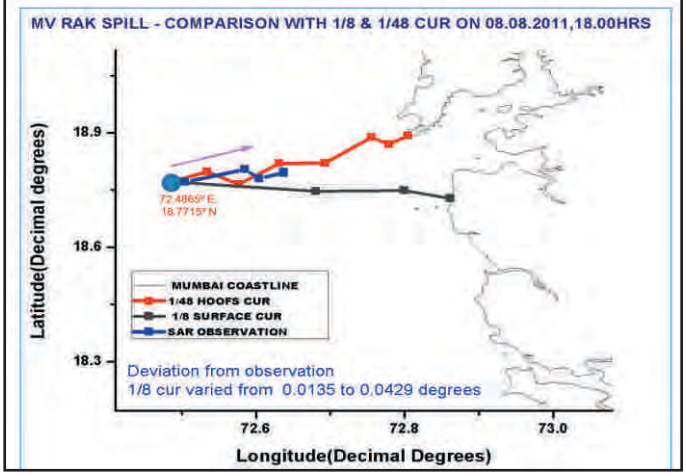
Spill Date and time : 05.08.2011, 07.00 hrs

Type of Oil : Fuel oil (290T) & Diesel (50T)

Model Run : 05.08.2011,07.00 hrs to 13.08.2011, 07.00 hrs

MV RAK SUNK- 04.08.2011





APPLICATIONS OF OOSA

1. Oil spill response operations - to issue the advisory in the event of oil spills.
2. Mock drills/ exercise - conducted by various offshore industries as a part of regulations
3. Contingency planning - to protect the marine organisms

FUTURE DEVELOPMENTS

- To facilitate the user to input the insitu met ocean parameters
- Performance evaluation of the hydrodynamic Oil Spill Module/ trajectory model
- Validation of system by conducting spill buoy experiments and mock drills.
- Operationalisation of **SARAT** (Search and Rescue Analysis Tool)

Annexure 'C'

(Refers to para 4)

NOS-DCP OVERVIEW BY COMDT (JG) DEEPAK YADAV, DY DIRECTOR (FE)

NOSDCP STATUS OVERVIEW

Presentation at the 20th NOSDCP & Preparedness Meeting, 09 Apr 2015, Goa.

1/21

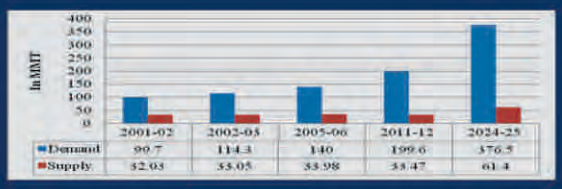
Scope

- Risk Overview
- Contingency Planning
- Planning of Resources
- Training
- Mock Drills and Exercises
- Response to Incidents

2/21

Risk Overview

- 6th largest energy market
- Production 32-33 mmtpa
- 190 Million Tones crude oil received in India in 2013-14



3/21

National Contingency Plan

- International Convention on Oil Pollution and Prepardness, Response and Cooperation (OPRC) 1990
- Delineates responsibilities of stakeholders
- Systemises national preparedness and response
- Obliges commitment of resources for OSR

4/21

Local Contingency Plans

Following states have forwarded LCPs for vetting till date:

- Maharashtra
- Goa
- Karnataka
- Kerala
- Lakshadweep
- West Bengal

5/21

Facility Contingency Plans

Imperatives

- Periodic updating
- Stockpiles in proportion to assessed risk
- Diligence in drafting
- Beyond software output
- Impact assessment for all sizes of risk
- Environmental Sensitivity Index

Chairman NOSDCP Circular

- Measures for prevention and control of oil pollution from FPSO and FSU operating in Indian Exclusive Economic Zone

7/21

Tier 1 Preparedness Inventory

Port	Boom (m)	Skimmer	Storage	OSD (lts)
Kandla	Nil	Nil	Nil	7150 (expired)
Mumbai	2200	06	02	10 KL
Mormugao	300	01	01	3600 (expired)
New Mangalore	650	02	02	1000
Cochin	600	Nil	Nil	1200
VOC , Tuticorin	600	01	02	1000
Chennai	1100	03	02	3000
Ennore	600	01	02	500
Vizag	800	01	04	1200
Paradip	5300	05	03	2000
Kolkata	Nil	01	Nil	1000
Haldia	Nil	Nil	Nil	1000

8/21

Tier 1 Preparedness-Manpower

Port	Trained manpower	
	Level – 1	Level – 2
Kandla	06	--
Mumbai	06	01
Mormugao	01	--
New Mangalore	01	--
Cochin	03	--
VOC , Tuticorin	02	02
Chennai	02	03
Ennore	01	01
Vizag	01	--
Paradip	05	--
Kolkata	--	--
Haldia	01	03

9/21

ICG Response Resources

- OSRO Concept Paper
- Procurement of PR equipment on Large scale
- ADDS Pack & New Aerial OSD Spray System for Chetak helicopters
- Training of manpower

Joint Inspections

- **PORTS :**
  - KANDLA AND PARADIP
- **OIL HANDLING AGENCIES:**
  - CAIRN INDIA LTD, HAZIRA
  - NIKO RESOURCES , HAZIRA
  - RIL DAHEJ
  - IOCL VADINAR
  - ESSAR VOTL, VADINAR
  - RIL SIKKA, JAMNAGAR
  - BORL, VADINAR
  - HOEC, CHENNAI
  - IOCL,HPCL, BPCL HALDIA
  - ONGC, WESTERN OFFSHORE UNIT, RAIGAD

11/21

Seminar and Mock Drills

PLACE	DATE	STRENGTH
Haldia	07 May 14	23
Kariakal	21 May 14	16
Karaikal	22 May 14	16
Kakinada	22 Jul 14	24
Mumbai	30 Jul 14	22
Krishnapatnam	10 Sep 14	20
Krishnaptnam	11 Sep 14	25
Haldia	21 Nov 14	22
Mumbai	13 Jan 15	30
Tuticorin	22 Jan 15	18
Tuticorin	23 Jan 15	22
Port Blair	06 Feb 15	10
Chennai	10 Feb 15	16

IMO Level 1 Training

PLACE	COURSE DATE	STRENGTH
Chennai	05-09 May 14	21
Chennai	07-11 Jul 14	20
Mumbai	27-31 Jul 14	22
Port Blair	25-29 Aug 14	09
Mumbai	13-17 Oct 14	23
Vadinar	13-16 Oct 14	24
Chennai	24-28 Nov 14	13
Port Blair	23-27 Feb 15	10

IMO Level 2 Training

PLACE	COURSE DATE	STRENGTH
CHENNAI	18-22 Aug 14	30
CHENNAI	16-20 Feb 15	31

Exercises

PLACE	OPRC IMO LEVEL	DATE/level
Vadinar	Level -I	13-16Oct 14
Vizhanjam	Level - I	29 Oct 14
New Mangalore	Level – I	25 Nov 14
Lakshadweep	Level – I	18 Nov 14
Ratnagiri	Level – I	27 Feb 15
Port Blair	Level –I	07 Feb 15
Chennai	Level – II	11 Feb 15

NATPOLREX Exercise

16/21

Taloja Creek Oil Spill

- HPCL Reported Oil on 17 Jul 14 at Taloja creek Mumbai

Rig Sagar Uday

- ONGC Rig Sagar Uday on 19 Jul 14 reported Gas leakage

18/21

Platinum Explorer Oil Spill

- Drill Ship Platinum Explorer of Vantage Drilling reported oil spillage of approx 4 kl on 22 Aug 2014

19/21

OIL SPILL - SOUTHERN STAR 7

20/21

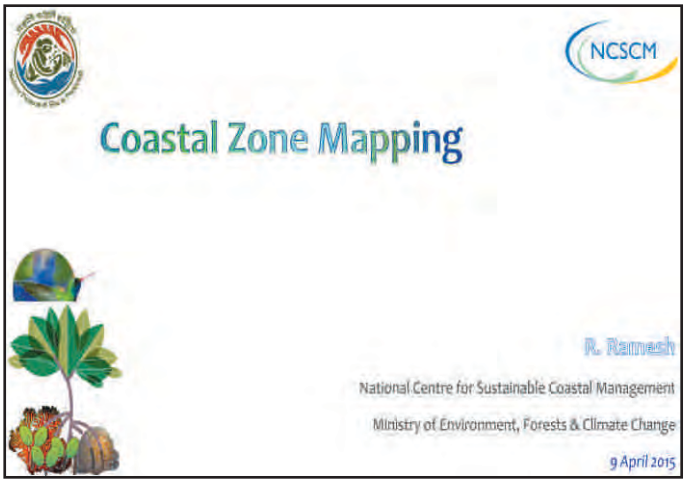
Thank You

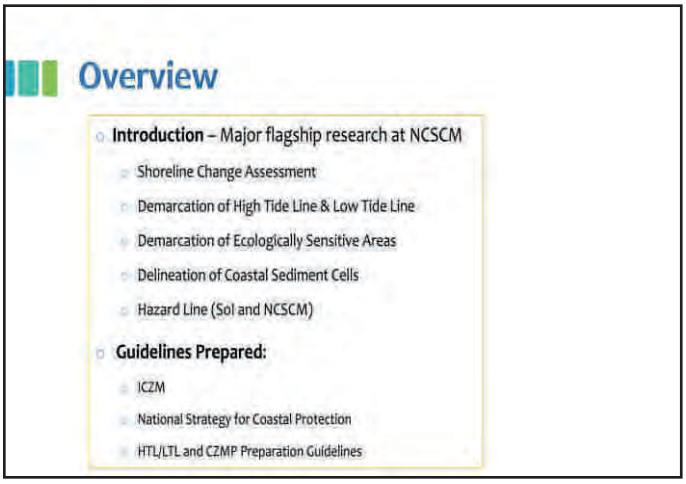
21/21

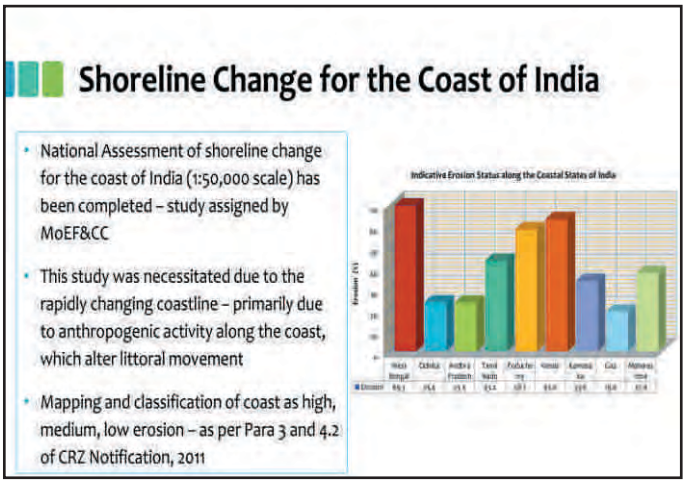
Annexure 'D'

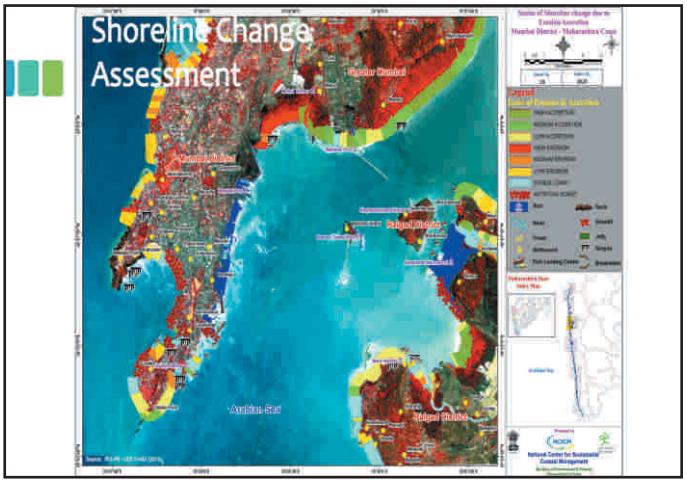
(Refers to para 5)

