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INDIAN COAST GUARD

(MINISTRY OF DEFENCE)

PROCEEDINGS
OF THE
21ST NOS-DCP AND PREPAREDNESS MEETING
05 AUG 2016

Directorate of Fisheries & Environment, Coast Guard Headquarters, National Stadium Complex, New Delhi 110001
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CENTRAL COORDINATING AUTHORITY
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eq[;ky;/**COAST GUARD HEADQUARTERS** jk"Vªh;
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EP/0720/21st Meeting

Date : 10 November 2016

Proceedings of the Twenty First National Oil Spill Disaster Contingency Plan (NOS-DCP) and Preparedness Meeting held at New Delhi on 05 August 2016

1. The twenty first National Oil Spill Disaster Contingency Plan (NOS-DCP) and Preparedness meeting was held at India International Centre, 40, Max Mueller Marg, New Delhi on 05 Aug 2016. Director General Rajendra Singh, PTM, TM, Director General Indian Coast Guard, chaired the meeting. The meeting witnessed an active participation from various government departments, ports and oil companies. 83 representatives from 47 organizations attended the meeting.

2. The Chairman in his Inaugural address, 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 highlighted few notable incidents in recent times, viz. Grounding of Passenger Vessel MV Qing at Mormugao Port with 350 T of fuel onboard, Grounding of barges Sri Krishna 16, Jubilee 5 and Hansita V off Tuticorin, Veraval and Vizhinjam respectively. The Chairman also mentioned the capsizing of MV Coastal Pride and abandonment of MV Jindal Kamakshi both off Mumbai and appreciated the proactive response and the services provided by all the stakeholders during such incidents, to validate the relevant contingency plans. The Chairman urged all the Coastal States to pursue their crisis management plans for shoreline response in all earnest and requested all stakeholders to update their facility contingency plans and upload the same on the Indian Coast Guard website. The text of the Chairman's Inaugural Address is placed at **Annexure 'A'**.

3. The Inaugural Address was followed by an overview of NOS-DCP activities since the last meeting held in April 2015 by Commandant Bhim Singh Kothari, Director (Environment). The presentation highlighted the imperatives for preparedness of the online submission for Annual Returns, Reports on Joint Inspections and Uploading of facility contingency plans with stakeholders login. An appeal was made to all the stakeholders for contributing their best forthe "***Swachh Bharat Abhiyan***" by ensuring "***Clean Seas***" in their respective areas of operation, so as to prevent marine litter reaching our coasts. A handout of the presentation is placed at **Annexure 'B'.**

4. A presentation on OOSA software indigenously developed by Indian National Centre for

Ocean Information Services (INCOIS) in consultation with the Indian Coast Guard was given by Dr. TM Balakrishnan Nair, Head-ISG & Scientist 'F' INCOIS. He also highlighted the 'potential fishing zone' developed in the OOSA software. A handout of the presentation is placed at **Annexure 'C'.**

5. The software was thereafter launched during the meeting by the Chairman. An online demonstration of the software was also undertaken by the Dr. SJ Prasad, INCOIS to explain the features of OOSA 3.0. A handout of the presentation is placed at **Annexure 'D'.**

6. A presentation on "Need for Ocean Management and Cleaner Coast" was delivered by Dr. MT Babu, Principal Technical Officer from National Institute of Oceanography (NIO), Goa. A handout of the presentation is placed at **Annexure 'E'**.

7. The important issues discussed and deliberated upon during the NOSDCP meeting include preparation of Local Contingency Plans, Surveillance systems by ports against illegal discharge, Tier-1 response time in offshore fields, Well capping device and Approval for application of oil spill dispersant; Online Submission of Contingency Plans, PR training, PR Awareness Programmes, and Evolving effective coordination during mock drills. The discussions and decisions on Actionable Points of previous meetings and New Agenda points are placed at **Annexure 'F'** and **Annexure 'G'** respectively.

8. The Chairman in his Concluding Address, appreciated the sincere efforts made by various agencies to enhance their response preparedness and expressed his gratitude on the active participation by all agencies. He was convinced with the discussions which undoubtedly ensued great promise for safe environment practices at ports, oil terminals and offshore installations. The Chairman exhibited his confidence for gaining and enriching the experiences through such meetings, real-time joint exercises, training and continued interaction, to emerge better preparation to tackle critical issues. He also requested the members to take further necessary action on points deliberated during the meeting, in a timely manner. The Chairman appealed to all the maritime stake holders to contribute their best towards "**Cleaner Seas", a way towards "Swachh Bharat Abhiyan**" by keeping the marine environment clean and litter-free. Towards the end, the Chairman reiterated that oil spills cannot be dealt with by any single agency. Involvement, synergy and cohesion between all the stakeholders is the need of the hour, to mitigate such contingencies through effective and collective response. The text of the Chairman's concluding address is placed at **Annexure 'H'.**

9. A summary of actionable points is placed at **Annexure 'J'.** Glimpses of 21st NOS-DCP and preparedness meeting 2016 is placed at **Annexure 'K'.** The programme of the meeting and the list of delegates attended the meeting are placed at **Annexure 'L'** and **Annexure 'M'** respectively.

10. This is for information and necessary action.

(Bhim Singh Kothari)
Commandant
Director (Environment)

INAUGURAL ADDRESS

Inaugural address

by

Director General **Rajandra** Singh, PTM, TM

Director General Indian **Coast Guard**

Chairman NOS-DCP

Annexure 'A'

(Refers to para 2)

INAUGURAL ADDRESS BY THE DGICG

Regional Commanders of Indian Coast Guard, Officials representing various Ministries and Departments of the Central and State Governments, Members representing ports and oil handling agencies, other stakeholders and distinguished participants.

1. A very good morning and warm welcome to you all for the 21st NOS-DCP and Preparedness meeting. It is indeed a humbling experience to chair the first meeting of this significant forum, since taking over as DGICG on 27 Feb 16.

2. It is heartening to note that there has been no major oil pollution incident in Indian waters during the last one year, though few incidents of groundings and sinking have been reported. Few such notable incidents have been, grounding of Passenger vessel MV Qing at alongside berth in Mormugao Port with 350 T of fuel, grounding of barges Sri Krishna 16, Jubilee 5 and Hansita Five off Tuticorin, Veraval and Vizhinjam respectively. Further, capsizing of MV Coastal Pride and abandonment of MV Jindal Kamakshi both off Mumbai due in severe weather were also reported. These incidents have definitely showcased the proactive response of all the stakeholders and more importantly, they have served to validate the relevant contingency plans.

3. Ladies and Gentlemen, as the stakeholders of NOS-DCP, we have an immense responsibility on our shoulders, that is, to protect our pristine ecology and prepare ourselves for any oil spill contingency in our waters, and that indeed is the objective of this annual meeting. During the course of today's 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 on 09 Apr 15 at Goa.

4. NOS-DCP is our 'Bible' and hence it is imperative that it is kept updated at all times. I am indeed thankful to all the stakeholders for their positive feedback based on which we have been able to undertake a periodic review of this very important and significant document.

A comprehensive and revised edition of NOS-DCP was published and released in last NOS-DCP held in April 2015.

5. I would like to inform this forum, that since the publishing of the revised edition, a couple of significant amendments have been issued. One such amendment has simplified the proforma for joint inspections and annual returns by stakeholders, so as to align it with the new Coast Guard web-interface which has recently been launched. This will notably serve as a single point repository and tool for management of all oil pollution contingency plans.

6. Distinguished Members, as you all are aware that the Coast Guard has instituted numerous measures to facilitate expeditious communication between stakeholders. Circulars and Notices by the Chairman NOS-DCP are regularly being hosted on the Coast Guard website. A single revised common proforma has also been hosted, which can be utilized for rendering annual returns and reports on inspections. Here, I would urge all stakeholders for positive steps towards fulfillment of the requirements set out in these Circulars.

7. Towards capacity building, one more Pollution Control Vessel (PCV), Samudra Pavak has been added to ICG inventory in January this year. We have chosen to based the vessel at Porbander in close proximity of the ecologically sensitive area of the Gulf of Kutch.

