6. ANNEX II: QUESTIONNAIRES

6.1 Master's questionnaire

The master's questionnaire contains the following main sections from which we hope to derive information:

- Crisis management procedures
- Ship evacuation/abandonment drill feedbacks
- Real life feedback
- Decision process for evacuation/abandonment
- Decision Support System (DSS) usage

Below are listed, first, the questionnaire itself and then secondly the answers. The answers have been listed in order. Where a simple yes or no was required the number of yeses and no's are listed. Where the answer is textual, the answers from each individual are listed numerically. Some questions have been further separated out into categories of mustering, embarkation, navigation and recovery. Finally, the results of a few of the questions are detailed in tables in the main text of the document, so these are referenced appropriately.

6.1.1 The full Master's questionnaire

The full questionnaire sent to Masters is presented below.

Floodstand project - Questionnaire for Masters of large passenger ships (ro-ro pax and cruise ship)

FLOODSTAND

Floodstand is a 3-years research project partly funded by the European Commission, which started in March 2009. Its main purpose is, for large passenger ships (**cruise ships and ferries**), to define how the risk of staying onboard and the risk of abandoning the ship can be assessed in crisis situation in order to help the Master make the decision to stay or abandon the ship. Therefore, Floodstand focuses on two aspects namely (1) modelling progressive flooding in case of a breach in the hull (whatever the initial event may be) and (2) modelling and assessing the whole evacuation process while the vessel is being flooded.

For the second aspect, three main types of information are of interest:

- Evacuation procedures, their possible alternatives and the decision criteria used to select which procedures & routes to be used.
- Feedback on possible minor and major incidents that have been encountered during evacuation drills and in real crisis situation, videos of drills and real situations.
- Types of information accounted for and decision criteria used by the Master to decide whether to remain onboard the ship or to abandon her.

See project website for more information:
http://www.tkk.fi/Units/Ship/Research/FloodStand/Public/index.html

INTRODUCTION TO THE QUESTIONNAIRE

The objective of this **anonymous** questionnaire is to get information from experienced Masters of large passenger ships (**cruise ships and ferries**) about how they deal with emergency situations onboard in case of flooding.

We want to focus the respondents' attention on the following points:

1. ***The questionnaire is anonymous and no information on the respondents or their company shall be made public or available to any party not participating in the project***

2. ***The questionnaire's developers are well aware that only the Master can make the final decision on whether or not to abandon the vessel. The results of the projects would ideally help the Master to make this decision***

3. ***For more convenience, the questionnaire can be answered online at the following link:***

http://www.kwiksurveys.com/online-survey.php?surveyID=OOHJL_d48306a2

Definitions:

- It is considered here that the whole **evacuation process** is composed of several successive phases: mustering, Embarking and Launching LSAs, LSA floating at sea with evacuees onboard, and rescue. Each of these phases can be further refined in several steps.
- **A decision support system** counts as anything that advises the ship's Master and crew in the event of a crisis. This might encompass existing loading calculation software, such as NAPA and LODIC, that can offer advice in the event of a crisis; for instance, advice related to loading conditions that can be changed to stabilise the ship.

Please answer all the questions

PERSONAL INFORMATION

- What types of passenger ships have you worked on?

☐ Cruise vessels ☐ Ferries

- For which company? _____

- For how long? _____

1 EVACUATION PROCEDURES & ROUTES

1.1 Please describe briefly the ‘conventional’ procedures applicable in case of flooding.

1.2 Are there alternatives to these procedures?

☐ Yes ☐ No

If yes, what are the criteria for using alternative procedures in case of a crisis situation? Elaborate

Criteria	Explanation
The type of the initial event: Collision, grounding, contact, (Breach position / extent / beginning of flooding, …)	
Location of initiating event (remote area, coastal area, etc.)	
Passenger features, such as age, location of people, time of the day when the incident occurs,	
Prediction of the possible escalation (flooding, fire, smoke propagation, ship motion/heel…)	
Other criteria …	

2 FEEDBACK FROM EVACUATION DRILLS

2.1 During evacuation drills that were carried out onboard your ship(s), what were the main difficulties you can think you encountered?