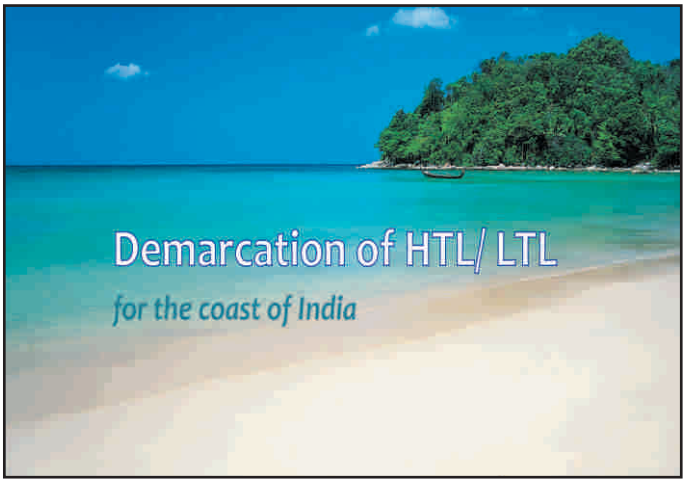
PRESENTATION BY DR. R RAMESH, DIRECTOR, NCSCM





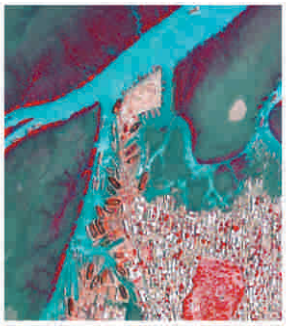


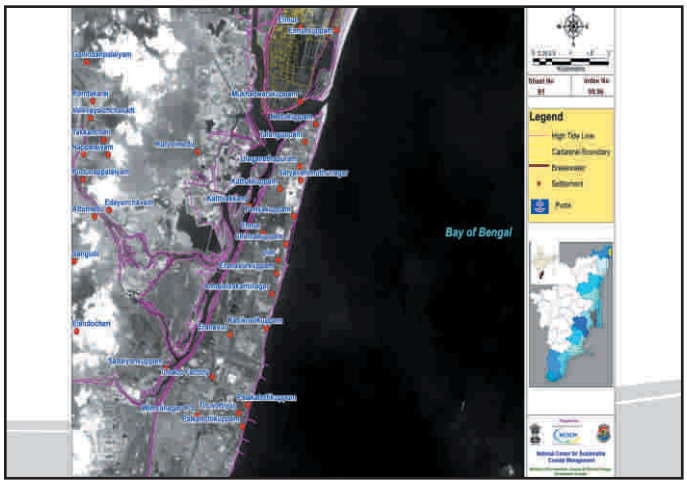




Demarcation of High Tide Line

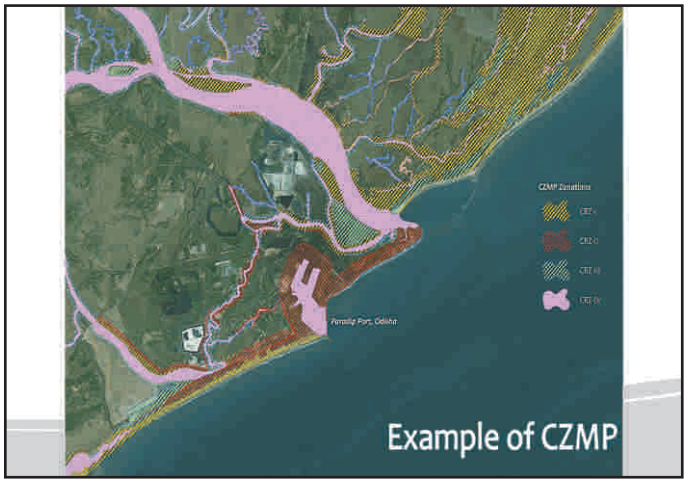
- HTL & LTL Delineation as per CRZ Notification 2011
- High Tide Line is defined as *"the line on the land up to which the highest water line reaches during the spring tide"*
- As per the decisions taken by MoEF&CC (29th September 2014), NCSCM to demarcate HTL and LTL for the coast of mainland India
- Manual on demarcation of HTL/ LTL and Preparation of CZMP of the Coast of India has been prepared





Coastal Zone Management Plan (CZMP)

- **CRZ boundaries with classifications**
  - CRZ I (ESAs), II, III, IV
  - CRZ V: Special Area (including CVCAs)
- **Hazard Line (Composite)**
  - Flood line & Erosion line



CZMP and ICZMP

Legal Regulatory Framework

CZMP

- Demarcation of HTL and LTL
- Preparation of CZM Maps
- Local level CZM Maps

Hazard Line

- To better protect livelihood and property from future & long term issues such as SLR due to CC

Management Framework

ICZMP

- Management of a larger area will help strengthen CRZ 2011 implementation
- Takes into account land based activities originating far from coast having an impact on coastal processes/ functions

ICRZ & IIMP for A & N Islands

- The ICRZ & IIM Plans for A&N Islands are being prepared by NCSCM in accordance with the guidelines provided in the IPZ Notification, 2011

ICRZ & IIMP

North & Middle Andaman	South Andaman District	Nicobar District
Ross & Smith	Rutland	Bompooka
Strait	Flat Bay	Chowra
Aves		Kamorta
Curlew		Kondul
		Nancowrie
		Teressa
		Katchal
		Little Nicobar
		Pilowmillow

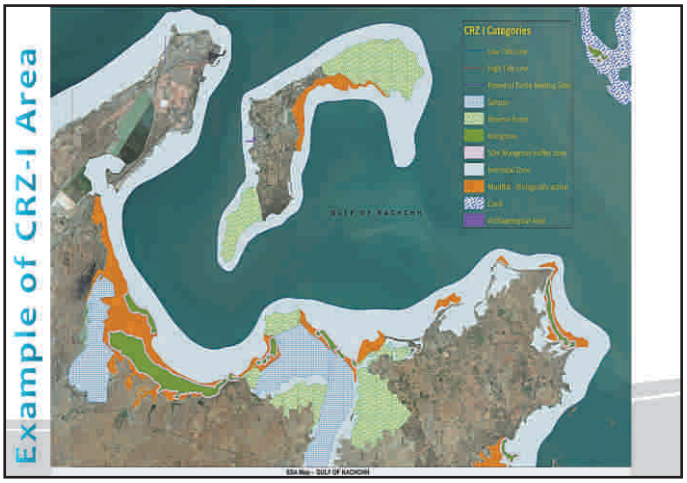
1. Barafang
2. Long
3. Middle Andaman
4. North Andaman
5. Havelock
6. South Andaman
7. Little Andaman
8. Neil
9. Car Nicobar
10. Great Nicobar

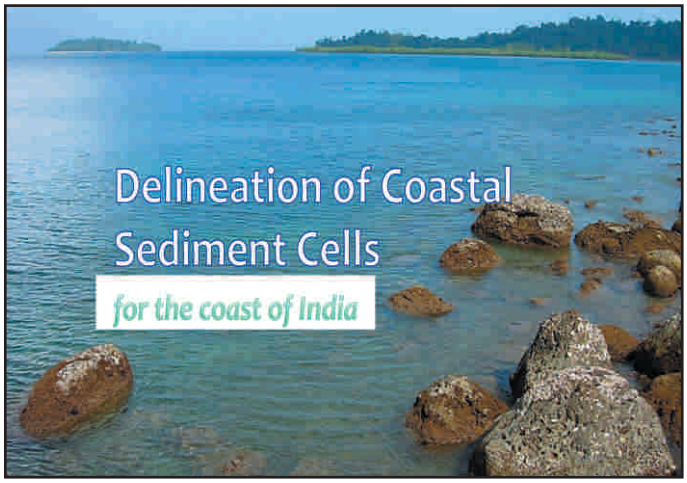
Mapping of CRZ-I Areas (ESAs)

- As per para 4.2 (1) & para 7 of the CRZ Notification, 2011 – mapping of CRZ I areas are being undertaken

Mapping of Ecologically Sensitive Areas as detailed in the CRZ Notification

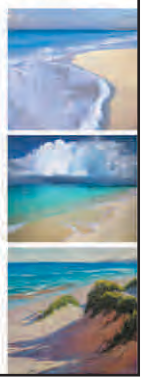
(a) Mangroves;
(b) Coral reefs;
(c) Sand Dunes;
(d) Mudflats;
(e) Marine Protected Areas, Reserve Forests, Marine Biosphere Reserves
(f) Salt Marshes;
(g) Turtle nesting grounds;
(h) Horse shoe crabs habitats;
(i) Sea grass beds;
(j) Nesting grounds of birds
(k) Areas/ structures of archaeological importance and heritage sites

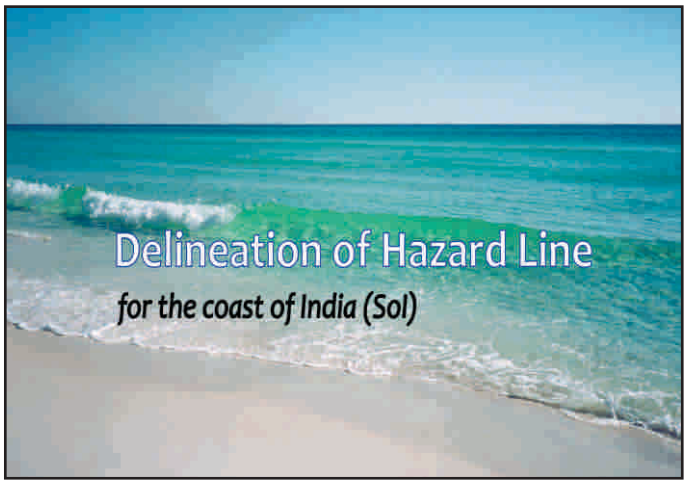




Coastal Sediment Cells: A Definition

- Coastal sediment cells are defined as
  - *stretches of coast between boundaries which partly or wholly contain sediment movement*
- Coastal Sediment cells provide the fundamental unit for coastal management
- An understanding of the coastal behavior, past, present and future, within a sediment cell precedes the formulation of a shoreline management plan



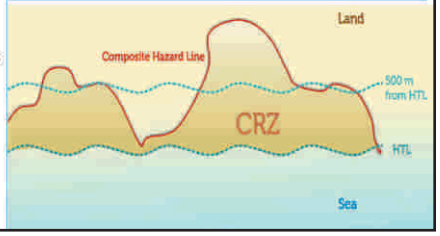


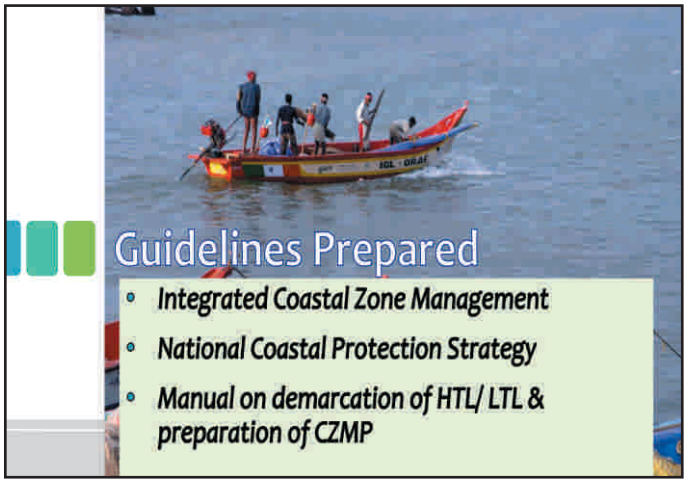
Concept of Hazard Line Mapping

- for Protection of People & Property from Coastal Vulnerability

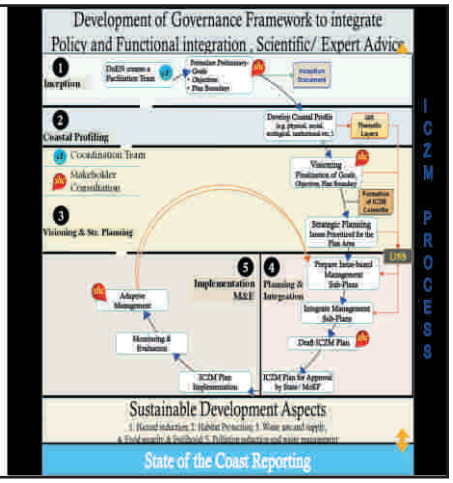
- Demarcation of the hazard line along the entire coast of India taking into account flooding and erosion of the coast
- CRZ 2011: Para 5 (iii to v) Mapping of hazard line; Annexure 1 D Hazard mapping
- The hazard line for the CRZ purposes is being demarcated as the most landward boundary taking into account the following parameters:
  - *Water level fluctuation,*
  - *Sea level rise and*
  - *Shoreline changes (erosion/ accretion of the coast)*