8. Further, under the ‘Digital India Campaign’ ICG has launched an interactive website tool which is more user friendly and simple. All the stakeholders will register themselves on the website and submit their Facility Contingency Plans, Annual Returns, as well as Report on Joint Inspections on time, all online.

9. As you all are aware, the ‘International Coastal Cleanup’ day is conducted across the world, on the third Saturday in September every year, under the aegis of United Nations Environment Programme (UNEP) and the South Asia Co-operative Environment Programme (SACEP). The Coast Guard has been actively involved in this activity since 2006. I would like to inform this august gathering that last year nearly twenty thousand volunteers across all the coastal states participated in the ICC. We need to continue this effort and spread awareness on the necessity to keep our pristine coasts and environment clean and thereby also contribute towards the ‘Swachh Bharat Abhiyaan’.

10. I would urge all coastal States to pursue their crisis management plans for shoreline response in all earnest. I would also request all stakeholders to update their facility contingency plan in adherence to the guidelines contained in the NOS-DCP and upload on the Indian Coast Guard website.

11. You would be aware that the requirement of Joint Inspection of ports and oil handling agencies by the Coast Guard together with the Ministry of Shipping and the Oil Industry Safety Directorate is inevitable. I wish, in near future, we could endeavor our best coordinated efforts for accomplishing the joint inspections within a scheduled and stipulated time in order to enhance the capabilities of oil spill preparedness.

12. I would like to congratulate INCOIS, who based on a Coast Guard proposal, has developed a free SMS service to the fishing community, for disseminating advisories on Fishing Avoidance Zones in the event of an oil spill, which are in sync with our initiatives towards progress on the national plan. I am sure this tool will prove to be of immense utility to all fishermen.

13. The 6th edition of the National Level Pollution Response Exercise scheduled last year could not be conducted owing to the severe floods at Chennai. We shall be holding the exercise soon and I would request all the stakeholders to participate and contribute wholeheartedly. The utilization of IAF aircraft Hercules C-130J for deployment of Aerial Dispersant Spray System has already been integrated into the national plan and the Coast Guard is working closely with the aircraft and equipment manufacturers, for acquiring this state-of-the-art equipment. Once acquired, it will significantly strengthen our national oil spill response capability.

14. All of us will agree that even the best of equipment would be in vain if we do not possess trained and motivated manpower that would respond to contingencies swiftly and regularly rehearse the response procedures. Needless for me to say, that in spite of numerous hurdles and hindrances, we have quite appreciably, pulled together this far. Nevertheless, I would like to emphasize that it is important to have necessary preventive measures and to maintain adequate preparedness for any oil spill contingency, which will be only be possible, if each one of us works together towards this common goal.

15. Before I conclude, I would like to compliment all the stakeholders for active participation which is reflected in the action taken report and agenda proposals that we have received. I look forward to successful and positive deliberations during the meeting.

Vayam Rakshamah… Jai Hind.

PRESENTATION
ON
NOS-DCP OVERVIEW

Presentation on "NOS-DCP Overview"

by

Commandant Bhim Singh Kothari

Director (Environment)

Annexure 'B'

(Refers to para 3)

NOS-DCP OVERVIEW

OVERVIEW OF NOS-DCP

Commandant Bhim Singh Kothari
Director (Environment)
Coast Guard Headquarters

1/18

INDIA'S MARITIME STAKE

- 2.01 million sq km of EEZ (2/3rd of India's Continental mass)
- 7516 km coastline
- 9 Coastal states / 4 Uts
- 12 Major & 200 non-major ports
- Majority of industries along the coast
- 2.5 lakh fishing vessels (2nd Largest in world)

2/18

RISK OVERVIEW

- 2nd largest consumer of oil after China
- 70% of the world oil demand through the SLOCs
- Major ports of India handle over 7,000 tankers each year
- Over 80 companies are in operation in 228 offshore blocks and fields
- 6th largest energy market
- Production 32-33 mmtpa

3/18

TRANSFER OF RESPONSIBILITY

- Ministry of Defence Office Memorandum of 07 Mar 1986
- Amendment to the Government of India (Allocation of Business) Rules, 1961 vide Gazette notification dated 12 December 2002
- Indian Coast Guard designated Central Coordinating Authority

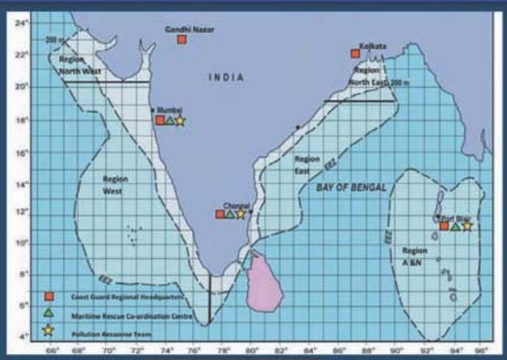
4/18

CHRONOLOGICAL ORDER OF NOS DCP

- First promulgated in July 1996
- Updated in 1998, 1999, 2000, 2002, 2006, and comprehensively revised in 2015
- Originally designed for responding to oil spills in Indian Waters
- Revised version facilitates national preparedness to HNS incidents and also fulfils obligation to have in place national plan to respond to HNS incidents
- Revised NOS-DCP 2015 comprises nine Chapters and 41 Appendices

5/18

NATIONAL POLLUTION RESPONSE AREA



2.01 MILLION SQ KMS

6/18

HIERARCHY OF CONTINGENCY PLAN

National Oil Spill Disaster Contingency Plan

↓

Regional Oil Spill Disaster Contingency Plan

↓

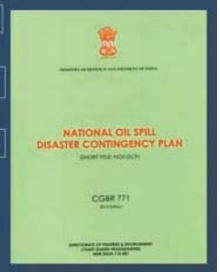
District Oil Spill Disaster Contingency Plan

↓

State Oil Spill Disaster Contingency Plan

↓

Facility Plan



7/18

FACILITY CONTINGENCY PLAN

	Number	Plans received by ICG	Plans approved	Plan being analyzed by ICG	Plans awaited
Major Ports	12	4	1	3	8
Non-Major Ports	26	3	3	--	23
Oil Handling Agencies	46	**7**	7	--	39

8/18

STATUS OF LOCAL CONTINGENCY PLAN

	Number	Plans received by ICG	Plans approved	Plan being analyzed by ICG	Plans awaited
Coastal States and U/T	13	3	1	2	10

9/18

IMO LEVEL 1 TRAINING

- Develop pool of trained manpower for meeting National PR commitments
- Conducted by PRTs and ICGS Vadinar
- 1800 personnel from both public and private sector trained till date

130 personnel trained at Mumbai, Port Blair, Vadinar and Chennai since last NOS-DCP

10/18

IMO LEVEL 2 TRAINING

- The Indian Coast Guard jointly with AMET University, Chennai conducts IMO OPRC Level II training at Chennai
- 40% of faculty assistance provided by Coast Guard
- 48 Coast Guard Officers and 296 personnel from stakeholders trained till date

Next IMO OPRC Level II course is scheduled from 29 Aug-02 Sep 16

11/18

MOCK DRILLS AND EXERCISES

11 Mock Drills
and
10 Pollution Response Exercises
conducted since last NOS-DCP

12/18

JOINT INSPECTIONS (2015-16)

	Total	Joint Inspections Proposed	Joint Inspections conducted
Major Ports	12	05	02
Oil Handling Agencies	46	32	16


13/18

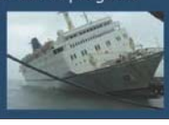
ANNUAL RETURNS (2015-16)

Agencies	Total	Received	Not Received
Major Ports	12	08	04
Non-Major Ports	26	13	13
Oil Handling Agencies	46	21	25


14/18

GROUNDING OF MV QING

- On 29 Jun 16, ICGS Samarth reported MV Qing listing 15-20 deg to starboard at WISL Jetty, Mormugao Port
- Vessel subsequently touched bottom with even keel
- 350 tons fuel likely onboard
- Containment boom deployed by ICGS Samudra Prahari
- M/s Sea Care Marine hired by Charterer
- P & I Club agreed for 3rd party cover including removal of oil and covering damages due to Oil Pollution
- M/s Resolve Salvage and Fire engaged for salvage
- Operation still in progress