Phase	Difficulties encountered
Mustering	
Embarking and launching Life Saving Appliances (LSA)	
Navigating in LSA	
Recovery	

2.2 Can you think of minor incident that occurred during evacuation drills that were carried out onboard your ship(s) (minor equipment failure, congestion while mustering or embarking in LSA, counting of people in assembly stations…)?

2.3 Can you think of major incident that occurred during evacuation drills that were carried out onboard your ship(s) (LSA failure, injuries, …)?

3 FEEDBACK FROM EVACUATION IN REAL CRISIS SITUATION

3.1 Do you have previous experience of an evacuation in real crisis situation?

☐ Yes ☐ No

If you answered "No" to this question, skip to section 4

3.2 During (a) real evacuation(s) that you experienced, what were the main difficulties you can think you encountered?

Phase	Difficulties encountered
Mustering	
Embarking and launching Life Saving Appliances (LSA)	
Navigating in LSA	
Recovery	

3.3 Can you think of minor incident which occurred during evacuation that you experienced (minor equipment failure, congestion while mustering or embarking in LSA, counting of people in assembly stations…)?

3.4 Can you think of major incident which occurred during evacuation that you experienced (LSA failure, injuries,…)?

When these incidents occurred, was the situation clear to all personnel at all times?

☐ Yes ☐ No

If no, elaborate.

3.5 What degree of uncertainty was experienced by crew members? This can refer to uncertainty as to what to do, uncertainty as to what is happening, or anything else the user can think of.

Type of Uncertainty	Assessment
On what to do	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain
On what is happening	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain
Other:	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain

Comments

3.6 Was there any panic amongst the crew that could have affected decision making?

☐ Yes ☐ No

3.7 Hypothetically, could wrong/inappropriate decisions have been made under such pressure?

☐ Yes ☐ No

Would an advanced Decision Support System have been helpful?

☐ Yes ☐ No

Please comment on this

4 DECISION PROCESS FOR EVACUATING

4.1 In case of flooding, what are the main decision criteria? Assess their importance using the scale from 1 to 5 (1 being the less important and 5 the more important)

Criteria	Importance for mustering	Importance for abandonment	Explanations (assessment method and required input)
The type of the initial event: Collision, grounding,… (Breach position / extent / beginning of flooding, …)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Location of initiating event (remote area, coastal area, etc.)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
How long will the ship remain afloat;	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
What will be her motion/heel/trim angle	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
How can the above evaluations be mitigated: possible solutions, selection criteria	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Time needed to muster and abandon the ship	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	

Risk for passenger health related to embarking in LSA	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Risk of LSA deployment failure	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Conditions to which evacuees will be exposed while in LSA at sea (LSA motions, temperature, LSA type…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Time that evacuees will have to spend in LSA at sea before rescue (distance to coast, SAR, other ships…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Available means of Rescue (Helicopter, pilot ladder on other ship…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Other criteria:	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Other criteria:	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	

5 DECISION SUPPORT SYSTEM (DSS)

5.1 Have you ever used any decision support systems before?

☐ Yes ☐ No

In a crisis?

☐ Yes ☐ No

If so, how helpful was it?

Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

What improvements could be made?

5.2 What is the most helpful form of advice from the DSS? To illustrate this we will consider an example situation:

You are the commander of a large cruise ship/ferry 100 miles from the nearest land-based aid and the ship grazes a reef and sustains hull damage below the waterline. The ship starts taking on water, what information/advice do you want from the system?