- NCSCM Components:
  - Demarcation of HTL/ LTL (including 200m, 500m and 100m/ width of creeks)
  - High resolution erosion Line (at every 300m along the coast) on 1:10,000 scale

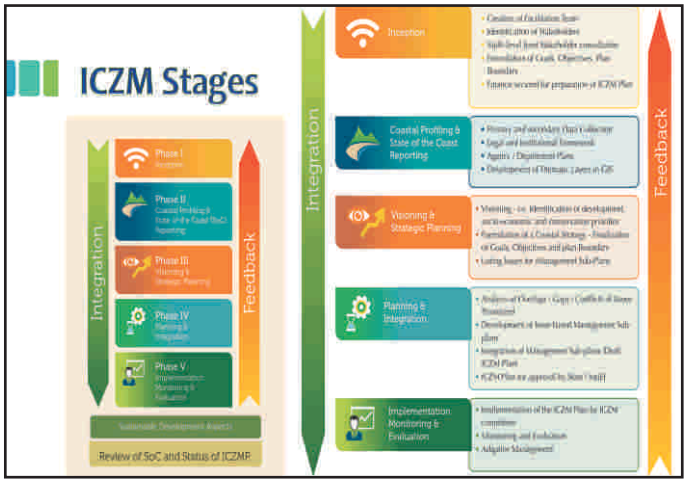


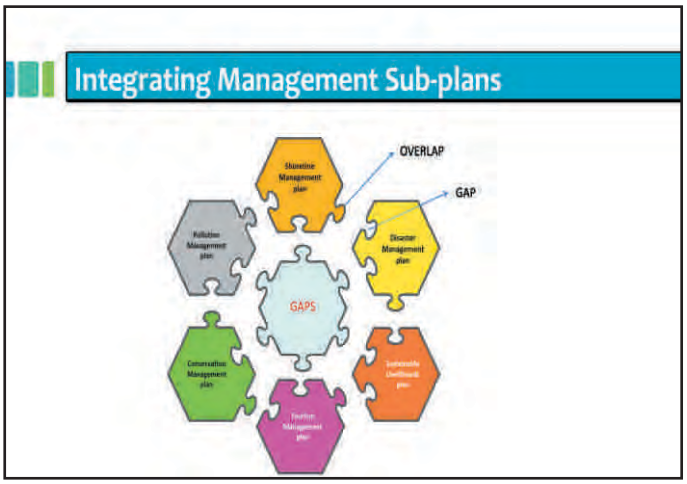


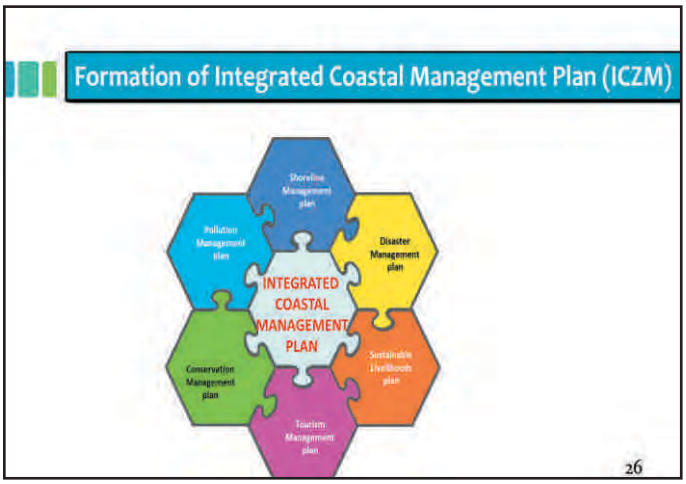
ICZM Plan

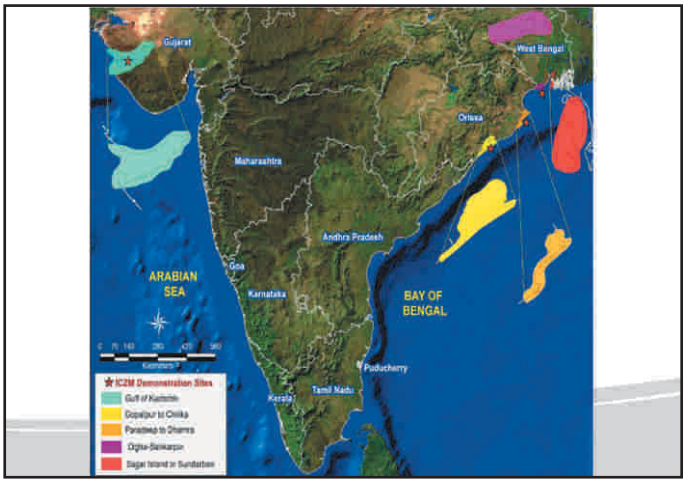


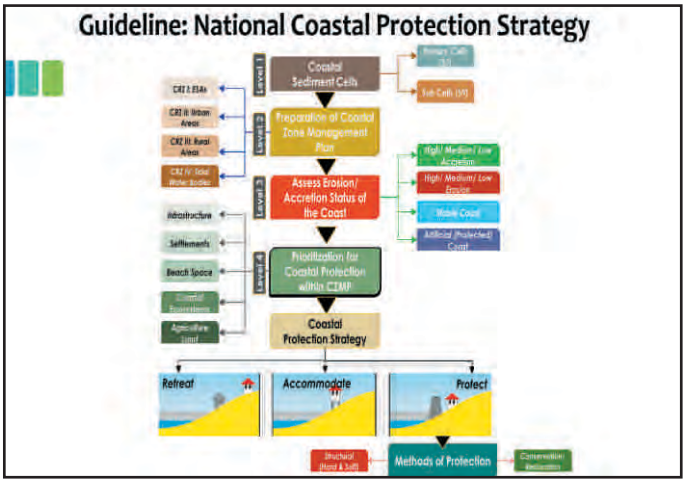
ICZM Stages

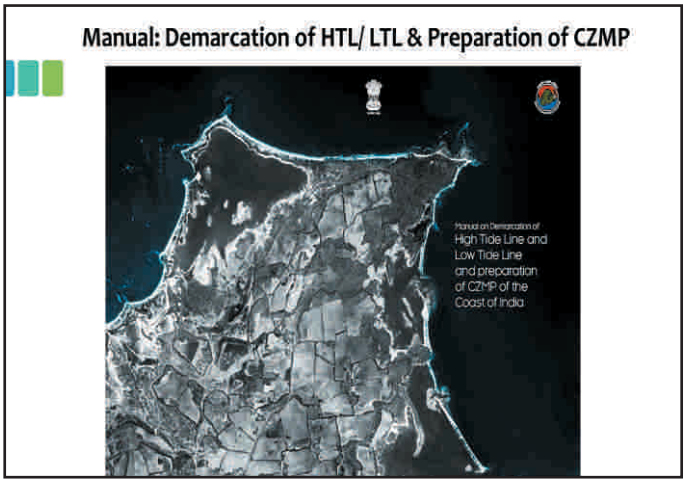


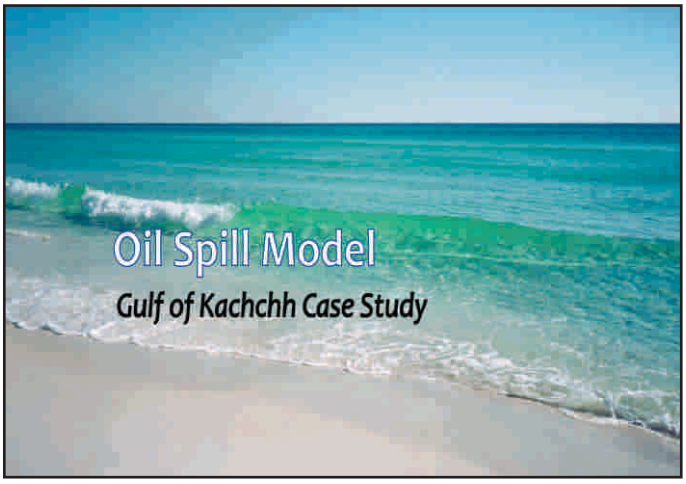

Integrating Management Sub-plans
OVERLAP
GAP
GAPS


Formation of Integrated Coastal Management Plan (ICZM)
Shoreline Management plan
Pollution Management plan
Disaster Management plan
INTEGRATED COASTAL MANAGEMENT PLAN
Conservation Management plan
Sustainable Livelihoods plan
Tourism Management plan
26

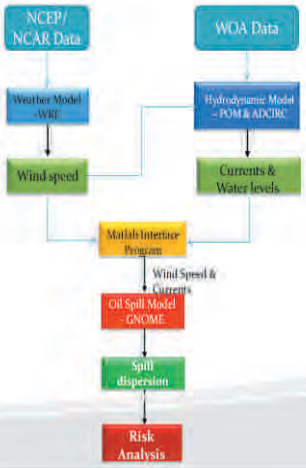

Gujarat
West Bengal
Orissa
Maharashtra
Andhra Pradesh
Goa
Karnataka
ARABIAN SEA
BAY OF BENGAL
Puducherry
Kerala
Tamil Nadu
ICZM Demonstration Sites


Guideline: National Coastal Protection Strategy
Coastal Sediment Cells
Preparation of Coastal Zone Management Plan
Assess Erosion/ Accretion Status of the Coast
Prioritization for Coastal Protection within CZMP
Coastal Protection Strategy
Refreat
Accommodate
Protect
Methods of Protection


Manual: Demarcation of HTL/ LTL & Preparation of CZMP
Manual on Demarcation of High Tide Line and Low Tide Line and preparation of CZMP of the Coast of India


Oil Spill Model
Gulf of Kachchh Case Study

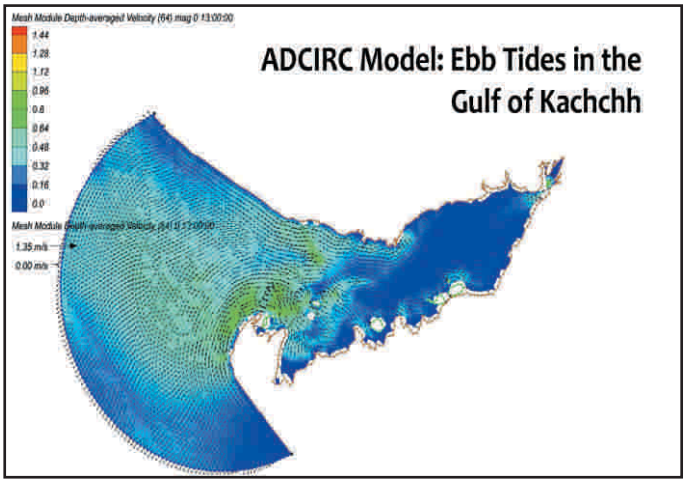
Framework of Integrated Oil Spill Modeling System