15/18

INTERNATIONAL COASTAL CLEANUP

- 3rd Saturday of every year
- Last ICC conducted on 19 Sep 15
- Nationwide participation across all coastal states
- About 20,000 individuals participated
- Approx 69,000 Kgs marine litter collected



16/18

"Cleaner Seas" .....

a way towards

"Swachh Bharat Abhiyan"

17/18

Thank you

18/18

PRESENTATION
ON
OIL SPILL ADVISORY SYSTEM (3.0)
AND POTENTIAL FISHING ZONE

Presentation on

"Oil Spill Advisory System (3.0) and Potential Fishing Zones"

by

Dr. TM Balakrishan Nair, Head - ISG & Scientist 'F'

Indian National Centre for Ocean Information Services

Annexure 'C'

(Refers to para 4)

ONLINE OIL SPILL ADVISORY SYSTEM(3.0)

DR.T.M.BALAKRISHNAN NAIR

SCIENTIST F & HEAD

ESSO – INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES

MoES, Govt of India, Hyderabad,

Date : 05.08.2016

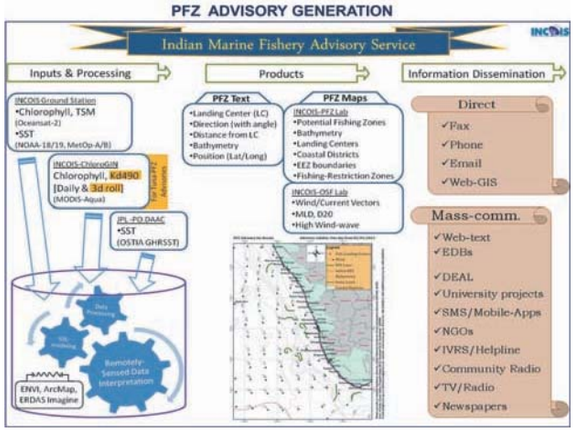
ESSO

INCOIS

RECENT UPGRADATIONS IN VERSION 3.0

- Included the Oil Spill reporting form (as per IMO standards) in ver 3.0
- Integrated 1/12 deg currents into the existing system along with 1/48 deg currents for west coast
- Introduced the trajectory prediction from drifting source and the spill along the line source
- Included the geomorphological classes along with the trajectory
- Included the Potential fishing zone advisory in order to distinguish the Fishing avoidance zone and the fishing zones

PFZ ADVISORY GENERATION



MARKING ECOSENSITIVE ZONES

- IRS-P6 LISS-IV/III, Landsat ETM and Digital Terrain Model (DTM) data were used to extract the coastal geomorphology
- The satellite data were geo-corrected using the reference image, projected to the Universal Transverse Mercator (UTM) projection system.
- The coastal geomorphic classes were then extracted based on the visual interpretation keys using on-screen digitization technique.
- The coastal geomorphology was interpreted based on the dominant geomorphic class representing the section of coastal zone (500m).
- Using the topographic information from the DTM, cliff areas were identified and classified.

FUTURE PLANS IN OOSA

1. Drifter deployment and validation
2. OOSA mobile App (Windows/Android)
3. Integration of multiple spills(seeding the source at different locations)
4. Seasonwise trajectory prediction

SVP DRIFTERS TO BE DEPLOYED

INAUGURATION OF OOSA 3.0 & DEMONSTRATION

PRESENTATION
ON
ONLINE DEMONSTRATIONS OF OIL SPILL ADVISORY SYSTEM (3.0)

Presentation on

"Demonstration of Online Oil Spill Advisory System (3.0)"

by

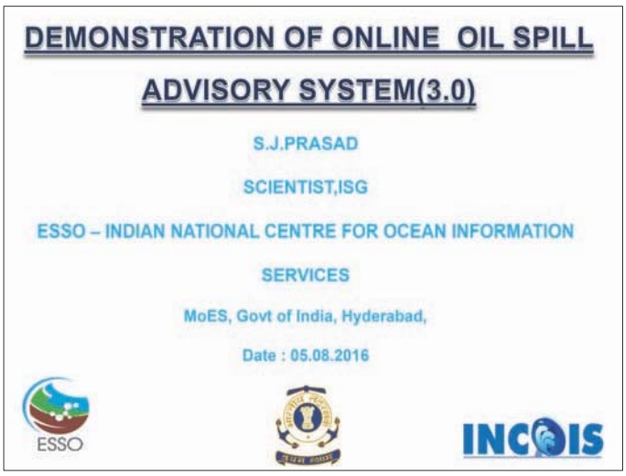
Dr. SJ Prasad

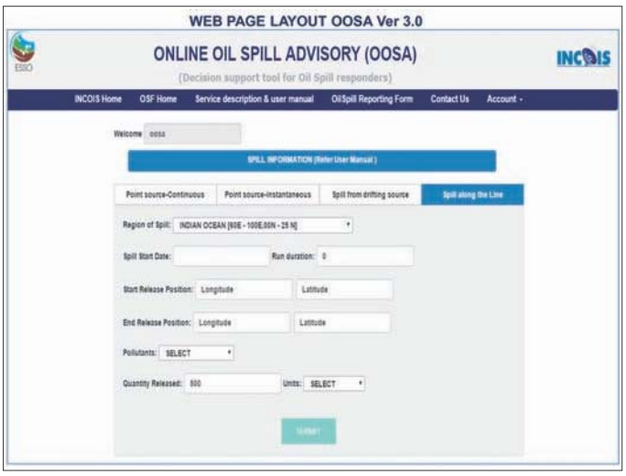
Indian National Centre for Ocean Information Services

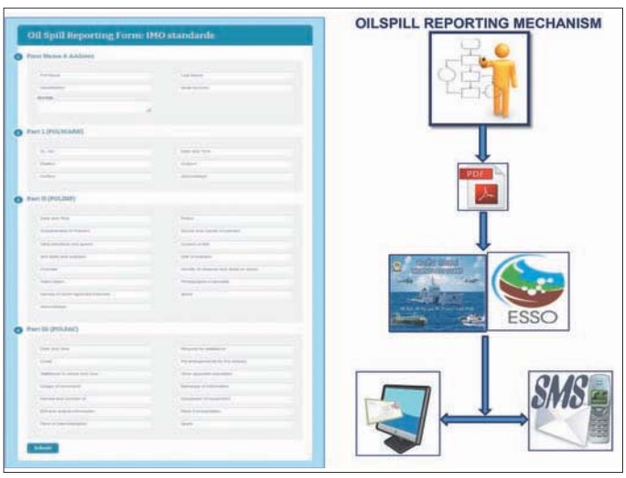
Annexure 'D'

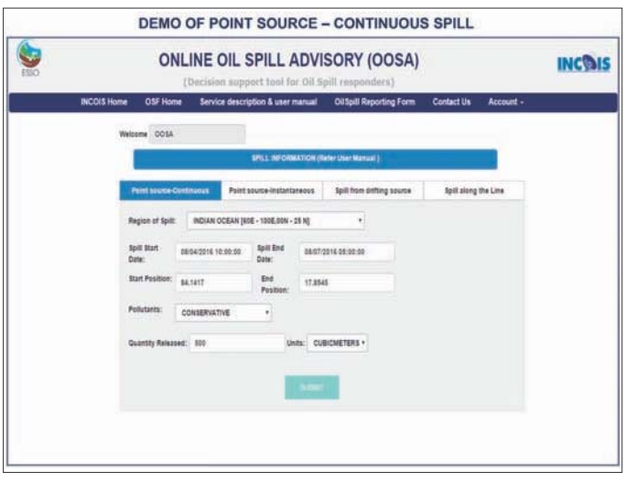
(Refers to para 5)

