Trends of Maritime Safety and Relevant Issues in the Region

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Capt. Youngmo Kim, Consultant
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1.1 Worldwide Cruise Market

1) Growth of Worldwide Passenger

- Cruise passengers carried worldwide in 2015 is forecast at 22.2 million, a 3.2% increase over 2014.
- Worldwide sourcing passengers is expected to be 58.6% North America followed by Europe (25.9%), Asia (8.5%) and Australia (4.3%).
2) 2015 Worldwide Cruise Passengers by Source

<table>
<thead>
<tr>
<th>Source Region</th>
<th>Passengers(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East/Africa</td>
<td>0.19</td>
</tr>
<tr>
<td>Australia - New Zealand</td>
<td>4.27</td>
</tr>
<tr>
<td>South America</td>
<td>2.53</td>
</tr>
<tr>
<td>Asia</td>
<td>8.50</td>
</tr>
<tr>
<td>Europe</td>
<td>25.90</td>
</tr>
<tr>
<td>North America</td>
<td>58.61</td>
</tr>
</tbody>
</table>

- North American and European passengers account for over 80% of the total.

http://www.cruisemarketwatch.com/geography/
3) Growth of Asia-Pacific Passenger

- Recent cruise passengers carried Asia-Pacific region is dramatically increased 13.5% over 2015.
- Nearly 1.4 million Asian vacationers in 2014, a 34% compound annual growth rate since 2012.

Source: http://www.cruiseindustrynews.com/
4) Recent worldwide cruise market trend

(1) Rise in small-ship cruising
   - With cruise passengers demanding more choices, the popularity of small ships will continue to grow.

(2) Short cruises are on the rise
   - Cruise lines are offering more three-, four- and five-night itineraries.

(3) Asia is one of the hot destinations
   - River and expedition cruise lines are also investing in Asia.

(4) River cruising continues to expand
   - River cruising is the fastest growing type of cruise.

(5) Extreme weather will increasingly affect your cruise
   - Changing weather patterns will cancel or delay the cruise schedule.
1.2 Domestic ferry market

1) Growth of domestic ferry market

- 1,300 ferry ships above 1000 GRT operating globally
- more than 2 billion passengers,
- 251 million cars,
- 32 million trailers were carried by ferries globally.

Source: ShipPax data, 2009
2) Needs for domestic ferry

- Ro-ro ferries are considered the most successful maritime operation in the world from the perspective of service reliability, capacity carried and flexibility in operation.

- In the developed countries, ferries are considered as the safest and often a discretionary form of transportation.

- For developing countries, domestic ferries have been a major backbone for national economic activities.
  - Ferries as a primary mode of transportation for people and goods in the developing world.

- Potential to avoid and reduce congestion and emissions

- Rapidly growing cities are running out of space
2.1 Worldwide Cruise Safety

1) Cruises are one of the safest ways to travel
   Despite some high-profile incidents, overall cruise ship operational incidents declined by 15 percent between 2009 and 2014
2) Cruise travel is decidedly safer than most forms of transportation
The cruise industry has a lower operational fatality rate than other forms of common transportation.

Fatalities per billion passenger-miles; G.P. Wild, 2013
3) Total Losses Trends

**Total Losses:** Five year moving loss average by top regions 2006-2015 (All vessels)
2.2 Worldwide Ferry Safety

1) Ferry accidents

- 163 accidents in 14 years (2000~2014)
- Over 17,000 deaths (conservative estimate) in 40 countries
- 95% of accidents occurred in developing countries
- Four countries, 10% of all countries, responsible for >50% of all accidents

Source: Abigail Golden, Worldwide Ferry Safety Association
2) Proportion of ferry accidents

FIGURE 1.
Proportion of ferry accidents occurring in top 3 countries

FIGURE 2.
Proportion of ferry fatalities occurring in top 5 countries
3) Dead & Missing Record by Country