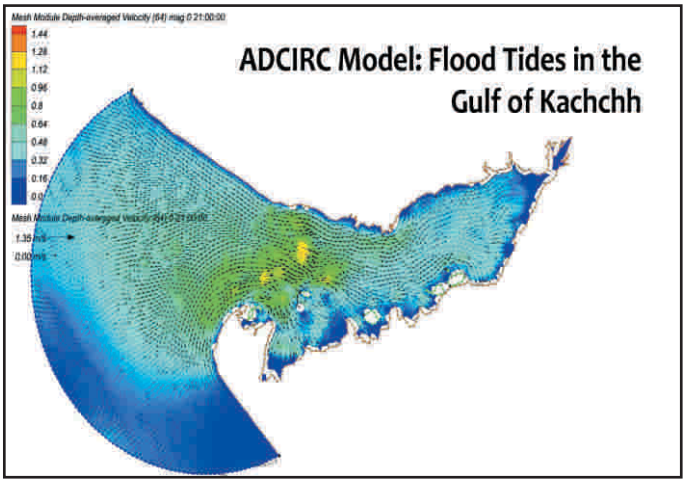
Input Data

S.No	Input data	Description	Data source
1.	Currents	Tidal Currents from ADCIRC model	Predicted currents form ADCIRC model
2.	Wind data	Wind components at 10 m height from the Weather Research Forecasting (WRF) Model	Predicted wind components form the WRF Model
3.	Type of oil	Non-weathering oil	Model input category selection
4.	Amount of oil spill	2000 m^3	Obtained from literature
5.	Source of oil spill	Point source	Selected from model option
6.	Model simulations	Diagnose mode	Selected from option
7.	Date and Simulation period	15 August 2012 at 00UTC and 72 hrs	Wind and current data obtained form the WRF and ADCIRC model

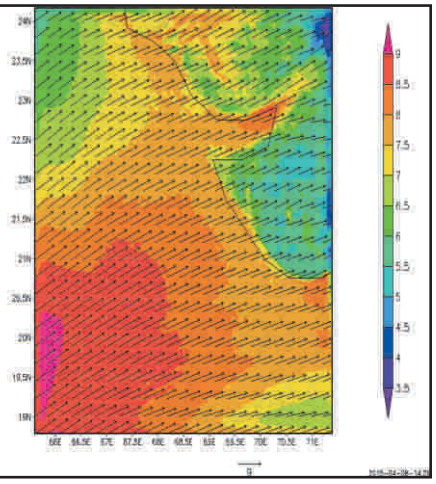
ADCIRC Model: Ebb Tides in the Gulf of Kachchh



ADCIRC Model: Flood Tides in the Gulf of Kachchh

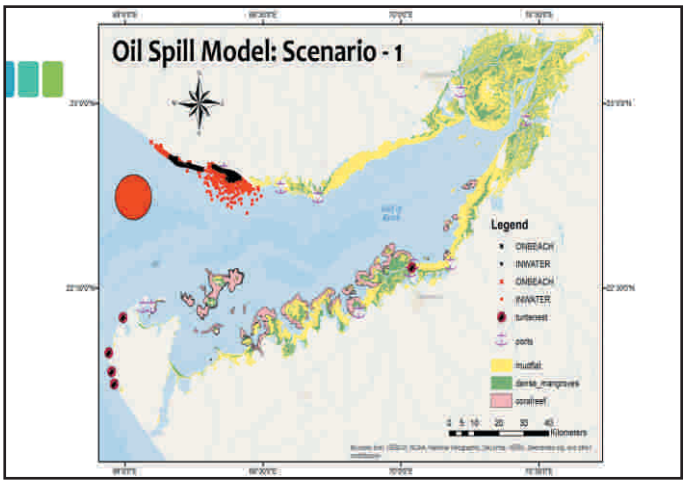


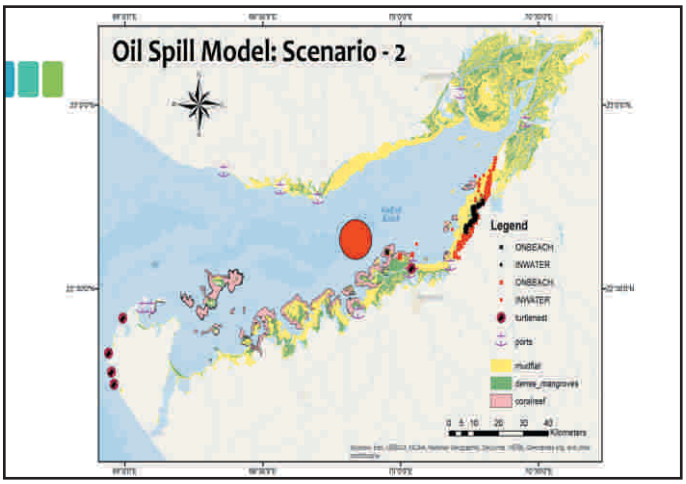
Wind Speed (m/s) in the Gulf of Kachchh

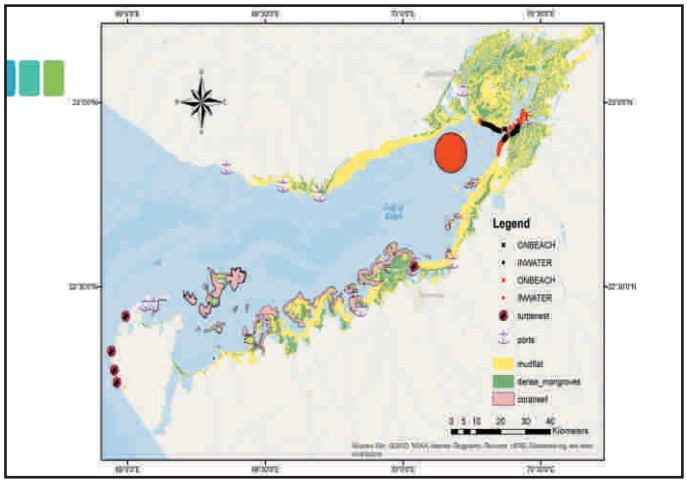


Location of the Spill (Release)

S.No	Location of the spill release	Latitude and longitude
1	Intertidal zone near mouth of Gulf of Kachchh	22.6°N, 68.9°E
2	Near SPMs, Jamnagar	22.5°N, 69.8°E
3	Near Kandla Port	22.85°N, 70.2°E


Oil Spill Model: Scenario - 1
Legend
ONBEACH
INWATER
ONBEACH
INWATER
turtlenest
ports
mudflat
dense_mangroves
coralreef
0 5 10 20 30 40
Kilometers

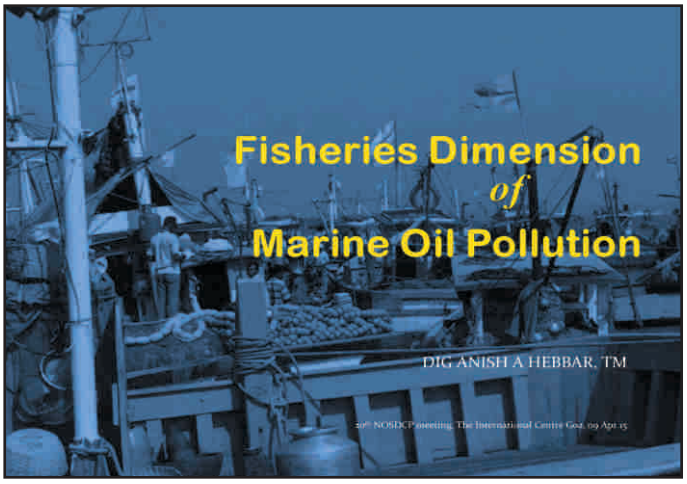

Oil Spill Model: Scenario - 2
Legend
ONBEACH
INWATER
ONBEACH
INWATER
turtlenest
ports
mudflat
dense_mangroves
coralreef
0 5 10 20 30 40
Kilometers


Legend
ONBEACH
INWATER
ONBEACH
INWATER
turtlenest
ports
mudflat
dense_mangroves
coralreef
0 5 10 20 30 40
Kilometers

Annexure 'E'

(Refers to para 7)

PRESENTATION BY DIG AA HEBBAR, TM, DIRECTOR (ENVIRONMENT)



Scope

- Incident review
- Indian fisheries
- Fishing restrictions
- Sensory testing
- Claims

Exxon Valdez

29 Mar 1989; Alaska, USA; 11 million gallon spill

Affected wide range of species and ecosystems

Braer

- Jan 1993; Shetland, UK
- 80,000 tonnes spill
- Contaminated wild fisheries and farmed salmon
- Contaminated equipment
- Tainting of fish
- Sale of farmed salmon banned
- Fisheries exclusion zone set up
- 5,500 tonnes of farmed salmon worth US$ 32 million condemned

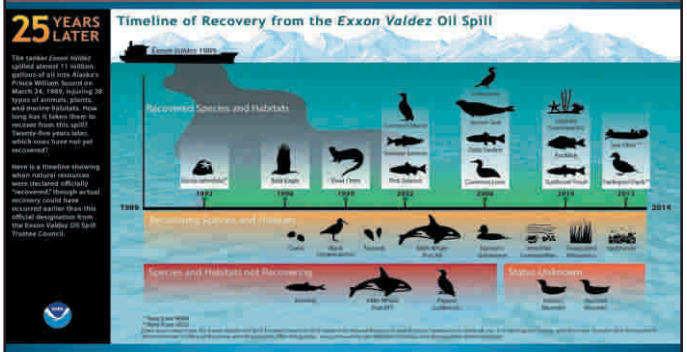
Prestige

- 13 Nov 2002
- Galicia, Spain
- 76,000 tonnes HFO spill
- Spain, France, Portugal affected
- Fishing suspension for 6 months

Deepwater Horizon

- 20 Apr 2010
- Gulf of Mexico, USA
- Explosion and fire
- 200 million gallon spill

Exxon Valdez: Species recovery timeline



http://response.restoration.noaa.gov/oil-and-chemical-spills/significant-incidents/exxon-valdez-oil-spill/timeline-ecological-recovery-infographic.html

Braer: Fishing restrictions

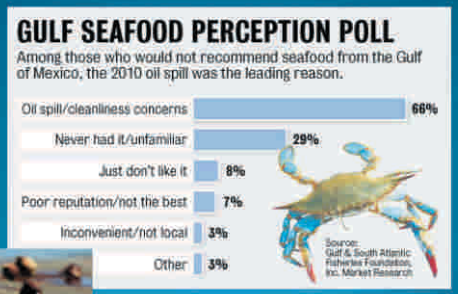
Species	Period of ban
wild fish	four and a half months
crustaceans	one year and 10 months
scallops	two years and one month
mussels	two years and 10 months

(PIREA, 2006, pp.23-24)

Deepwater Horizon: Scale of impact

- 6,817 square miles closed to fishing on 02 May 2010
- 88,522 square miles (37% of federal waters) closed by 02 June 2010
- Mortality of organisms, eggs, early life stages and harm to habitat
- Gulf landings for all shrimp species during closures decreased by 1600 tonnes (27%)
- Fishery closures constrained harvesters and disrupted seafood supplies
- Loss of region's seafood markets

Deepwater Horizon: Public perceptions



MSC Chitra

- Collision on 07 Aug 2010
- Off Mumbai
- 800 tons FFO spilled

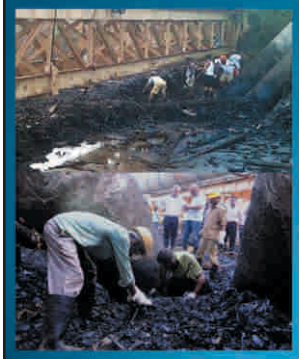
MSC Chitra: Fisheries impact

- 33 fishing villages, 3 districts
- Decrease in fishing effort
  - mechanized vessels 29%
  - Non-mechanized 49%
- Prohibition by BMC
- 60 markets empty for one week
- Fish from other states banned
- Frozen fish stocks at low prices
- Fisheries loss Rs.60-80 crore