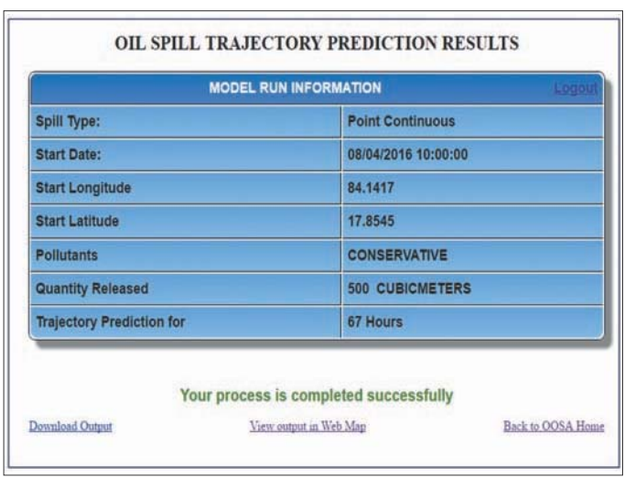
DEMONSTRATION ON ONLINE OIL SPILL ADVISORY SYSTEM (3.0)











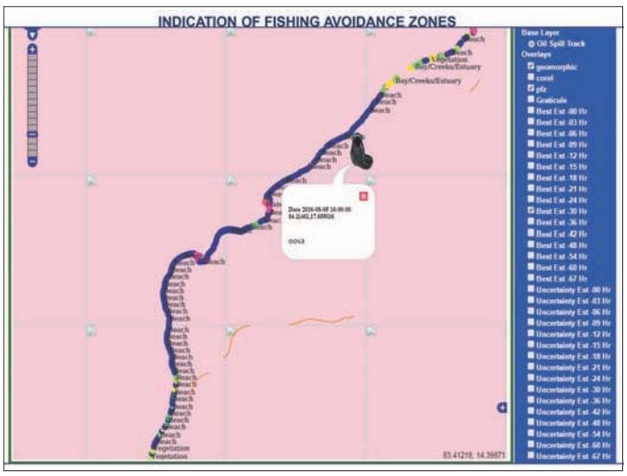
OIL SPILL TRAJECTORY PREDICTION RESULTS

MODEL RUN INFORMATION	Logout
Spill Type:	Point Continuous
Start Date:	08/04/2016 10:00:00
Start Longitude	84.1417
Start Latitude	17.8545
Pollutants	CONSERVATIVE
Quantity Released	500 CUBICMETERS
Trajectory Prediction for	67 Hours

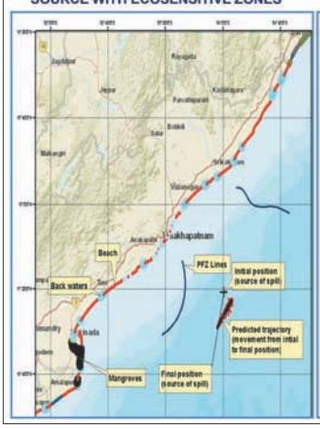
Your process is completed successfully

Download Output View output in Web Map Back to OOSA Home

INDICATION OF FISHING AVOIDANCE ZONES



TRAJECTORY PREDICTION FROM MOVING SOURCE WITH ECOSENSITIVE ZONES



TRAJECTORY PREDICTION ALONG LINE SOURCE WITH ECO SENSITIVE ZONES

FUTURE PLANS IN OOSA

1. Drifter deployment and validation
2. OOSA mobile App (Windows/Android)
3. Integration of multiple spills(seeding the source at different locations)
4. Seasonwise trajectory prediction

SVP DRIFTERS TO BE DEPLOYED

THANK YOU

"Environmental protection is a fundamental duty of every citizen of this country under Article 51-A(g) of our Indian Constitution"

(http://115.113.76.60/Newoilspill/Login.jsp)

PRESENTATION
ON
NEED FOR OCEAN MANAGEMENT AND CLEANER COAST

Presentation on

"Need for Ocean Management and Cleaner Coast"

by

Dr. MT Babu, Principal Technical Officer

National Institute of Oceanography

Annexure 'E'

(Refers to para 6)

NEED FOR OCEAN MANAGEMENT AND CLEANER COAST

Need for ocean management and cleaner coast

Dr. M. T. Babu
National Institute of Oceanography,
Dona Paula – 403 004 Goa

NIO
understanding the seas

Why should we bother about marine pollution

- marine living resources and food chain
- marine ecosystem & bio diversity
- recreational activities on beaches
- tourism & economy of the country
- impact on navigation, marine structures

Coastal pollution

Definition

"Introduction of man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harmful to living resources, hazard to human health, hindrance to marine activities including fishing, impairment of quality for use of sea-water, and reduction of amenities." – GESAMP

Marine pollution

General impacts

- Impacts on marine living resources
- Hazards to human health
- Hindrance to marine activities
- Impairment of quality of seawater (swimming, intake points)
- Reduction of amenities
- Loss of aesthetic beauty
- Impacts on the sensitive habitats

Sources of pollution

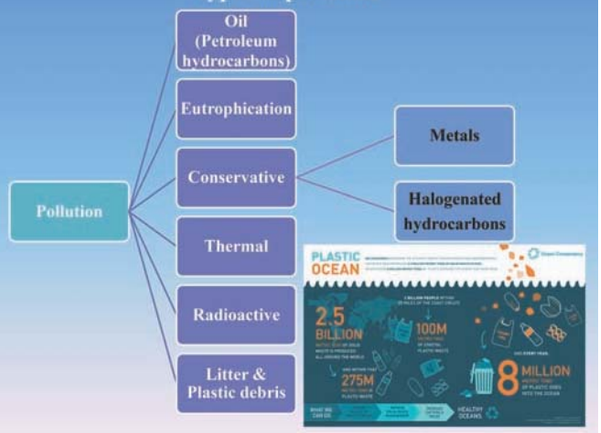
Land-based sources

- Agricultural run-off
- Municipal and industrial wastes

Sea-based sources

- Oceanic dumping
- Offshore oil spills

Types of pollution



Oil pollution

Oil pollution is mostly used to describe marine oil spills, where oil is released into the ocean or coastal waters.

Oil spills are due to the following:

- crude oil from tankers
- offshore platforms
- drilling rigs and wells
- spills of refined petroleum products (such as gasoline, diesel)
- spill of any oily refuse or waste oil

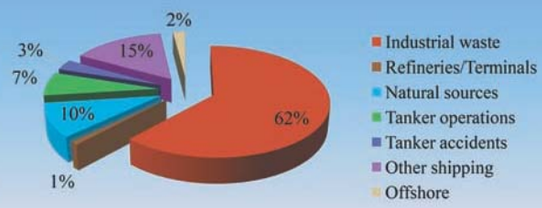
Causes for **oil spill**

- Accidents involving tankers, barges, pipelines, refineries and storage facilities
- Oil well blow-out
- Natural disasters such as cyclones
- Deliberate acts by terrorists, countries at war or illegal dumpers

- 7 August 2010 - MSC Chitra collided with MV Khalijia – III about 10 km off Mumbai coast
- 2662 tonnes fuel oil
  283 tonnes diesel
  88040 litres of lubricant
- 1200 containers (sodium hydroxide & pesticides)
- vessel tilted 45 degrees soon after collision
- spillage of about 400 tonnes
- Coast Guard began combating operation using oil spill response vessels and aircrafts for spraying dispersants

Oil pollution

Sources

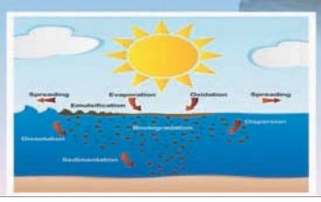


Source: UNEP

Fate of oil

Contd..

