Implementation of Maritime Transport Safety In India

Presented by:
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Under the constitution, “Merchant Shipping” is a Central subject and is being dealt with by the Ministry of Shipping, Government of India. The subjects pertaining to Shipping and Ports, which fall within the List I of the VII Schedule to the Indian Constitution, have inter alia been entrusted to it:

  - Light-houses and Light-ships.
  - Major Ports.
  - Shipping and Navigation.
  - Shipbuilding

The Ministry of Shipping is in-charge of the Ministry. The Secretariat of the Ministry is headed by a Secretary.
Administrative Framework

- Determine the India met the obligations imposed upon it through its adoption of the applicable mandatory IMO instruments.

- Determine the Strategy for the implementation of the instruments, the review processes in place and the arrangements for continual improvement.

- Measures based on Pollution Incidents, port State control results, flag State ship deficiencies and Marine Casualty incidents are used to determine trends.

- All enacted national legislation for the applicable IMO instruments relating to maritime safety and pollution prevention.

- The administration and enforcement of all applicable laws and regulations as Member State.
India’s Fleet as a Maritime Nation

- India with a coastline of over 7517 km dotted with 12 major ports and 187 minor and intermediary ports with a geographic location for east-west traffic
- India's trade has been increasing every year with present Total Gross Tonnage of Vessels: 1,12,07,119
  - Number of Coastal Vessels: 903
  - Number of Overseas Vessels: 399
  - Number of Passenger cum Cargo Ships: 34, Gross Tonnage – 89,717
  - Number of Passenger ships: 73, Gross Tonnage – 58,171
  - No. of Vessels: 1303 [i.e. 228 vessels added to Indian fleet in last five years]
  - Indian tonnage on 31.10.16: 11.24 Million GT
  - Indian controlled tonnage vessel: 04
  - Total GT: 11.25 Million GT [including ICT]
India as Seafaring Nation

- India's claim to supply well trained and competent seafarers to an international client base.
  - Number of Foreign Going Officers: Around 36,000
  - Number of Officers Working on Domestic Ships: Around 7000
  - Number of Ratings: Around 1,00,000
  - Number of Training Institutes: 134

- India has agreement with other countries for Mutual Recognition of Certificates for Seafarers, 1978

- Union Cabinet has on 28.09.16 approved an Undertaking between India and Korea on Mutual Recognition of Certificates for Seafarers, 1978:

- Talks are under process with Republic of Iran
The Directorate General of Shipping, is Indian Maritime Administration deals with an implementation of shipping policy and legislation.

Vision Statement

“To be recognized globally as a highly effective, efficient, responsible and progressive maritime administration”
Strategic Framework of DGS

- Indian Maritime Administration has developed strategy that addresses the challenges and sets out realistic targets.

- To enhance effectiveness administration has identified four key strategic directions:
  - Regulatory framework
  - Training, certification and database of Indian seafarers;
  - Effective compliance of safely and environmental regulations and
  - Monitoring and review mechanism
Reformation in Regulatory Framework

❖ Re-writing of Merchant Shipping Act.

- 13 nos of Obsolete rules rescinded by Committee constituted by GOI.

- New Merchant Shipping Bill, 2016 has been approved by the Union Cabinet on 23.11.16. It will replace existing MS Act, 1958 & Coasting Vessels Act, 1838.

- Union Cabinet has on 21.09.16 approved the proposal for an enactment of Admiralty (Jurisdiction and Settlement of Maritime Claims) Bill 2016 and to repeal four archaic admiralty statutes. The Bill has been introduced in the Lok Sabha on 21.11.16, for consideration of the House.

- Notification delegating power of survey & certification of fishing vessels to State Authorities.

- Notification for Recognized Organization [ROs].
The Directorate General of Shipping (DGS) and his allied offices carry out survey certification and Audits of all ships including passenger ships.

- Various statutory functions are carried out on behalf of Government of India by IRS (RO) as authorized in accordance with the Agreement or as delegated from time to time.

- Safety Management System is applicable to all domestic passenger ships. Inspection / survey of passenger ships are carried out by Govt. officials as per SOLAS regulations.

- The PSC Cell may carry out PSC / Flag State Implementation (FSI) inspection / General Inspection (GI) of the ships involved in such cases.