ONGC facility, Uran

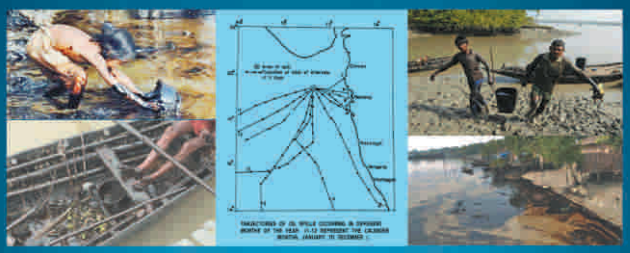
- 06 Oct 2013
- Power failure at ONGC Uran Facility
- 5m³ oil spill
- Affected 6km coastline of Peerwadi and Kegaon villages
- Damage to fishing nets
- Dead fish 2km into the sea and washed ashore for two days after spill

BPCL pipeline, Mahul Creek



- 29 Oct 2013
- Leak in BPCL pipeline in MbPT
- Impacted area – 20, 000m² (approx)
- Fisher's income plummeted > 50% in following 2 months
- Crabs from Mahul creek affected
- Both dead and tainted fish in catch
- Contamination of nets and boats
- Expenditure doubled to go deeper into sea for fish catch
- Rashes due splash of oily water
- Impacted household chores by spending longer hours in market

Consequences of a major spill…



- risk to human health
- significant threat to subsistence of poor fishers
- blow to foreign exchange earnings accrued from exports

State of Indian fisheries

Contribution to GDP: 10%

8.65 lakh families, 5.28 lakh BPL

Fishing villages: 3,288

Daily consumption: 6,300 tonnes, 143 cr

Daily export : 2,500 tonnes, 45 cr

MoA Annual Report 2008-09

Imposing a fishing ban

- To prevent harm to public health
- To prevent contaminated product reaching markets

Fishing restrictions consequent to an oil spill: Key considerations

- Direct and indirect affects
- Potential for damage – shallow, restricted waters
- Risk of contamination in different species
- Risk to human health
- Harvest areas and buffer zones
- Monitoring techniques – *water sampling, aerial surveillance, satellite imagery*
- Protocol for chemical and sensory testing
- Regulatory provisions – *MFRM, MFRAs*
- Financial repercussions and marketing
- Notified authority to issue closure or restrictions

Examples of guidelines on PAH levels

	Indicator	Guidelines[1]	Target
France - AFSSA[2] (ERIKA 1999)	16 PAH analysed by National Network of Observations (RNO)	∑ < 500 µg/kg DW Sale exclusion>1,000 µg/kg DW	Shellfish
UK FSA[3] (2002)	Benzo[a]anthracene Benzo[a]pyrene Dibenz[a,h]anthracene	∑ < 15 µg/kg WW	All seafood
European Union (2005)	Benzo[a]pyrene (BaP)	< 2 µg/kg WW < 5 µg/kg WW < 10 µg/kg WW	Fish Crustaceans & Cephalopods Shellfish
South Korea (MIFAFF)[4] (HEBEI SPIRIT 2007)	Benzo[a]pyrene equivalent (BaPE)	< 3.35 µg/kg WW	All seafood
US EPA[5] (NEW CARISSA 1999)	BaPE	'Safe' < 10 µg/kg WW 'Unsafe' > 45 µg/kg WW	Shellfish Shellfish
US EPA[5] (KURE 1997)	BaPE	'Safe' < 5 µg/kg WW 'Unsafe' > 34 µg/kg WW	Shellfish Shellfish
US EPA[5] (JULIE N 1996)	BaPE	'Safe' < 16 µg/kg WW 'Unsafe' > 50 µg/kg WW	Lobster Lobster

[1] DW – Dry weight; WW – Wet weight. As a rule of thumb DW = ca. 15% x WW; µg/kg = ppb.
[2] AFSSA: Agence de Sécurité Sanitaire des Aliments.
[3] FSA: Food Standards Agency. This guideline has now been superseded by European Union standards.
[4] MIFAFF: Ministry of Food, Agriculture, Forestry and Fisheries.
[5] EPA: Environment Protection Agency. Variation in guidelines limits are primarily due to differing regional diets.

Sensory testing of seafood following an oil Spill

Sensory testing

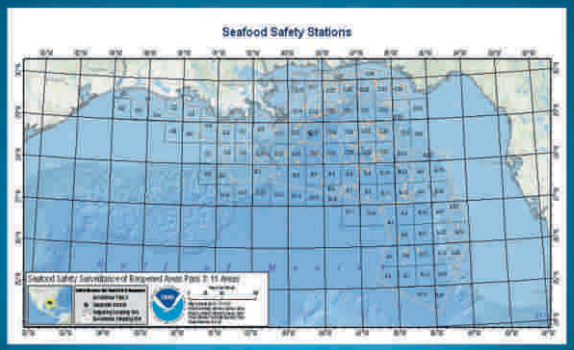
The 'Sniff Test' in assessing Gulf Coast seafood

http://www.noaa.gov/noaaya/Keeping-Seafood-Safe.html

Sensory testing

Steve Wilson, chief quality officer for NOAA's Seafood Inspection Program, demonstrates sensory analysis of a sample of shrimp on July 8, 2010, at NOAA's National Seafood Inspection Laboratory in Pascagoula, Miss. (NOAA)

Seafood Safety Stations



http://oceo.nmfs.noaa.gov/deepwater_horizon/index.html

Sample collection

Collecting oyster samples for analysis

The minimum number of samples to obtain reliable results needs to be determined on case-by-case basis

Sample collection

Fish and shellfish are usually steamed prior to sensory testing.
After cooking, lobsters were opened and the white meat tested for taint by smell and taste

Sampling kit

Quantity for sample size n=21 organisms	Items
1 roll	Heavy-duty aluminum foil
25	Vacuum-packaging bags
1	Vacuum sealer
50	Zip-lock bags with straws
6	Cutting boards
6	Knives*
4	Scissors*
4	Permanent marking pens
25	Adhesive labels
2	Coolers*
6 sheets	Styrofoam or packing material
1 roll	Newsprint (unprinted)
2	Shipping cartons*
weight of samples	Dry ice or ice packs
2 rolls	Packing tape and/or masking tape

*separately for control and exposed samples

Sensory testing of seafood: Guidelines, standard practices & sampling plans

- United Nations/World Health Organization Codex Alimentarius Commission (ALINORM 99/18, Procedural Manual F/3026)
- International Organisation for Standardization (ISO 8586-1/8586-2 1993, ISO 5492 1992, ISO 6658 1985, ISO 8589 1998)
- American Society of Testing & Materials (ASTM) Standards (D3696-89, E1810-96, E253-98a, E 544-75, E 1885-97, MNL 13 1992, STP 434 1999, STP 480-84, STP 758 1981, STP 913)
- American National Standards Institute/ American Society for Quality Control (ANSI/ ASQC Z1.4 1993)
- Environment Canada (EEM/1997/7)
- U.S. NOAA Technical Memorandum NOS OR&R 9

Assessor panels for seafood taint assessment

- Select, highly trained panel; usually 10 to 15 assessors; for assessing taint from a particular oil spill to ensure that conclusions can be drawn with confidence
- Expert assessors panel, e.g., product specialists, seafood inspectors, employed by a regulatory agency; usually 3 to 5 assessors; to assess fish for its suitability for sale for human consumption
- Very large panels; usually 100 or more assessors; for subjective (consumer) testing

Seafood sensory evaluation facility

- Controlled, neutral environment
- Must not interfere with, or influence, sensory tests
- Lighting of appropriate intensity and quality
- Ventilation appropriate and adequate to remove odours
- Free of distractions
- Ease of sanitation
- Use of odour-free products, e.g., Odour-free soaps
- ASTM and ISO design guidelines

Seafood sensory evaluation protocols

- Comprise general sensory testing procedures, specific instructions covering before and during testing session, and evaluation criteria, for expert and trained assessors
- Procedures common to tests before entering the evaluation room, during testing sessions, for rinsing between samples, overcoming susceptibility to fatigue, adaptation to petroleum odours/ flavours, and avoiding carry-over of odours/ flavours from the previous sample
- 3-tiered evaluation criteria by expert assessors - test for raw odour, test for cooked odour, and test for cooked flavor
- Evaluation by trained assessors - "difference-from-control" test
- Ballots to record quantitative and qualitative information on a category scale, descriptors, and the discrimination test chosen

Claims for oil pollution damages

Losses covered by 1992 Fund

- damage to property such as fishing gear or other equipment, cleaning or repairing equipment, and cleaning contaminated boats and rafts
- consequential loss through not being able to use the gear until it has been cleaned or replaced
- pure economic loss such as compensation for the money that would have made if the pollution had not happened, losses if nobody will buy the product because they believed it is tainted by oil, and if one cannot get fish to sell because nobody is catching
- preventive measures to prevent oil causing damage to fishing area such as placement of boom at the entrance to a harbour
- cost paid to an advisor for professional help in making a claim

Prerequisites for compensation

- Business continuity
- Difference in earnings
- Unavoidability of losses
- Detailed records
- Documentary evidence

Seaweed cultivation racks heavily contaminated with oil. These could not be cleaned to a satisfactory standard and therefore dismantled and replaced with new structure

Examples of required documentary information

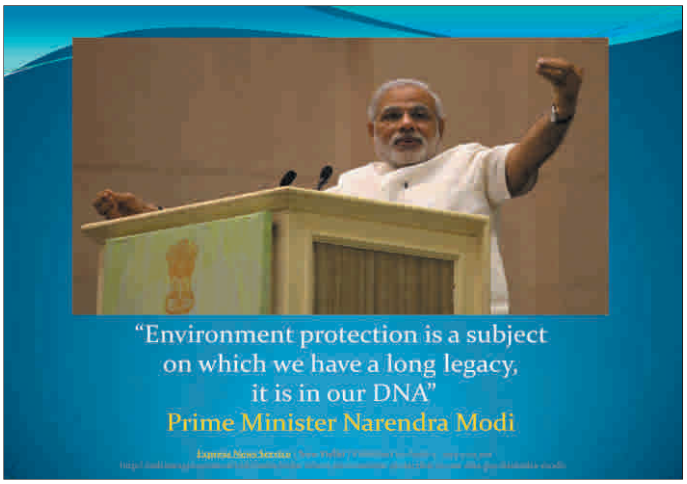
- **Business records**
  - fishing log books
  - sales notes
  - receipts for purchases such as fish feed, packaging, fuel or ice
  - trading accounts for last three years before the spill
  - monthly details of income and expenses
  - income and expenses during spill and normal time
- Description of fishing operations
  - type of gear
  - usual fishing area
  - normal daily catch
  - normal earnings from selling of catch
- Payments/ compensation from Govt. or local authorities
- Any other income during the spill

Challenges to a successful claim

- close link of the losses with contamination
- reasonableness and justifiability of the claim
- poof of losses
- proof that the fish or product is not sold due to contamination
- success of marketing campaign at reassuring consumers
- reasonableness of measures adopted to avoid contamination
- reasonableness of costs paid to advisors by illiterate, vulnerable fishers
- awareness of the source of the claim form
- documentary information of business

Course-to-steer

1. Baseline data documentation
2. Catch revenues documentation
3. Legislative provisions
4. National plan provisions
5. Sensory testing protocol guidance
6. Fishing restrictions procedures
7. Claims procedures awareness


"Environment protection is a subject
on which we have a long legacy,
it is in our DNA"
Prime Minister Narendra Modi

Thank you

Annexure 'F'

(Refers to para 7)

DISCUSSION AND DECISION ON ACTIONABLE POINTS OF PREVIOUS MEETINGS

1. Tier-1 facilities at Mumbai Port Trust

MbPT and other stake holders to establish Tier-1 pollution response facilities at Mumbai at the earliest. RHQ (West) to monitor the progress.