- When oil is spilled on sea it spreads over the surface to form a thin film – called oil slick
- Light oil spreads faster than heavy wax oil
- Low molecular weight fractions evaporate
- Water soluble components dissolve
- Non-water soluble components emulsify and forms a viscous mass – "chocolate mousse"
- Heavy residues form tar balls

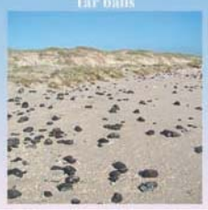


Oil pollution

Fate

Chocolate mousse

Tar balls



Oil pollution

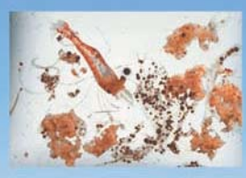
Impacts

- Effects – Impairment of marine life
- Plankton, esp. neuston at highest risk – exposed to water soluble components leaching from oil
- Fixed vegetation –Sea grass beds– killed or flowering inhibited
- In Mangroves – lenticels clogged with oil oxygen level in sediments drops – death
- Sea birds –buoyancy and thermal insulation lost

Oil pollution

Impacts

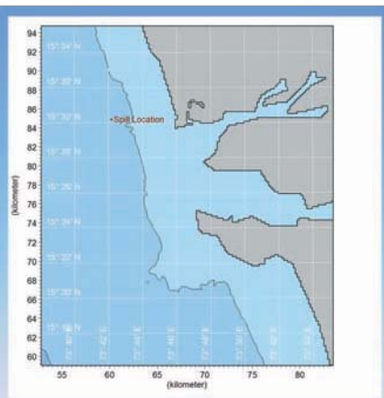
- Commercial damage
- Mortality of fish, reduction in catch
- Death of fish eggs and larvae
- Tourism – becomes nuisance – avoided by beach goers – loss of revenue
- Loss of sensitive marine habitats – loss of flora and fauna



MARITIME WISDOM – Case study

Event considered for oil spill trajectory

- 23 March, 2005, iron-ore barge 'Prapti' collided with a Singaporean bulk carrier 'Maritime Wisdom'.
- 4 nautical miles off Aguada, Goa
- Spilled about 110 tonnes of HFO.
- Rupture was sealed and the remaining cargo was transformed to another tank.
- Oil spread over an area of 2.3 miles^2
- Dispersant treatment was carried out.
- 25 March 2005, pollution response was withdrawn.

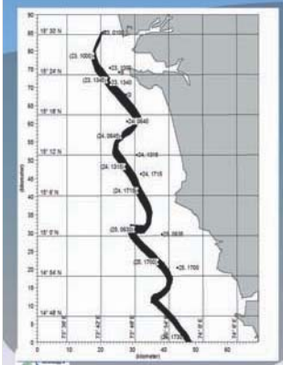


Oil spill off Goa, March 2005

NIO

Heavy fuel oil spillage (of the above event)

Modeling of oil spill occurred off Goa: importance



- Oil spill occurred off Goa on 23 March 2005.
- Relatively stronger winds prevailed, and these winds forced the spill to move away from the coast.
- The observed spill trajectory and the positions provided by the Indian Coast Guard were in good agreement with the model simulations.
- This study illustrates the importance of having pre-validated spill trajectories of select eco-sensitive regions for planning suitable response strategies in the event of spill episodes

NIO

Tar ball along the coast of Goa & Karnataka

Goa-27-05-14

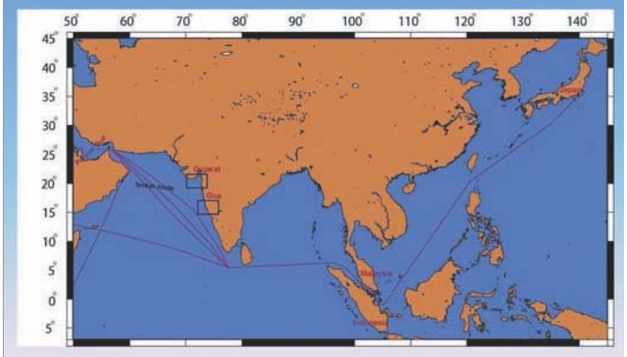
Karwar-08-06-14

Goa-08-06-14

The Need for tar ball studies:

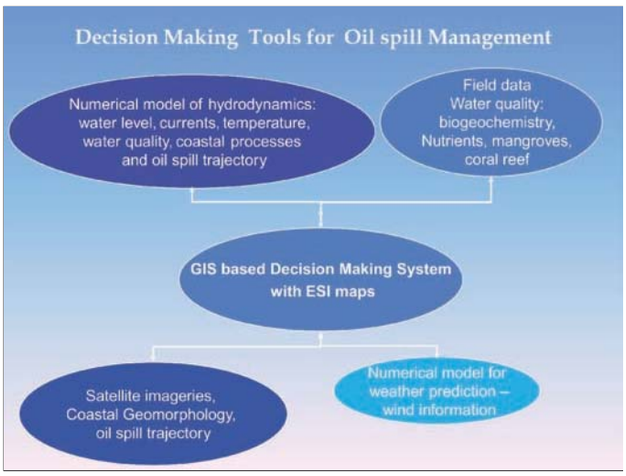
- Court requirement (PIL): Role of CSIR-NIO and Coast Guard
- Parliament questions: Role of CSIR-NIO to the society
- What are the source oils for these tar ball formation?
- DST Project: Identification of source of oil spill / tar ball (Finger-printing Lab)

Possible inputs of oil spills in the Arabian Sea



Bhn oil fields

Finger-printing Lab (GC-MS-IRMS)


Decision Making Tools for Oil spill Management
Numerical model of hydrodynamics: water level, currents, temperature, water quality, coastal processes and oil spill trajectory
Field data Water quality: biogeochemistry, Nutrients, mangroves, coral reef
GIS based Decision Making System with ESI maps
Satellite imageries, Coastal Geomorphology, oil spill trajectory
Numerical model for weather prediction – wind information


THANK YOU

ACTIONABLE POINTS OF PERVIOUS MEETING

Annexure 'F'

(Refers to para 7)

DISCUSSION AND DECISION ON ACTIONABLE POINTS OF PREVIOUS MEETINGS

1. **Preparation of Local Contingency Plan.**

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 NOS-DCP. 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.

Deliberations

Director (Environment) apprised that whilst Local Contingency Plan (LCP) of Goa has been approved, two LCPs from A&N and WB have been received at CGHQ and are being scrutinized. The Regional Commanders apprised the Chairman on the status LCPs of Coastal States / UTs, in their area of responsibility. Further, the stake holders were also apprised that ESI mapping for the entire coastline is being undertaken by MoEF & CC through National Centre for Sustainable Coastal Management (NCSCM) and the same is in final stage of completion. DDG (Ops &CS) apprised the forum that under 'Digital India' program, ICG had designed a new web page wherein the stake holders can submit the Contingency Plan, Annual Equipment Return and Joint Inspection Reports online through ICG website.

Decision

Coastal States/ Union Territories to progress Local Contingency Plan for early promulgation. Coast Guard Regional Commanders may continue to render guidance and support to the State Governments. Plans to be submitted online. **Point to be retained.**

Action by. All Coastal States/UTs

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2. **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

Director (Environment) apprised the forum that MoS and OISD have issued directives for installation of radar detection capabilities. Whilst some stakeholders suggested for a common software, Director (Environment) stated that the software being designed would be Radar specific and hence standardization would be difficult since different stakeholders were using different radars. The stakeholders, therefore, needed to procure hardware and software compatible to the radar installed. During the course of deliberations, it came to light that M/s ONGC had approached Indian National Centre for Ocean Information Services (INCOIS) for developing a radar monitor software for oil spill detection for installation at Bombay High and onboard MSVs / OSVs. Consequently, PD (Ops) sought for updates (if any) from M/s ONGC / INCOIS.

The ONGC rep stated that discussions were still on with INCOIS regarding development and installation procedures and informed the chair that a solution for implementation of the same would be arrived at shortly. The representative of INCOIS informed the forum that a feasibility studying was in progress to integrate '**Oil Spill Detection Software**' with '**OOSA'**.

Decision

All ports and oil agencies to undertake fitment of radar based Oil Spill Detection System, at early date. All Regional Commanders to monitor progress. **Point to be retained.**

Action by. Ports and OHA

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

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

Deliberations

Director (Environment) informed that directives issued by OISD regarding operations by offshore

installation clearly indicates timely deployment of Tier-1 Oil spill response equipment. The rep of M/s ONGC intimated that a max response time of 6 hrs was required at Bombay High considering the distances involved from the shores, however, OSVs at sea with the relevant equipment fitted would be able to respond in 01 hr.