- Survey Certification and Audits of Inland vessels are undertaken by respective maritime boards, coastal states and Inland Water Authorities.
## Comparsion 2011-2015

### Summary of Ship detained under Flag State Control Inspection as per type of ship

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ship Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>SUB TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Passenger Ship</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Offshor Supply Vessel</td>
<td>11</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>Tug</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>Bulk Carrier</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>Oil Tanker</td>
<td>5</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Other cargo</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Other Types of Ship</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>General Cargo</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>Container</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Service ship</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Chemical Tanker</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>Gas Carrier</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>MODU or FPSO</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Utility Vessel</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>Research Vessel</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Dredger</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Crew Boat</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Pilot Boat</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Special Purpose Ship</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>42</strong></td>
<td><strong>28</strong></td>
<td><strong>35</strong></td>
<td><strong>25</strong></td>
<td><strong>18</strong></td>
<td><strong>148</strong></td>
</tr>
</tbody>
</table>
The Directorate General of Shipping (DGS), Maritime Administration as Maritime Assistance Service (MAS) in accordance with IMO resolution A950 (23) provides assistance to stricken vessels. 

- Receive report, serve point of contact between ship and other stakeholders and monitors ship situation.

- Notify Indian Coast Guard or concerned Ports/Maritime boards to keep in readiness their resources to deal with potential emergencies.

- Keep Ministry posted on the situation as required.
Function of MAS

- Co-ordination with Port / Maritime Boards /Coastal States, Pollution Control Boards, National Hydrographic Office (NHO), IMD & SAR Authorities

- Convene a meeting with the concerned stakeholder to validate proposed plan of action

- Activation of LOS-DCP & CMP

- The DGS shall request the Directorate General of Lighthouse and Lightship (DGLL) to mark the sunken ship with virtual marker and or physical marker as the case may be.
Investigation of Marine incident by DGS

- Investigation and Enquiries are conducted in accordance with National Law (Merchant Shipping Act) and IMO Casualty Investigation Code.
- Investigations are conducted inline with IMO and Procedures are documented and enacted.
- Marine incidents and accidents are reported to MAS of DGS operated 24 x 7 and action is initiated as required by National Law.
- There is no separate casualty investigation authority that carries out independent investigation as required by III code.
- There are no dedicated marine accidents investigators presently however efforts are on to established casualty investigation authority.
- Notification is given to substantially interested states and information is shared as and when required.
## Accident Statistics
### Ocean Going & Domestic Vessels

#### Statistics of accidents in maritime shipping (During last 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>26</td>
<td>22</td>
<td>27</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Oceangoing</td>
<td>22</td>
<td>16</td>
<td>13</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Domestics</td>
<td>4</td>
<td>6</td>
<td>14</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Statistics of passenger ship accidents (During last 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>1</td>
<td>Nil</td>
</tr>
<tr>
<td>Oceangoing</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Domestics</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>1</td>
<td>Nil</td>
</tr>
</tbody>
</table>

#### Statistics of casualties (During last 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>4</td>
<td>Nil</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Injury</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Cause of passenger ship accidents (Average in last 5 years)

<table>
<thead>
<tr>
<th>Cause</th>
<th>No. of causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overcrowding</td>
<td></td>
</tr>
<tr>
<td>Vessel quality</td>
<td></td>
</tr>
<tr>
<td>Weather</td>
<td>✔</td>
</tr>
<tr>
<td>Human factor</td>
<td>✔</td>
</tr>
<tr>
<td>Others</td>
<td>✔</td>
</tr>
</tbody>
</table>
Vessel Aquamarine register under Inland Vessel act in 2009,
Built in 2004, size – 4.1 x 1.4 x 0.6mtr, No classification society, Vessel
Accident occurred on 26.01.2014 at 16.00hrs on the Republic day of India inside the harbour of Andaman & Nicobar Union Territory of India.
Total no. of tourist / passengers 46 + 3 crew members
21 died, 27 rescued, 1 missing
Boat certified to carry 20
Modification made
Inadequate Capacity of pump
Ingress of water
India has an estimated navigable length of 14,500 km of inland waterways, including river systems, canals, backwaters, creeks and tidal inlets, that can effectively support mechanized crafts.

The Inland Waterways Authority of India (IWAI) develops and regulates inland waterways for shipping and navigation.

The Authority primarily undertakes projects for development and maintenance of IWT infrastructure on national waterways through grant received from Ministry of Shipping.

There is IWAI act, rules

No. of Accommodations/Houseboats—13, Cargo Vessels—7, Others—90

Rules on Standards of Training, Certification and Watch keeping is in progress.

Accidents are investigated by IWAI authorities.
SAR Operation

- India is a signatory to the International Convention on Maritime Search and Rescue (SAR), 1979, ratified in May 2001.