Deliberations

The representative of Mumbai Port Trust intimated that Mumbai Port Trust has contracted M/s Sadhav Shipping Ltd, Mumbai w.e.f. 22 Oct 2014 for providing tier-1 oil spill response facilities & services in Mumbai/JNPT harbour for five years, and preparation of oil spill contingency plan. The plan has been submitted to Indian Coast Guard for vetting. 1000m boom out of 2200m is already positioned. New recovery and storage equipment are likely to be positioned by 10 May 2015. Shipment of 500m boom from Denmark is in progress. Mumbai port will be fully tier-1 equipped by end of May 2015.

Decision

RHQ(West) to monitor the progress. **Point to be closed**.

Action by: MbPT

---

2. Preparation of Local Contingency Plan

Coastal States/Union Territories to progress Local Contingency Plan for early promulgation. Regional Commanders to monitor progress.

Deliberations

Director (FE) presented the detailed status and the efforts at hand to progress the Local Contingency Plan (LCP) as described below.

Gujarat Model LCP handed over to Principal Secretary, Ministry of Environment & Forests on 07 Jun 11. DO letter by Coast Guard to Add'l Chief Secretary, Ministry of Environment & Forests

on 24 Jul 14 followed by meeting on 08 Oct 14. Meeting with all concerned convened by Add'l Chief Secretary on 25 Nov 14; presentation delivered by Coast Guard on provisions of revised draft NOSDCP.

Daman Request received at Coast Guard Headquarters on 31 Jul 13 for advise on preparing the LCP. Daman administration was appraised on the source of the model plan and advised to seek further assistance of Coast Guard Regional Headquarters at Gandhinagar.

Maharashtra The state government has prepared a draft plan and Coast Guard has given its suggestions on the draft plan to the Maharashtra Pollution Control Board in Jul 2013. LCP is pending for approval with the state government and likely to be finalized during 2015.

Goa Coast Guard has given its suggestions on the draft plan to Goa State Pollution Control Board on 13 Feb15. Government of Goa is actively progressing finalization.

Karnataka Vetting comments given by Coast Guard in October 2012. No response received from Karnataka State Pollution Board thereafter. Last reminder by Coast Guard on 17 Feb 15.

Kerala Three rounds of vetting comments in Sep 2012, May 2013 and 24 Nov 14. Plan being progressed with Kerala State Pollution Control Board.

Lakshadweep Coast Guard has given its suggestions on draft plan to Local Administration in Feb 15.

Tamil Nadu Final plan is expected from the Government of Tamil Nadu by Jun 15.

Puducherry Draft plan was vetted by the District Collector in Mar 14 and Administration is being pursued for finalization.

Andhra Pradesh No progress yet and hampered by bifurcation of State. The Chief Secretary was appraised of urgency in a meeting by Coast Guard Regional Commander on 21 Aug 14.

Odisha Focused meeting by Coast Guard with Chief Secretary on 02 Jul 14. Director Ports and IWT, Govt. of Odisha approached for status and brought out three issues in Mar 15 viz., shortage of manpower in the department, funds for risk assessment not catered in FY 2014-15, will be projected for 2015-16 budget and, Odisha State Coastal Zone Management authority unwilling to share data.

West Bengal Focused meeting with Chief Environment Officer, Department of Environment on 16 Sep 14; Principal Secretary, Dept. of Environment has intimated on 23 Feb 15 that drafting of LCP is in final stage and will be submitted shortly.

A&N Six of ten chapters have reportedly been drafted and work is in progress.

The representative of Gujarat Maritime Board intimated that they have spent 1.4 crore rupees on the preparation of the plan for Gujarat and the plan was pending for approval of Coast Guard Region (North-west). The Commander, Coast Guard Region (North-west) intimated that amongst other major shortcomings of the draft plan, the equipment identified in the plan and its proposed location was grossly inadequate to mitigate the envisaged risk and that the shortcomings were already communicated to the Gujarat Pollution Control Board. Thereafter, it was agreed that a fresh draft would be submitted for consideration by the Coast Guard.

The representative of Odisha Pollution Control Board requested for a copy of sample contingency plan and sought assistance in the planning. The representative when assured of all possible assistance from the local Coast Guard authorities committed that a meeting will be convened at Paradip by May 2015 to progress with the drafting.

The representative of Andhra Pradesh Pollution Control Board intimated that NIO, Goa has been approached for assistance and that the responsibility for preparation of the plan vests with the Department of Infrastructure and further directives were being issued by the Chief Secretary. A meeting was planned to be convened by end May 2015 to review the progress.

The representative of NIO, Goa intimated that NIO has been receiving requests from coastal states for preparation of LCP and proposed that the LCP include the facility contingency plan of all ports and oil agencies in the respective coastal state. D (FE) agreed that LCP would be incomplete without a reference to the risk and ESI mapping in the relevant facility contingency plans.

Decision

Coastal States/ Union Territories to progress Local Contingency Plan for early promulgation. COMCGs may continue to render guidance and support to the State Governments.

Action by: All Coastal States/UTs

3. **Surveillance system by ports against illegal discharge**

CGHQ to seek details of Chennai Port radar oil spill detection system and disseminate to all concerned stakeholders. MoS will issue suitable directives requiring all major ports to be equipped with radar oil spill detection capabilities in a time bound manner. MoS will issue suitable directives requiring DGLL to install oil spill detection capabilities in the Gulf of Khambat VTMS radars. Ports and Oil agencies to establish oil spill detection capabilities. MoS and MoPNG to monitor progress.

Deliberations

D(FE) intimated that the details of the proposed radar oil spill detection system for Chennai were found to be proprietary in nature and, therefore, could not be disseminated. D(FE) further added that KoPT has installed oil spill detection radar in Nov 14 at Haldia, Sagar, Frazerganj and Dadanpatra which has a range of two nautical miles.

Representative of Chennai Port intimated that quotations have been obtained and additional software module is being considered for installation in the existing VTMS radar.

Representative of DGLL intimated that nine radars are operating in the GoK for monitoring vessel traffic. Oil spill detection capability can be integrated in the existing radars on directives from Ministry of Shipping.

ED HSE ONGC intimated that ONGC is in the process of concluding a MoU shortly with Indian National Centre for Ocean Information Services (INCOIS), Hyderabad for oil spill detection capability in their MSVs and OSVs. The representative of INCOIS suggested that their participation may be solicited by ports and oil agencies during technical discussions with any OEM to facilitate smooth integration of all detection capabilities.

COMCG (E) suggested that both, major and non-major ports should be equipped with radar oil spill detection capabilities.

There were apprehensions that the effective detection range of two nautical miles may not serve any purpose. DDG (Ops & CS) recalled the oil pollution incident at Sikka and Sarmat, which affected more that 10,000 square meters of mangroves had occurred on account of undetected spills within port limits and engaged response efforts for over a month in 2013. Similarly, spills from oil installations in Bombay High detected by Coast Guard Dornier aircraft on routine

surveillance were not reported by any oil agency. Radar detection capability would assist in curbing such illegal and unreported discharges.

Decision

ONGC may progress case with INCOIS for radar detection capabilities on its installations in Bombay High and onboard its MSVs and OSVs. Ports and oil agencies may include INCOIS during technical discussions with any OEM to facilitate smooth integration of all detection capabilities. *MoS* and *MoPNG* may issue suitable directives for installation of radar detection capabilities at ports and offshore installations respectively. *CGHQ* to monitor progress.

Action by: Ports/Oil Agencies

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4. **Tier-1 response time on offshore in offshore fields**

Oil handling agencies are to suitably position resources at offshore oil installations so as to ensure timely Tier-1 response. Oil Industry Safety Directorate (OISD) is to issue suitable directives.

Deliberations

The representative of OISD requested clarification on the tier-1 response time for offshore facilities.

ED HSE ONGC stated that some of their tier-1 equipment are deployed in five Multi Support Vessels in Western Offshore and added that since their area of operations spans about 15,000 square kilometer ONGC had suggested six hours as maximum response being time required to mobilize the vessels to the site of spill if deployed elsewhere.

D(FE) stated that as per the International Petroleum Industry Guide, tier-1capability constitutes on-site equipment which is suitably located, with arrangements in place for rapid and effective mobilization. NOSDCP 2015 also defines tier-1 as preparedness and immediate response to a spill within the capabilities of an offshore facility operator, or port authority. The key point in both, the national plan and international understanding of tier-1 preparedness is that the equipment shall be so positioned as to be immediately deployed at the site. However, it is observed that contrary to the national plan guidance, several oil exploration and production companies maintain their tier-1 oil spill response inventory on-shore, in cases, at considerable distance from the installation.

DGICG and Chairman NOSDCP suggested that maintaining the tier-1 inventory away from the offshore installation defeats its very purpose of first response equipment. OISD must, therefore, urgently prevail upon the operators/ owners of the offshore oil installations to maintain their tier-1 oil spill response equipment at or in the vicinity of the offshore facility for timely response.

Decision

MoPNG may issue directives for suitable positioning of tier-1 facilities for timely response at offshore installations.

Action by: OISD/Oil Agencies

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5. **Operation of vessels beyond SEZ**

D(FE) to pursue case for exemption of crew competence requirements with DG Shipping. RHQ (North-West) to obtain insurance documents of port tugs from M/s Adani Ports and forward to CGHQ. D (FE) to examine clauses.

Deliberations

D(FE) intimated that CGHQ pursued the case with the Ministry of Commerce and Industry. The harbour craft are exempted from the application of the SEZ Rules whenever they are required to respond to oil spill emergencies under the direction of Coast Guard as per the NOS-DCP and when the vessels are required to participate in scheduled oil spill response exercise under the directions of Coast Guard as per NOSDCP vide Ministry of Commerce and Industry, SEZ Division note No. D.12/16/2014-SEZ dated 08 Sep 2014.

The representative of Adani Port, however, brought out that contrary to the orders of the Ministry of Commerce and Industry, SEZ Division, the letter received from the local customs authorities required prior customs clearances for deploying vessels and equipment for oil spill response operations and exercises.

DGICG and Chairman NOSDCP advised that the relevant correspondence may be forwarded to Coast Guard for seeking clarification from the Ministry of Commerce & Industry.

Decision

CGHQ to take up the case with Ministry of Commerce and Industry, SEZ Division for issuance of clarification. **Point to be closed.**

Action by: CGHQ

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6. **Subsea well intervention system and subsea OSD system**

ONGC to forward a detailed report on subsea well intervention systems and subsea dispersant application systems for offshore installations in Indian waters. D (FE) to examine report and convene a meeting of all concerned to discuss modalities for its incorporation in the facility contingency plan.

Deliberations

D(FE) intimated that while CGHQ was not in receipt of any detailed report, a letter received from ONGC in March 2015 indicated ONGC had deliberated the issue in-house and decided that every blowout is different and capping operation differs from case to case, therefore capping equipment cannot be kept ready in advance. Further, the capping stack and attached equipment offered by OSRL is required to be returned with requisite payment and is being provided without any services or lowering equipment. ONGC already has a contract with M/s Boots and Coots, U.S.A and is also holding an additional sub-sea stack at Mumbai, which can be modified for a particular blow out situation as and when the need arises. ONGC could also invoke its participant membership of M/s OSRL for Tier-3 services on chargeable basis.

DDG (Ops &CS) recalled the G1-9 gas leak in Sep 2012 which took more than two months for capping and also the recent threat of blow-out in rig Sagar Uday in Bombay High and underscored the importance of establishing a proven system for well-capping.

Decision

Establishment of a well capping device and identification of supporting infrastructure/ services is a national imperative. *MoPNG* and *OISD* may suitably pursue the matter with participation of the Coast Guard.

Action by: ONGC/ OISD

7. **Shoreline response trailer**

Coastal States may initiate steps to establish shoreline response inventory mounted on a trailer for ease of mobilization. Coast Guard Regional Commanders may facilitate the process and also write a DO letter to appraise the appropriate authority in the Coastal State/ Union Territory.