Decision

All stakeholders to ensure Tier-I capability for immediate response. In case of unforeseen scenarios, stakeholders may take assistance of other companies / agencies under a MoU. **Point to be closed.**

Action by. Ports and OHAs

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4. **Well Capping Device.**

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.

Deliberations

The cost implications for taking membership from a service provider towards offshore capping as forwarded by M/s ONGC, were flashed on screen by Director (Environment). M/s ONGC intimated that membership for offshore capping was not a beneficial proposition, since the capping device would need modification by the service providers, as per the blowout. The rep of M/s ONGC apprised the Chairman that the company's 'Crisis Management Team' had developed adequate expertise towards developing / modification of capping device including the lowering methodology.

PD (Ops) cited an incident wherein a gas leakage on the East Coast was capped after a lapse of 45 days. He highlighted the magnitude of disaster that would have been caused, had the incident involved an Oil leak. The Chairman advised M/s ONGC to reduce the response time in such cases to a maximum of 7 to10 days. DDG (OPS & CS) requested ONGC rep to intimate the minimum and maximum time envisaged for modification and capping a blowout to which the ONGC rep intimated that they would forward the complete details at the earliest. In conclusion, the Chairman stated that M/s ONGC had the best expertise including MoU with reputed foreign companies.

Decision

A paper exercise be undertaken for evaluating the Contingency Plans to ascertain the minimum and maximum time for controlling a blowout. **Point to be closed.**

Action by: HQ CGC (WS) and M/s ONGC

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5. **Approval for application of Oil Spill Dispersant (OSD).**

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

Deliberations

Director (Environment) apprised the forum that a meeting was held on 12 Jul 16 at CGHQ and attended by ICG, MoEF & CC and NIO wherein it was decided that on completion of Environmental Sensitive Index Mapping by MoEF & CC**, "NO OSD USE"** area would be identified. The same would, thereafter, be promulgated through a Chairman's Circular. He also stated that in areas other than "NO OSD USE" areas, approval for application of OSD was not recommended, since the window of opportunity for OSD application is limited. However, it was prudent that only type approved OSD be used.

During the course of deliberations it came to light that some companies were supplying substandard Oil Sill Dispersants. The Chairman directed NIO to ensure that the OSD tests are strictly undertaken as per laid down specifications. He stated that NIO needs to be to be stringent in their test procedures and certify only those companies that meet the specifications.

Decision

On completion of Environmental Sensitive Index Mapping by MoEF & CC, **"NO OSD USE"** area to be identified in consultation with MoEF & CC and other concerned agencies. The same will be promulgated through Chairman's Circular. **Point to be retained.**

Action by : MoEF & CC and CGHQ

NEW AGENDA POINTS

Annexure 'G'

(Refers to para 7)

DISCUSSION AND DECISION ON NEW AGENDA POINTS

1. **Online submission of Contingency Plan.**

In order to facilitate easy submission of Contingency Plans, ICG has launched new website under the 'Digital India' program. Stake holders can submit their Contingency plan, Annual Returns and Joint Inspection

Proposed by: CGHQ

Deliberations

Director (Environment) gave a demonstration of the new website www.indiancoastguard.gov.in and requested all stake holders to register on priority.

Decision

Stakeholders to register themselves with new Coast Guard website and upload their Contingency Plans, Annual Returns and Joint Inspection reports. A Circular to this effect be issued and hosted on CG Website. **Point to be closed**.

Action by: All Coastal States/UTs, CGHQ, Ports and OHAs

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2. **IMO level training for all.**

IMO Level - I training must be open for all and not be limited to government employees only.

Proposed by: NMPT

Deliberations

No representative of NMPT was present to update on the exact requirement. It was brought out that probably NMPT and some other ports have hired agencies for provisioning of Tier-I response

facility. Such agencies do not have adequate trained manpower and hence ports recommend training of such manpower by the Coast Guard.

Decision

Director (Environment) to discuss the issue with NMPT and ascertain the feasibility of imparting one time training. The trained manpower, however, need to continue working with the port for atleast 2-3 years. **Point to be closed.**

Action by: CGHQ and NMPT

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3. **Application of OSD**.

Type of OSD to be used in particular area must be well defined so that time is not wasted at the time of actual incident.

Proposed by: NMPT

Deliberations

Point already discussed as **Actionable Point 5**.

Decision

On completion of Environmental Sensitive Index Mapping by MoEF & CC, **"NO OSD USE"** area to be identified in consultation with MoEF & CC and other concerned agencies. The same will be promulgated through Chairman's Circular. **Point to be retained.**

Action by : MoEF & CC and CGHQ

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4. **PR Awareness Programme**.

Training for awareness programme like Conferences, Table Top Exercises etc. apart from routine Mock drills, on Oil Contingency Plan.

Proposed by: VO Chidambaranar Port Trust

Deliberations

No representative of VO Chidambaranar Port Trust was present to update on the exact requirement. However, Director (Environment) brought out that the Coast Guard Headquarters promulgates Annual Training Programmes and the same is hosted on ICG website. During the course of the training, Class Room Instructions, Tabletop Exercises, Seminars, Mock drills and PR equipment demonstrations are conducted.

Decision

RHQ (East) to follow up on the proposal in liaison with VO Chidambaranar Port Trust. **Point to be closed.**

Action by : RHQ(E)

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5. **Evolving Effective Coordination**.

Co-ordination System to be evolved with various Local District Administrations for combined action in case of Oil Spill.

Proposed by: VO Chidambaranar Port Trust

Deliberations

Director (Environment) brought out that all the Coastal States, Ports and Oil Handling agencies are yet to prepare their contingency plans. Coordination and contact details are part of the plan and hence once plans are in place, all the coordination issues will be resolved.

During the course of deliberations, it came to light that the issue mainly pertains to lack of response from the State Administration during conduct of mock drills. DDG (Ops &CS) brought out that all the LCP's are to be in place and regular mock drills to be conducted for achieving effectiveness. The periodicity of mock drills is mentioned at para 4.15 of NOS-DCP.

Decision

In order to develop synergy and effective coordination amongst the stakeholders, mock drills to be conducted atleast twice a year. **Point to be closed.**

Action by: All Coastal States/UTs, RHQs, Ports and OHAs

6. **Promulgation of detailed guidelines for PR equipment.**

Ports have initiated action of procuring additional equipment. However, it is seen that though matrix provided in NOS-DCP CGBR-771 is used, the guidance is not sufficient to tender out. As there are various specifications required such as tensile strength, material gradation etc. thereby allegations are raised about wrong specification etc. Hence detailed guidelines should be given by Coast Guard.

Proposed by: MbPT Port

Deliberations

During the course of discussions, PD(Ops) requested MbPT to clarify the exact requirement. The rep of MbPT stated, that it was difficult to finalize specifications for procurement of new PR equipment. The same concern was also expressed by Visakhapatnam Port Trust (VPT). Both MbPT and VPT requested ICG to offer advice on the type and specification of equipment to be procured. VPT rep suggested that the ICG may undertake a study and thereafter formulate standardized specifications.

It was brought out by the ICG that it had been procuring PR equipment from reputed companies dealing with PR equipment and the details of such companies / agencies could be obtained from the Coast Guard. Ports and OHAs may approach these reputed world class PR equipment manufacturers, for procuring quality equipment.

Decision

Standardized PR Equipment to be procured by all Coastal States / UTs, ports and OHAs as laid down in the NOS-DCP. Clarification, if any, be obtained from RHQs / CGHQ. **Point to be closed.**

Action by: All Coastal States/UTs, Ports and OHAs

ADDITIONAL POINTS DISCUSSED/ BROUGHT OUT BY THE STAKEHOLDERS

7. The following additional points were raised and discussed :-

(a) **Contingency Plan for HNS**. The point was raised by rep from JNPT, who brought out that contingency plans also need to be formulated for HNS cargo. During the course of the deliberations, it was brought out that though the Central Pollution Control Board during an audit could not identify HNS cargo being imported / exported, very few HNS would be Marine pollutants and hence may not be of interest to the Coast Guard, Ports or OHAs. Out of the approx 130 HNS cargo, only about 20 could possibly pollute water. The Chairman requested JNPT to incorporate HNS contingencies in their Contingency Plan and directed RHQ(W) to discuss with JNPT, the actions that need to be initiated in case of a HNS incident and also ascertain what assistance they would need from the ICG, in case of a HNS incident.