- ICG is the agency responsible for coordinating Search and Rescue (SAR) in the Indian Search and Rescue Region (ISRR).

- National Maritime Search and Rescue Coordinating Authority (NMSARCA)

- INDSAR (Indian SAR Computerized Ship Reporting System)
SAR Operations

National Maritime SAR Competent Authority Functions:

- Formulation & Promulgation Of National SAR Plan Including Its Review & Updating
- Defining Participating Agency Functions & Coordinating Measures To Be Adopted By Them
- Coordinating Formulation Of Contingency Plan
- Interacting With Imo On Matters Related To SAR

**INDIAN SEARCH AND RESCUE REGION**

**SAR ORGANISATION IN INDIA**

- DGICG (NMSARCA)
- MRCC (MB)
- MRCC (CH)
- MRCC (PB)
- MRSC Okha
- MRSC Vadinar
- MRSC Porbandar
- MRSC Goa
- MRSC Mangalore
- MRSC Kochi
- MRSC Tuticorin
- MRSC Mandapam
- MRSC Vizag
- MRSC Paradip
- MRSC Haldia
- MRSC Diglipur
- MRSC Campbell Bay

TOTAL SRR – 4.6 M SQ KMS
National Maritime SAR Coordinating Agencies

National Maritime SAR Authorities:
Members of the board include representatives from:
- DG shipping
- Indian navy
- Indian Air Force
- Chief Hydrographic, GoI
- Airport Authority Of India
- Department Of Telecommunication
- Department Of Space
- Central Board Of Customs & Excise
- Meteorological Department
- Shipping Industry
- Director General Of Civil Aviation
- Bureau Of Immigration
- Representative Of Major Ports
- Representative Of Coastal States
- Representative Of Fishing Community
- Representative Of Sailing Vessel Operators

SAR RESOURCES
- Indian Navy
- Indian Air Force
- Port Authorities
- Shipping Corporation Of India
- Director General Civil Aviation
- States/Central Fisheries Authorities
- States/Central Customs Authorities
- Merchant Ships Operating Close To Position Of Distress
- Civil Authorities
- Indian Meteorological Department
- Inmcc, Bangalore
- Department Of Telecommunications
- Dg(shipping)
- Niot
Search & Rescue (SAR) Statistics

6.1 Search and rescue (SAR) organization

6.1a. Name of SAR organization (Indian Coast Guard)

6.1b. Is the oil pollution response organization included in the government SAR organization? - YES

6.1c. Number of SAR teams: (Atleast 5) persons

6.1d. Number of SAR vessels: (160) ships

6.1e. Number of SAR aircrafts: (60) airplanes

6.2 Statistics of rescued vessels (During last 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Passenger ship</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Cargo ship</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

6.3 Statistics of rescued people (During last 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>45</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>Passenger</td>
<td>-</td>
<td>-</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Crew</td>
<td>-</td>
<td>-</td>
<td>45</td>
<td>18</td>
<td>51</td>
</tr>
</tbody>
</table>
Aids to Marine Navigation by Directorate General of Lighthouse and Lightships

- All the Aids to Marine Navigation (Visual & Radio aids) along the Indian Coast, in general water are provided & maintained by DGLL.
  - **Visual aids:**
    - Lighthouses 189
    - Deep sea Buoys 23
    - Wreck marking Buoys 05
  - **Radio Aids:**
    - RACON (Radar Beacon) 64
    - DGPS 23
    - AIS Physical Shore station 87
    - Vessel Traffic Service – (Gulf of Kachchh) 01
## Traffic Monitoring by VTS

<table>
<thead>
<tr>
<th>VTS system</th>
<th>Year of commissioning/upgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolkata – Haldia (3)</td>
<td>1997 (under upgradation)</td>
</tr>
<tr>
<td>Mumbai</td>
<td>2012</td>
</tr>
<tr>
<td>Gulf of Kambhat (8)</td>
<td>2010</td>
</tr>
<tr>
<td>Mumbai High ONGC (17)</td>
<td>2007</td>
</tr>
<tr>
<td>Murmugoa</td>
<td>2007</td>
</tr>
<tr>
<td>Cochin (2)</td>
<td>2009</td>
</tr>
<tr>
<td>Chennai</td>
<td>2012</td>
</tr>
<tr>
<td>Paradip (2)</td>
<td>2012</td>
</tr>
<tr>
<td>Sagar Pilot station</td>
<td></td>
</tr>
<tr>
<td>Gulf of Kutch (9)</td>
<td>2012</td>
</tr>
<tr>
<td>Tutocorin</td>
<td>Contract is being awarded</td>
</tr>
</tbody>
</table>

Vessel Traffic Service as defined in IMO Resolution A857 (20)

Indian major ports have set up VTS to facilitate safe movement of vessels within port areas for safety of navigation and protection of marine environment.
Compliance with IMO & IALA requirement

- **In accordance with IMO requirement**
  
  **Competent authority:** is responsible, in whole or in part, by the Government for safety, including environmental safety and efficiency of vessel traffic and the protection of environment.