Deliberations

D(FE) brought out that the status received from the Coast Guard Regional Commander's indicated that though the matter has been taken with all the state authorities and also actively pursued, response of the stakeholders has not been very encouraging.

Govt. of Puducherry had communicated to the Coast Guard that it could fund the equipment required for shoreline cleanup which may be purchased and maintained by the Coast Guard on the grounds that it does not have adequate infrastructure and manpower for the purpose. Govt. of Puducherry was, however, requested to arrange for the equipment being state responsibility and advised that Coast Guard shall assist in finalization of equipment, if so needed.

The representative of the Government of West Bengal cited numerous constraints. Firstly, deployment of boom is not possible on the West Bengal coast due to high waves. Secondly, presence of sensitive area prohibited the use of OSD in case of oil spill. Thirdly, presence of wild animals threatened safety of life in the event mangroves require clean-up.

DDG (Ops & CS) cited the example of financial incentive provided by M/s Padma Oil in Bangladesh which motivated the locals to recover oil and oily water from the difficult Sunderbans and turn-in to the oil company.

D(FE) clarified that the trailer-based inventory in the NOSDCP is recommendatory in nature and has the coastal states would be required to identify specific equipment based on the risk assessment and options available for responding to the shoreline at risk in the event of an oil pollution incident. He added that a contingency plan which does not identify trained responders and response equipment would serve no purpose.

Decision

Coastal States may pursue provision of trailer mounted inventory for shoreline response to oil spills as part of their local contingency plan. Point may be linked up with Local Contingency Plan of coastal states being progressed under actionable agenda and closed as separate point.

Action by: All Coastal States

Annexure 'G'

(Refers to para 7)

DISCUSSION AND DECISION ON NEW AGENDA POINTS

1. **Need for tier-1 facilities at ports and oil agencies when commencing operations**

Some non-major ports are carrying out operations without having any pollution response equipment, even long after commissioning of the port. Some of the ports have stocked up the equipment but it has not been assembled or practiced. It is recommended that a mechanism may be established to ensure that a new port or terminal commences operation only after its tier-1 facility is duly verified.

Deliberations

The Chief of Staff, Coast Guard Region (West) mentioned about mushrooming of new non-major ports with either nil, or inadequate oil spill response inventory. The representative of Ministry of Shipping intimated that MoS has launched a scheme for 26 non-major ports under which funds would be allocated for oil spill response inventory and that MoS has issued guidelines for tier-1 facility to all ports. Commander, Coast Guard Region (East) suggested that verification of tier-1 inventory should be a part of the sanction process for the port. DDG (Ops & CS) recommended that CGHQ could pursue the matter with concerned ministries.

Decision

The Ministry of Shipping or, the State Government as appropriate may provide to the Coast Guard, and update from time to time, the list of port facilities required to maintain a facility oil spill contingency plan. D(FE) to take up matter with concerned authorities for institutionalizing suitable mechanism to ensure that a new port or terminal commences operation only after its tier-I facility is duly verified. **Point may be closed**.

Action by: MoS, CGHQ

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2. **Integrated legal systems for oil pollution response**

The marine environment management mechanism along different coastal state involves multiple agencies and hence multiple legislations/ regulations. Further, NOS-DCP also lacks statutory

status unlike an enacted Act. It is, therefore, proposed that a Marine Environment Regulation Act empowered to address civil liability with a provision of oil liability trust fund in line with Oil Pollution Act (OPA) of 1990 and Clean Water Act (CWA) passed by US Congress for providing necessary status to the National Contingency Plan and Oil Liability Trust Fund may be articulated for necessary enactment by Government of India.

Deliberations

The Officer-in-Charge, Pollution Response Team (East) opined that there are too many regulations and multiple authorities for environment protection. There is a need to properly regulate the entire gamut of activities related to oil pollution preparedness and response. There also exists a long-standing need for the National Oil Spill Disaster Contingency Plan to have the backing of law so as to enable its enforcement. Hence, an umbrella legislation covering all aspects should be enacted.

Decision

D(FE) may study the gap in legislation and initiate necessary action. **Point to be closed**.

Action by: CGHQ

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3. **Sharing of oil spill response experience**

Sharing of experience on oil spill incidents /case studies for the benefit of all**.**

Deliberations

DGICG stated that the sharing of experiences related to readiness for oil spill response will be beneficial to all and invited participants to share related experience. The representative from Hindustan Oil Exploration Corporation, Chennai sharing his experience with the attendees informed that rodents had damaged oil spill response equipment aboard one of his company's vessels and the company had to spend a substantial amount to get it repaired. The incident highlights the importance of proper maintenance of equipment.

DDG (Ops & CS) stated that Coast Guard shares case studies on oil spill response in the biannual marine environment protection newsletter, Blue Waters. Stakeholders are welcome to contribute articles on their experience relating to oil spill response which could then be disseminated through

the Coast Guard newsletter. This is besides covering the case studies being covered in the presentation made during the NOSDCP meeting.

Decision

D(FE) to invite contributions from stakeholders for the Blue Waters newsletter. **Point to be closed**.

Action by: CGHQ

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4. **Environment sensitivity mapping in contingency plan**

With a view to standardize the sensitivity mapping, it is advised that all ports and oil agencies may conduct the Environmental Sensitive Index (ESI) mapping as per the comprehensive guidelines included in the revised NOSDCP.

Deliberations

Elaborating the agenda point, D(FE) stated that to standardize the environmental sensitivity mapping in contingency plans, guidelines for environmental sensitivity mapping have been published by Indian Coast Guard as Annexure E3 to NOSDCP 2015. The guidelines include ESI shoreline classification, biological resources to be included on maps, commonly mapped human-use resources, general guidelines for mapping biological resources, biological resources form, seasonality/life history form, human use feature types and codes, human-use resources form, colour scheme used for representing the shoreline habitat ranking and sensitive biological resources on maps, ESI symbols representing sensitive biological resources, symbols of seasonal sensitivity and symbols represent human-use features etc.

The Director, National Centre for Sustainable Coastal Zone Management (NCSCM) informed that ESI mapping is mainly required in the CRZ. Eleven major ecosystems are being mapped in GIS. Further, NCSCM is willing to work together with the Coast Guard for the common goal. He also added that once released for public by NCSCM, it will be possible for stakeholders to procure standard scale maps for ESI mapping in their contingency plan.

The representative of INCOIS suggested that integrating the environment sensitivity mapping in

the software developed by the INCOIS will alert the user by mail on the details of area to be protected in case of oil spill.

The representative of HPCL asked whether the ESI mapping is required to be done independently, or combined with other agencies and state government.

D(FE) replied that every holder of facility contingency plan is required to undertake an ESI mapping individually covering the entire area at risk in the worst case scenario and incorporate the ESI map in the facility contingency plan.

Decision

Guidelines on ESI mapping in the NOSDCP may be complied with. GIS maps produced by NCSCM may be used for the purposes of ESI mapping. **Point to be closed**.

Action by: All ports/ oil agencies/ coastal states

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5. **Oil spill crisis management group in coastal states**

It is recommended that the coastal states indicate the composition of the various crisis management groups as well as the local action group and local action group support team as recommended in the NOSDCP as part of the process of drawing up their local contingency plan for oil spills.

Deliberations

D(FE) stated that NOS-DCP 2015 describes the emergency management structure for oil spill. To undertake shoreline response in the event of a major oil pollution incident, every coastal state is expected to form a Local Action Group comprising one Planning Coordinator, Operations and Technical Coordinator, Logistics and Administration Coordinator and five Response Team Leaders except Goa, Puducherry, Daman and Diu, Lakshadweep and Minicoy, and Andaman and Nicobar which will nominate one response team leader instead of five. Further, a Support Team of Environmental Advisers, Finance & Administration Officer, Wildlife Officer, equipment operator for offshore containment/ recovery, vessel-based dispersant spraying, inshore containment/ recovery, engine driver and laskar, shoreline assessment and shoreline cleanup is also required to be established at coastal states to support the local action group.

Decision

Coastal States may initiate necessary steps to form the Local Action Group and Local Action Group Support Team for shoreline response to oil spills as per the NOSDCP. Point may be linked up with Local Contingency Plan of coastal states being progressed under actionable agenda and closed as separate point.

Action by: All coastal states

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6. **Spill tracker buoys**

INCOIS, Hyderabad has tendered oil spill tracking buoys. It is proposed to deploy the tracker buoys during national oil spill response exercise and also position them at a suitable Coast Guard base to assist response to any oil spill.

Deliberations

The representative of INCOIS intimated that they have ordered eight oil spill tracker buoys. These buoys, when deployed, drift with the oil spill and yield the trajectory of movement of the spill. The buoys are, however, fitted with Iridium equipment, usage of which is banned in India. INCOIS is in the process of replacing the Iridium equipment with Argos/ HF equipment.

Decision

D (FE) may liaise with INCOIS to deploy the spill tracker buoys during National oil Spill Response Exercise and take necessary action for positioning one buoy at a suitable Coast Guard air base. **Point to be closed**.

Action by: INCOIS/ CGHQ

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7. **Approval for application of oil spill dispersant**

Oil spill dispersants for use in Indian waters are being tested for efficiency and toxicity and approved by National Institute of Oceanography, Goa. MoEF & CC is in the process of promulgation of the no-OSD use areas in Indian Waters. As per the policy for use of OSD, CG approval is required prior application of dispersant in the event of an oil spill. The approval would depend upon the quantity of spilled oil, metrological condition and eco-sensitive areas nearby

and socio-economic effect of the OSD application. However, analysis of those functions is beyond the expertise of the Coast Guard. It is, therefore, proposed that NIO, Goa may be designated as the authority for approving application of oil spill dispersant in the event of an oil spill.

Deliberations

The representative of NIO, Goa intimated that identification of environmentally sensitive areas will be helpful in OSD application. Incorporation of ESI mapping will speed up the procedure. Prior approval may also be considered.

DDG (Ops &CS) opined that the proposal for designating NIO as the authority for approving application of oil spill dispersant consequent to an oil spill requires further deliberation.

Decision

A meeting may be convened with participation of MoEF & CC, NIO and other concerned authorities to decide on the approval procedure for application of OSD.

Action by: CGHQ

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8. **Utilization of Oil Pollution Cess**

The money being collected as Oil Pollution Cess should be used to create common oil spill response equipment inventory and stationed at strategic locations for use in large oil spills.

Deliberations

The representative of MoS stated that collection of cess is not fool-proof. 50 paise is being collected per ton and about 90 lakh rupees was collected in 2014. 90% of the cess is submitted to the MoS and 10% is retained by the port as service charges. A new head is being created under which the cess collected will accrue. The representative of MoS, however, stated that ports and oil agencies should continue to individually maintain tier-I oil spill response inventory as required by the NOSDCP for optimum response.

Decision

Action is already at hand by MoS. **Point to be closed**.

Action by: MoS

Annexure 'H'

(Refers to para 8)

CONCLUDING ADDRESS BY THE DGICG AT THE 20TH NOS-DCP AND PREPAREDNESS MEETING AT GOA ON 09 APR 2015

Good Afternoon Ladies and Gentlemen,

1. We have come to the concluding part of the 20th NOSDCP and Preparedness meeting after a fruitful discussion of the agenda points. I am happy to see the active participation of all the agencies during this NOS-DCP meeting. Surely, you all will agree that sincere efforts are being taken by various agencies in their respective entities to enhance their response preparedness. Evidently, the aim of the annual NOS-DCP meeting is being achieved to a large extent, however, more needs to be done. Many valuable suggestions have come forth to further enhance our oil spill response preparedness. As the Central Coordinating Agency for combating major incidents of oil pollution in Indian waters, the Coast Guard strives to continuously enhance its pollution response preparedness at all levels.

2. Two significant milestones were set in today's meeting with the release of the Online Oil Spill Advisory system developed by INCOIS and the release of the revised NOSDCP which is indeed the first comprehensive revision of the NOS-DCP since it was first promulgated in 1996. However, we can hardly afford to rest on our laurels.