(b) **MoUs for Tier-1 Facilities**. The Harbour Master of Hazira Port intimated, that as far as Tier-1 facilities were concerned, the port had signed MoU with six stakeholders and accordingly their Contingency Plan has been submitted for ICG approval. Addressing the issue, DDG (Ops &CS) brought out that, it was prudent to ascertain whether the Tier-1 facilities being provisioned under such MoU's are enough to meet the response at two or more ports, simultaneously. The issue needs to be discussed by the port with the respective Regional Commanders, prior forwarding the contingency plan for approval.

(c) **Training on OOSA software**. The rep from INCOIS recommended training of all Coast Guard officers on OOSA for optimum usage. This point could be an outcome of the 21st NOS-DCP. DDG (Ops & CS) whilst agreeing with the proposal stated that the same could be planned in due course of time. He also requested all the stakeholders to run / use the software on regular basis / during contingencies and maintain records for the same.

CONCLUDING ADDRESS

Annexure 'H'

(Refers to para 8)

CONCLUDING ADDRESS BY THE DGICG AT THE 21ST NOS-DCP AND PREPAREDNESS MEETING AT NEW DELHI ON 05 AUG 2016

Good afternoon Ladies and Gentlemen,

1. I was happy to note that the discussions today have been fruitful and were held in a free and frank atmosphere. It was a pleasure to witness the active participation of all the agencies during today's meeting. The discussions have undoubtedly ensued great promise for safe environment practices at ports, oil terminals and offshore installations and I have no doubt that sincere efforts are being taken by various agencies to enhance their response preparedness.

2. The presentations were very informative and have provided valuable insights into Fishing Avoidance Zone Advisory for fishermen. Further, many valuable suggestions have come forth, to further enhance our oil spill response preparedness. I am confident, that we stand to gain, and enrich our experiences through such meetings, real-time joint exercises, training and continued interaction, to emerge better prepared to tackle critical issues. One significant milestone set in today's meeting was the release of the SMS facility for fishermen on Fishing Avoidance Zone Advisory, developed by INCOIS and I convey my heartfelt compliments to the INCOIS team.

3. I would like to reiterate, that oil spills cannot be dealt with by any single agency. Involvement, synergy and cohesion between all the stakeholders is the need of the hour, to mitigate such contingencies through effective and collective response. 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.

4. Before I conclude, I would like express my compliments to DDG (Ops & CS) and his team for such an excellent arrangement and smooth conduct of this meeting. I would also like to convey my appreciation to all the members who have attended the meeting today and actively participated in the debates and discussions with fervent enthusiasm.

Thank you. Jai Hind.

ACTIONABLE POINTS

Annexure 'J'
(Refers to para 9)

ACTIONABLE POINTS OF 21st NOS-DCP AND PREPAREDNESS MEETING

1. **Preparation of Local Contingency Plan**

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 NOS-DCP. As a part of the Local Contingency, Coastal States may also pursue provision of trailer mounted inventory for shoreline response to oil spills. Regional Commanders may continue to render guidance and support to the State Governments.

Action by : All Coastal States/UTs, Ports & OHAs

2. Fitment of oil detection system is critical for early detection of accidental/ unreported oil spills. All ports and oil agencies are to undertake fitment at an early date. All Regional Commanders are to monitor the progress.

Action by : All Coastal States/UTs, Ports & OHAs

3. On completion of Environment Sensitive Index Mapping by MoEF & CC, **"NO OSD USE"** area to be identified in consultation with MoEF & CC and other concerned agencies. The same will be promulgated through Chairman's Circular.

Action by : MoEF & CC, CGHQ, NIO and other concerned agencies

Annexure 'K'

(Refers to para 9)

GLIMPSES OF 21ST NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN AND PREPAREDNESS MEETING


21st National Oil Spill Disaster
Contingency Plan & Preparedness Meeting
05 Aug 2016


05 Aug 2016
India International Centre, New Del

PROGRAMME

Annexure 'L'

(Refers to para 9)

PROGRAMME

21st NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN

AND PREPAREDNESS MEETING

Date : 05 Aug 2016

Venue : India International Centre, 40, Max Mueller Marg, New Delhi-03

Ser	Time	Event
0501	0930	Delegates Arrive & Registration
0503	1000	Chairman Arrives
0505	1005	Inaugural Address by the Chairman, NOS-DCP
0507	1015	NOS-DCP Overview by Director (Environment)
0509	1030	Presentation on "Need for Ocean Management and Cleaner Coast" by Dr. MT Babu, Principal Technical Officer, National Institute of Oceanography
0511	1040	Presentation on "Potential Fishing Zones" by Dr. TM Balakrishnan Nair, Head - ISG & Scientist 'F' Indian National Centre for Ocean Information Services
0513	1100	Tea Break
0515	1120	Discussion on Actionable points and Agenda points
0517	1245	Closing Address by the Chairman, NOS-DCP
0519	1250	Lunch

Note : Rig 8As for Service Officers

PARTICIPANTS LIST

Annexure 'M'

(Refers to para 9)

21st NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN (NOS-DCP)
AND PREPAREDNESS MEETING - 05 AUG 16

LIST OF PARTICIPANTS

Sl.	Organization Name	Name & Rank	Designation
1.	Indian Coast Guard	Director General Rajendra Singh, PTM, TM	DGICG
2.	Indian Coast Guard	Inspector General VSR Murthy, PTM, TM	DDG(Ops & CS)
3.	Indian Coast Guard	Inspector General K Natarajan, PTM, TM	COMCG(West)
4.	Indian Coast Guard	Inspector General KR Nautiyal, PTM, TM	COMCG (NE)
5.	Indian Coast Guard	Inspector General KS Sheoran, PTM, TM	COMCG (A&N)
6.	Indian Coast Guard	Inspector General VS Pathania, TM	COMCG(NW)
7.	Indian Coast Guard	Inspector General R Bargotra, TM	COMCG (East)
8	Indian Coast Guard	Deputy Inspector General Dinesh Rajaputhran, TM	PD(Ops)
9.	Indian Coast Guard	Deputy Inspector General AA Hebbar, TM	CGA to DGICG

Sl.	Organization Name	Name & Rank	Designation
10.	Indian Coast Guard	Deputy Inspector General T Sashi Kumar, TM	D(Ops & CS)
11.	Indian Coast Guard	Deputy Inspector General SS Azad	CLO
12.	Indian Coast Guard	Deputy Inspector General SSN Bajpai	D(IC & SAR)
13.	Indian Coast Guard	Commandant SK Singh	Oi/c PRT(East)
14.	Indian Coast Guard	Comdt SED Anand Kumar	RFEO (E)
15.	Indian Coast Guard	Commandant BS Kothari	Director (Environment)
16.	Indian Coast Guard	Commandant Devansh Trivedi, TM	RFEO (NW)
17.	Indian Coast Guard	Commandant Rakesh Rai	RFEO (NE)
18.	Indian Coast Guard	Commandant Sujeet Dwivedi, TM	RFEO (W)
19.	Indian Coast Guard	Commandant (JG) Dinesh Tamta	Deputy Director (Environment)
20.	Indian Coast Guard	Deputy Commandant Rithin TKV	Oi/c PRT(A&N)
21.	Indian Coast Guard	Asst Commandant Shripal Singh	Dy O-i/c PRT(West)