- **VTS Authority:** For the management, operation and coordination of the VTS, interaction with participating vessels and the safe and effective provision of the service.

- **VTS Operator:** As an appropriately qualified person performing tasks contributing to the services of the VTS.

- There is no VTS Competent Authority & VTS Authority which is responsible at present in India.

- Efforts are on established such authorities.

- There are very few VTSOs’, and efforts are on to train operators.

- DGLL is planning to set up institute for training of operators.

- There is no separate VTS monitoring system for passanger ships.
Associated Projects for SAR, Safety and Security.

- MRCC
- GMDSS
- COSPAS SARSAT
- INMARSAT
- NAVTEX
- INMCC
- VTMS
- Indian Ship Position and Information Reporting System (INSPIRES).
- Indian Maritime Search and Rescue (INDSAR).
- Island Reporting (ISLEREP).
- Pre-Arrival Notification of Security (PANS).
- Long Range Identification and Tracking (LRIT).
- National Automatic Identification System (NAIS - DGLL).
- Space-Based Automatic Identification System (AIS-SB).
- Automatic Dependent Surveillance – Broadcast (ADS-B).
- White Shipping Information.
- Dedicated Indian transponder system has been developed for sub-20 m vessels
- Fishing Vessels and License Information Management.
- Port Vessel Information Management.
- Static & Dynamic Surveillance
- Biometric Identity Cards to Fishermen.
- Information Networking and Management for composite and coherent MDA.
- Vessel Traffic Management System (VTMS)
- National AIS (NAIS) Network.
- Merchant Shipping Information System (MSIS).
- Coastal Surveillance Network (CSN).
- National Command Control
- Communication and Intelligence Network (NC3IN).
- National MDA (NMDA).
National Disaster Management Authority

VISION
To build a Safe and Disaster Resilient India by developing a holistic, proactive, multi-disaster and technology-driven strategy through a culture of prevention, mitigation, preparedness and efficient response.

Disaster Management Structure:
- NDMA set up as the Apex Body with Hon’ble PM as Chairperson.
- National Executive Committee (NEC) - Executive Committee of NDMA

At the Centre
- Central Ministries will Continue with Nodal Responsibilities.

State Level
- SDMA at State Level headed by Chief Minister of state
- State Executive Committee (SEC), headed by Chief Secretary, will coordinate and monitor implementation of National Policy, National Plan and State Plan.
INSTITUTIONAL FRAMEWORK

- At the Centre- Central Ministries; National Disaster Management Authority,
  - National Institute of Disaster Management &
  - National Disaster Response Force (NDRF).
- State Level- SDMA headed by Chief Minister & State Executive Committee (SEC).
- District Level- DDMA headed by District Magistrate.
- Interface between Govt. and Public authority Local District Authority (District Magistrate, Pollution Control Board, Marine Police and Police etc.)
Lesson Learnt

❖ With the development of technology and public awareness, it is the time demand issue to mitigate the risk involved in passenger vessel operations to minimize accidents.

❖ Accidents investigation needs to be carried out in impartial manner by dedicated investigators, so as to analyze incidents in depth towards improvement.

❖ Resources such as Manpower, Logistic supports needs to be provided by the Govt. / members state.

❖ Interaction with stakeholders and co-ordination of all Govt. agencies for continual improvement.
Causal factors

- The boat accidents scenarios are categorized into collision, capsize, sinking, grounding, fire/explosion and other cases. These accidents in general occur due overloading, human error, bad weather, loss of control, jetty collapse, rush hours and others.

- Modification of vessel

- Lack of accountability on passengers,

- Over crowding due to loss of stability

- Lack of LSA and FFA appliances onboard

- Human factors
Analysis of the Accidents

- Poor Quality of the Vessel
- Violation of Rules / Procedures
- Overloading
- Lack of Control on Vessel Traffic
- Human Factor
- no formal training in vessel operations
- enhancement of manpower and infrastructural facilities like jetties and gangways which are in poor condition.
- Lack of qualitative analysis for the river boat accidents by application of FSA methodologies
Directorate General of Shipping
Govt. of India

Thank you