3. The risk of oil pollution is only set to increase with newer ports and SPMs, increased port calls by ships at existing ports and ageing of oil pipelines. The recent incidents at Sunderbans (Bangladesh) creek and Bombay High have underscored our vulnerabilities and the imperative of enhanced vigil through constant monitoring and adequate preventive measures and the importance of training and planning for response to such contingencies.

4. It is my strong belief that we stand to gain and enrich our collective knowledge and experiences through our continuing engagements in the form of meetings, joint exercises and other forums to emerge better prepared to tackle any issues relating to oil pollution response. Before I conclude, I would earnestly request all the concerned agencies to expedite issues that are long pending and seek all necessary assistance from the Coast Guard where necessary.

5. Finally, I would like thank the Commander, Coast Guard Western Seaboard and COMDIS-11 for the excellent arrangements for the smooth conduct of this meeting. I would also like to thank all the members who attended the meeting today and actively contributed to the debates and discussions with fervent enthusiasm.

6. Last, but not the least, I would request all the agencies to prepare adequately for the forthcoming monsoon season to respond to any eventuality of marine oil spill.

Thank you. Jai Hind.

Annexure 'J'

(Refers to para 9)

ACTIONABLE POINTS OF 20th NOS-DCP AND PREPAREDNESS MEETING

1. Coastal States/ Union Territories to progress Local Contingency Plan for early promulgation and initiate necessary steps to form the Local Action Group and Local Action Group Support Team for shoreline response to oil spills as per the NOSDCP. As a part of the Local Contingency, Coastal States may also pursue provision of trailer mounted inventory for shoreline response to oil spills. COMCGs may continue to render guidance and support to the State Governments.

All Coastal States/UTs

2. *ONGC* may progress case with INCOIS for radar detection capabilities on its installations in Bombay High and onboard its MSVs and OSVs. Ports and oil agencies may include INCOIS during technical discussions with any OEM to facilitate smooth integration of all detection capabilities. *MoS* and *MoPNG* may issue suitable directives for installation of radar detection capabilities at ports and offshore installations respectively. *CGHQ* to monitor progress.

Ports/Oil Agencies

3. *MoPNG* may issue directives for suitable positioning of tier-1 facilities for timely response at offshore installations.

OISD/Oil Agencies

4. Establishment of a well capping device and identification of supporting infrastructure/ services is a national imperative. *MoPNG* and *OISD* may suitably pursue the matter with participation of the Coast Guard.

OISD

5. The approval procedure for application of OSD may be decided in consultation of MoEF & CC, NIO and other concerned authorities.

CGHQ

Annexure 'K'

(Refers to para 9)

PROGRAMME

20th NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN

& PREPAREDNESS MEETING

Date : 09 Apr 2015

Venue : The International Centre Goa, Dr. E Borges Road, Goa

TIME	EVENT
0900	Delegates Arrive & Registration
0930	Chairman Arrives
0932	Inaugural Address by the Chairman, NOSDCP
0940	Release of revised NOSDCP
0942	Release of OOSA software developed by INCOIS and presentation by Dr. TM Balakrishnan Nair, Scientist 'F' & Head-ISG
0950	NOSDCP overview by Deputy Director (FE)
1000	"Coastal Zone Mapping" Presentation by Dr. R Ramesh, Director, National Centre for Sustainable Coastal Management, Chennai
1015	"Fisheries Dimension of Oil Spills" Presentation by DIG AA Hebbar, Director (FE)
1030	Tea Break
1045	Discussion on Actionable Agenda of Previous Meetings
1145	Discussion on New Agenda Points
1245	Closing Address by Chairman, NOSDCP
1250	Lunch

Rig : 8As for Service Officers

Annexure 'L'

(Refers to para 9)

20th NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN (NOS-DCP) AND PREPAREDNESS MEETING - 09 APR 15

LIST OF PARTICIPANTS

1.	Vice Admiral HCS Bisht, AVSM Director General Indian Coast Guard Chairman NOS-DCP	8.	DIG MV Baadkar Commander, DHQ-11 Indian Coast Guard
2.	IG SP Sharma, PTM, TM COMCG(East) Indian Coast Guard	9.	DIG Sanjeev Dewan Commander, DHQ-7 Indian Coast Guard
3.	IG K Natarajan, PTM, TM COMCG(A&N) Indian Coast Guard	10.	DIG AA Hebbar, TM Director (FE) Indian Coast Guard
4.	IG KR Nautiyal, PTM, TM DDG(Ops & CS) Indian Coast Guard	12.	Comdt SK Singh Oi/c PRT(East) Indian Coast Guard
5.	IG KS Sheoran, PTM, TM COMCG(North-West) Indian Coast Guard	13.	Comdt AS Rathore Oi/c PRT(West) Indian Coast Guard
6.	DIG AKS Chauhan, TM Chief Law Officer Indian Coast Guard	13.	Dy Comdt Rithin Thampan KV Oi/c PRT(A&N) Indian Coast Guard
7.	DIG KBL Bhatnagar Chief of Staff, RHQ(West) Indian Coast Guard	14.	Comdt CD Mahapatra CGA to DGICG Indian Coast Guard

15.	Comdt Devansh Trivedi Oi/C ROC (Gandhinagar) Indian Coast Guard	23.	Dr. R Ramesh Director National Centre for Sustainable Coastal Management, MoEF & CC
16.	Comdt Sujeet Dwivedi, TM Regional FE Officer/RHQ(West) Indian Coast Guard	24.	Mr. SJ Prasad Scientist 'B'-ISG Indian National Centre for Ocean Information Services, Hyderabad
17.	Comdt(JG) Deepak Yadav Dy Director (FE) Indian Coast Guard	25.	Mr. VS Mishra Asst Director(Marine) Directorate of Logistics Customs & Central Excise, New Delhi
18.	Mr. DJ Basu Dy Director (Engg.) Ministry of Shipping	26.	Mr. CP Singh Director Director General Lighthouse and Lightship, Noida
19.	Mr. Irfan Ahmad Khan Assistant Director(DM) Disaster Management Division -1 Ministry of Home Affairs	27.	Shri PK Jain Executive Director Directorate General of Hydrocarbons, Noida
20.	Ms Archana Nair Under Secretary (UNES-II) (UNES Division) Ministry of External Affairs	28.	Capt. Harjit S Girn Director (Plans), Flag Officer Offshore Defence Advisory Group, Mumbai
21.	Dr. SSC Shenoi Director Indian National Centre for Ocean Information Services, Hyderabad	29.	Commander Reji K Krishnan SO (Ops) HQGNA, Indian Navy
22.	Dr. Balakrishnan Nair Scientist 'F' & Head ISG Indian National Centre for Ocean Information Services, Hyderabad	30.	Dr. MT Babu Principal Technical Officer National Institute of Oceanography, Goa

31. Mr. M Gupta
Additional Director
Oil Industry Safety Directorate,
New Delhi

32. Mr. Hari Kumar
Skipper Mate
Central Exercise & Customs, Goa

33. Capt. Philip Mathews
Senior Vice President (ISM &ISPS)
Shipping Corporation of India,
Mumbai

34. Mr. Rajesh Sood
Vice President (Tankers)
Shipping Corporation of India,
Mumbai

35. Mr. Goutam Ghosh
Vice President – HSSE & Exploration
BG Exploration and Production (India)

36. Mr. Sarang Deshkar
Manager – COT
Bharat Oman Refineries Ltd,
Jamnagar

37. Mr. K Sakthivetrivel
Manager (OJ/LO)
Chennai Petroleum Corporation Ltd,
Nagapattinam

38. Mr. Abhay Sharma
Sr Manager Offshore Security
Cairn Energy India Pvt Ltd.

39. Capt. Alok Kumar
Head-Marine Operations
Essar (VOTL), Gujarat

40. Mr. RA Mokadam,
Terminal Manager
Finolex Industries Limited, Ratnagiri

41. Mr. Satyanarayan Zanwar
Installation Manager
Hindustan Oil Exploration
Corporation Ltd, Chennai

42. Mr. D Sarveswararao Rao
Senior Manager-Marine,
Hindustan Petroleum Corporation Ltd.
Visakhapatnam

43. Mr. NSR Rajendra
Manager – Operations & Safety
Mangalore Terminal
Hindustan Petroleum Corporation Ltd.

44. Mr. Kuntal Banerjee
Executive Operations Officer
Vasco Terminal
Hindustan Petroleum Corporation Ltd.

45. Mr. Ranu Ram
Chief Operation Manager
WRPL Vadinar
Indian Oil Corporation Ltd.

46. Mr. SK Nandy
Deputy General Manager (HSE)
Pipelines Division
Indian Oil Corporation Ltd.

47.	Mr. V Renganathan Chief Manager (Operations) Indian Oil Corporation Ltd, Mumbai	56.	Mr. R Sitaraman Deputy General Manager (Chemistry) ONGC, Institute of Petroleum Safety, Health & Environment Management, Goa
48.	Mr. A Dasgupta Chief Maintenance Manager Pipelines Paradip Indian Oil Corporation Ltd.	57.	Capt. Hemant Kumar Varma General Manager (Port Operations) Petronet LNG Limited, Dahej
49.	Mr. Abhimanyu Biradar Senior Head Assets Niko Resources Ltd, Hazira	58.	Mr. Sanjiv V Rodi Manager (F&S) & Dy. PFSO Ratnagriri Gas Power Plant Ltd
50.	Mr. S Satyapal General Manager (Production) ONGC, Eastern Offshore, Kakinada	59.	Capt. Rakesh Rawat Reliance Ports & Terminal
51.	Mr. Jitendra Kumar Senior Engineer MRPL, ONGC	60.	Mr. Prashant M Gogate Vice President Reliance Industries Ltd, Jamnagar
52.	Mr. MC Das ED Chief HSE, ONGC, New Delhi	61.	Capt. Sujeet Alvares Marine Technical Advisor Shell India Markets Pvt Ltd.
53.	Mr. CK Mishra ED-COL ONGC, Mumbai	62.	Mr. B Madhusudhana Rao JCEE, ZO-Visakhapatnam Andhra Pradesh Pollution Control Board
54.	Dr. JS Sharma General Manager (Chem) – Head Environment, CHSE, ONGC, New Delhi	63.	Mr. Vijay R Ghadge Senior Environment Engineer Gujarat Pollution Control Board
55.	Mr. Badal Roy General Manager (P) ONGC, New Delhi	64.	Mr. GM Gurudeveprakash Regional Officer Karnataka State Pollution Control Board

65.	Mr. Anupam Behera Senior Environmental Scientist & Nodal Officer, (ICZMP) Orissa State Pollution Control Board	73.	Capt. HK Sibal Deputy Conservator Kandla Port Trust
66.	Ms. Connie Fernandes Goa State Pollution Control Board	74.	Mr. R Vijayan DGM-Marine Services Adani Port Ltd.
67.	Mr. Siddhartha Roy, IFS Senior Environment Officer Department of Environment, Govt. of West Bengal	75.	Mr. Mithilesh Kumar Sinha Pilot Hazira Port Pvt Ltd.
68.	Capt. PT Sadanandan Harbour Master Chennai Port Trust	76.	Mr. KD Gopinathan Asst General Manager MARG Karaikal Port
69.	Mr. Jayant P Raval Dy Manager (Safety) Jawaharlal Nehru Port Trust	77.	Capt. A Jain Mundra Port
70.	Capt. A Karkare Harbor Master Mumbai Port Trust	78.	Mr. Atul Sharma DGM (Environment) Gujarat Maritime Board
71.	Capt. SS Tripathi Deputy Conservator Mormugao Port Trust	79.	Capt. J Maneksha Port Officer Tamil Nadu Maritime Board
72.	Capt. Pravin K Singh Dock Master New Mangalore Port Trust, Mangalore	80.	Mr. SM Rai Director - Technical Indian National Ships Owners Association, Mumbai
		81.	Mr. Satish Patel Vice President (Drilling) Gujarat State Petroleum Corporation