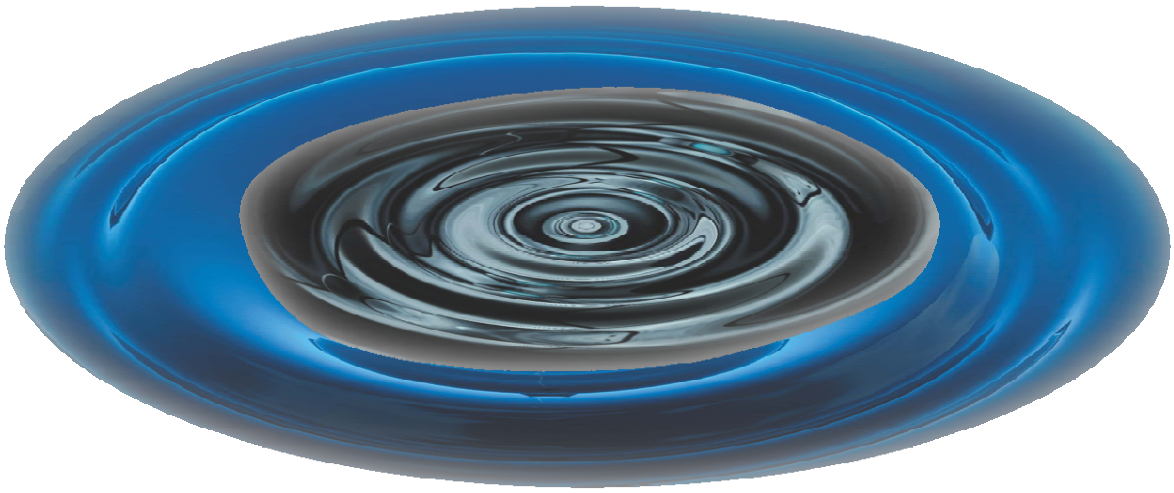
Sl.	Organization Name	Name & Rank	Designation
1.	Ministry of Earth Sciences	Shri E Haque	Scientist
2.	Ministry of Environment Forests & Climate Change	Shri Manoj Kumar Gangeya	Director
3.	Ministry of External Affairs	Shri Aditya Vats	Under Secy (UNES)
4.	Ministry of Home Affairs	Sr. Commandant R Nambiar	IV BN, NDRF
5.	Ministry of Shipping	Shri Rajiv Nayar	Under Secy
6.	Principal Director (Naval Operations)	Cdr Gaurav Mahajan	JDNO
7.	Central Pollution Control Board	Shri Paritosh Kumar	Additional Director
8.	Custom & Central Excise	Shri BS Grewal	Assistant Director (Marine)
9.	Directorate General of Hydrocarbons	Shri Kuldip Sharma	HOD (Environment)
10.	Integrated Coastal and Marine Area Management Project Directorate	Dr. RS Kankara	Head, Coastal Process & Shoreline Management Group
11.	Indian National Centre for Ocean Information Services	Dr. TM Balakrishnan Nair	Head- ISG & Scientist “F”
12.	Indian National Centre for Ocean Information Services	Shri SJ Prasad	Scientist
13.	Indian National Shipowners Association	Shri Rajesh Kapoor	Advisor INSA

Sl.	Organization Name	Name & Rank	Designation
14.	National Disaster Management Authority	Shri DS Sindhu	Joint Advisor
15.	National Institute of Oceanography, Goa	Dr. MT Babu	Principal Technical Officer
16.	Offshore Defence Advisory Group	Cdr Vikas Bhardwaj	Joint Director(P&A)
17.	Oil Industry Safety Directorate, MoPNG	Shri VJ Rao	Executive Director, OISD
18.	Oil Industry Safety Directorate, MoPNG	Shri Tarsem Singh	Director (Exploration & Production)
19.	Oil Industry Safety Directorate, MoPNG	Shri M Gupta	Addl Director (Process & Environment)
20.	Port Management Board	Dr. RD Tripathi	Chief Port Administrator
21.	Shipping Corporation of India	Capt CM Srivastava	Sr. Vice President (ISM&ISPS)
22.	Andhra Pradesh PCB	Shri Dr. B Madhusudhan Rao	Jt, Chief Environmental Engineer
23.	Goa Sate Pollution Control Board	Mrs. Jenica Sequeira	Scientist ‘C’
24.	Goa Sate Pollution Control Board	Miss Connie Fernandes	Scientist ‘C’
25.	Maharashtra Pollution Control Board	Dr. AN Harshwardhan	Regional Officer, MPC Board, Raijad

Sl.	Organization Name	Name & Rank	Designation
26.	West Bengal Pollution Control Board	Mr. Siddhartha Roy, IFS	Senior Environment Officer, Department of Environment, GoWB
27.	Chennai Port Trust	Capt TM Kumar	Dock Master
28.	Haldia Dock Complex	Capt SN Chaubey	General Manager (Marine)
29.	Jawaharlal Nehru Port Trust	Shri JP Raval	Dy Manager (Safety)
30.	Mormugao Port Trust	Capt Sharad S Karnand	Advisor (Port Operation)
31.	Mormugao Port Trust	Shri Ratish Naik	Chief Engineer (Marine)
32.	Mumbai Port Trust	Capt AW Karkare	Harbour Master
33.	Paradip Port Trust	Capt Sanjam Dash	Pilot-cum-Officer-in-Charge, Pollution Control Cell
34.	Visakhapatnam Port Trust	Capt SS Tripathi	Deputy Conservator
35.	Kamarajar Port	Shri M Vijayan	Asst Manager(HSE)
36.	Karaikal Port Pvt Ltd	Shri Suresh Singh Bogal	Senior Manager Marine
37.	Krishnapatnam Port Co. Ltd	Shri Virendra Belwal	AGM (Marine-POC)
38.	Maharashtra Maritime Board	Cdr Sanjeet Kumar	Hydrographic

Sl.	Organization Name	Name & Rank	Designation
39.	Tamil Nadu Maritime Board	Capt J Maneksha	Port Officer
40.	Adani Ports & SEZ Ltd	Shri Anand S Raithatha	Manager Marine Services
41.	BG Exploration & Production India Ltd	Shri Abhijit Das	Lead HSSE Advisor – Well Engineering
42.	Cairn India Ltd	Capt Praveen Kumar	Advisor – Marine
43.	Cairn India Ltd	Shri Ankush Aggarwal	Head HSSEO & Sustainability
44.	Cairn India Ltd	Shri Shreeram Marathe	Manager Security
45.	Cairn India Ltd	Shri S Karthik	Sr. Manager - Environment
46.	Cairn India Ltd	Shri Dilip Kr. Bera	Sr. Manager - Environment
47.	Cairn India Ltd	Shri Gopala Rao M	Sr. Manager - Marine
48.	Essar Bulk Terminal Limited	Capt Rituparn Raghuvanshi	Harbour Master
49.	Essar VOTL	Capt Alok Kumar	Head Marine Operations
50.	Finolex Pipes	Shri Sudhir T Shiride	Sr. Executive (Terminal Operation)
51.	Hindustan Oil Exploration Co. Ltd	Shri Manavala Rajamani	Installation Manager
52.	Hazira Port Pvt Ltd	Shri Mithilesh Kumar Sinha	Pilot

Sl.	Organization Name	Name & Rank	Designation
53.	HPCL Mittal Pipeline Ltd	Shri Ashok Tiwary	Deputy Manager-SPM O&M
54.	HPCL Mittal Pipeline Ltd	Shri Dhiraj Kumar	Manager –Marine Ops
55.	Oil and Natural Gas Corporation, Kakinada	Shri Ravi Roy	GM-Offshore Safety
56.	Oil and Natural Gas Corporation, Mumbai	Shri Badal Roy	GM-Offshore Safety
57.	Oil and Natural Gas Corporation, Mumbai	Shri Nilay Meshram	Dy Suptdg. Engineer (Envt)
58.	Oil and Natural Gas Corporation, New Delhi	Shri MC Das	ED-Chief HSE
59.	Oil and Natural Gas Corporation, New Delhi	Dr. JS Sharma	GM-Head Environment
60.	Reliance Industries Ltd, Jamnagar	Shri Prashant Gogate	Head-Environment
61.	Reliance Industries Ltd, Jamnagar	Shri Mithilesh K Singh	Head-Marine
62.	Reliance Industries Ltd, Mumbai	Shri Hement Nari Setti	GM-Environment



"Synergy for Swachh Sagar Abhiyan"