Dead & Missing 2000-2012

Total 15,763
4) Dead & Missing Record by Sea/Region

Dead & Missing 2000-2012

- **Total**: 15,763
  - Domestic: 93%
  - International: 7%

<table>
<thead>
<tr>
<th>Sea</th>
<th>Dead</th>
<th>Missing</th>
<th>Dead&amp;Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>6,923</td>
<td>7,760</td>
<td>14,683</td>
</tr>
<tr>
<td>International</td>
<td>185</td>
<td>895</td>
<td>1,080</td>
</tr>
<tr>
<td>All</td>
<td>7,108</td>
<td>8,655</td>
<td>15,763</td>
</tr>
</tbody>
</table>

Dead & Missing 2000-2012 (Regional)

- **Total**: 15,763
  - OECD: 1%
  - Non-OECD: 99%

<table>
<thead>
<tr>
<th>Region</th>
<th>Dead</th>
<th>Missing</th>
<th>Dead&amp;Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD</td>
<td>112</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td>Non-OECD</td>
<td>6,996</td>
<td>8,651</td>
<td>15,647</td>
</tr>
<tr>
<td>All</td>
<td>7,108</td>
<td>8,655</td>
<td>15,763</td>
</tr>
</tbody>
</table>
3 Prevention of Ferry Accident

3.1 IMO’s Effort

Regional Forum on Domestic Ferry Safety, Bali, Indonesia 6 and 7 December 2011
Action plan

A detailed action plan addressing domestic ferry safety in the East Asia sub-region was agreed by participants in a forum on the subject organized by IMO and held in Bali, Indonesia, on 6 and 7 December 2011.
Governments should develop: - Continue IMO’s effort

.1 appropriate shipping **safety policies and standards** (e.g. for purchase and operation of second hand and converted ships, new buildings standards to ensure adequate safety margins on stability);

.2 **fit-for-purpose regulations** (e.g. IMO GlobalReg, as applicable);

.3 appropriate ship **survey procedures**;

.4 relevant **training courses** and provide appropriate training for surveyors/inspectors/auditors, shore personnel and crew;

.5 standard **operation procedures and best management practices**, as appropriate, to ensure operational safety of domestic vessels; and

.6 necessary tools to build-up **safety awareness of passengers** and educate people on **safety culture** (i.e. not to carry dangerous goods like petrol as personal luggage, maintaining order during embarkation and disembarkation, etc.).
3.2 Reason of Accidents

1) Human error

Human error (operator error) is recognized as a major cause of accidents and mishaps.

Summary of Results of Human Error

<table>
<thead>
<tr>
<th></th>
<th>Conservative</th>
<th>Liberal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Accidents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Human error by total known cases</td>
<td>61</td>
<td>85</td>
</tr>
<tr>
<td>% HE by total cases; known &amp; unknown</td>
<td>53</td>
<td>73</td>
</tr>
<tr>
<td>% unknown</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td><strong>Fatalities (dead and missing)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. fatalities caused by human error</td>
<td>15,156</td>
<td>18,595</td>
</tr>
<tr>
<td>% fatalities caused by HE by total known cases</td>
<td>75</td>
<td>92</td>
</tr>
<tr>
<td>% fatalities caused by HE by total case, known &amp; unknown</td>
<td>70</td>
<td>86</td>
</tr>
</tbody>
</table>

2) Weather

- Encountering storms and unsafe weather conditions will always pose an unavoidable risk when traveling by water.
- Implicated in more than 50% of accidents
- Seasonal weather conditions such as monsoon season or tropical storm season may contribute to seasonally higher rates of accidents in regions like Southeast Asia.
  - Typhoons, fog and low visibility etc.
3) Overloading and overcrowding

- Severe and rampant
  - throw off a boat’s balance or make it top heavy and more prone to capsizing
- Contributed to up to 43% of total accidents
- Vessels have capacity limits, but more passengers mean more profits
- Not usually fatal on its own— but makes vessels more vulnerable to other threats
4) Poor quality of crew

- If crewmembers are inadequately trained, they are uncertain of how to respond in the event of a disaster, exacerbating these problems.
- Unexperienced and low waged crews do not implement the provisions of maritime law strictly.
5) Old vessel

- Ferries in developing countries are often old vessels, sometimes repurposed to operate in waterways for which they weren’t designed.
Thank you

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