- Simple notification of which compartments are flooding and which watertight doors are not closed.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- Advice on ship stability with recommendations as to how the ship could be re-ballasted to stabilise.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

Once all possible actions have been taken by the crew:

- The time when it reaches a point that the ship is (very) likely to capsize/sink.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- Forecasts of evacuation times given a certain list angle to the ship.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- A recommendation of whether the ship should be abandoned based upon the time to capsize and the evacuation time.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- A recommendation of whether the ship should be abandoned at all (based on sea state and nearest rescue capabilities).

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

Please detail any additional information you can think of that might be useful and give it a number to rate its importance:

5.3 Would the addition of graphics to the interface make it easier to understand the recommendations or help make the decision? If so, how?

- A plan of ship with location of emergencies written on.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- Graphical indicators showing the likelihood that the ship will sink within a given time.

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- Graphical indicators showing consequences and the associated probabilities for different options/scenarios/actions

  Useless ☐1 ☐2 ☐3 ☐4 ☐5 Very helpful

- Any ideas you may have?

5.4 Would user prefer to know how the Decision Support System derives its recommendations, given that this may distract the attention from fast action?

☐ Yes ☐ No

5.5 Where should information be made available? Only on the bridge/safety centre, or additionally elsewhere (e.g. engine room)?

5.6 To whom should the information be made available?

5.7 Whilst the Decision Support System should receive most information that it needs from onboard systems automatically, entering additional information on ship state may help improve decisions made by system. How would this information be most easily entered into the system?

☐ Typing in

☐ Clicking listed options

☐ No time for this in an emergency

☐ Other options

5.8 Would user prefer separate screens for fire/flooding/grounding or rather have it all on one screen (possibly in different colours)?

6.1.2 Questionnaire Answers

- Personal information

  Type of vessels: 4 cruise, 6 ferry

  Company: Confidential

  Years at sea: Average 24 years

32	33	34	36, 49 years at sea	14	13	13	16

2 no answer

- Question 1.1:

  a General alarm All passengers to assemblystations Make sure that water tight doors are closed Search party one and to lokking from fore to aft if and where a watertight section is damage Chiefofficer manning NAPA for calculation (NAPA stability for the specific voyage is already sent by departure) Prepare fore ballsting or heeling if possible The NAPA support and the owner will be informed/activated Inform or sending MayDay too MRCC If too water tight sections is flooded should be ok If thÃ-rd WT section is flooded and NAPA calculation says she will not float then consider evacuation If third section is damage prepare LSA Abandon ship procedure starts from assemblystations to LSA

  b General alarm Emergency message to MRCC XXX Security centre organisation Ships safety organisation will be activated Passengers are requested to go to assembly stations Chiefofficer is manning NAPA station ready for action calculations and counteractions ballasting and so on. Chiefofficer can call the owner or NAPA for consultations. NAPA calculation is sent at departure to server ashore and is available for owner/experts to assist the ship Checking that all watertight doors is closed Navigator will look for possibility for grounding the if possible working party 1 and 2 will make a search from cardeck and down too see if any watertight section is damaged or effected. If necessary soundings will be done Boat party will have a look outside to see if possible the location of the damage Send mayday to all station if appropriate

  c General alarm. Assesment of damage. Evacuation to Assembly Stations. Check with DIP-plan. Check and simulate with NAPA program. Take measures to avoid capsizing.

  d STOP ENGINES. CLOSING OF ALL WATER TIGHT DOORS AND HATCHES.CLOSE ALL OVERBOARD VALVES. EMERGENCY DRAINING OF ALL SWIMMING POOLS. VISUAL ASSESMENT AND MANUAL AND ELECTRONIC SOUNDING OF ALL COMPARTMENTS.IN CASE OF

FLOODING START PUMPS.DAMAGE STABILITY CALCULATIONS ON NAPA.

e Close watertight doors Close section valves Drain pools Assess extent of flooding Try to find cause of flooding Consider possible steps to stop flooding Make simulation in NAPA Consult Damage control plan to assess survivability Consider environmental forces Consider steps to improve stability Consider mustering guests and crew Consider evacuating ship

- Question 1.2:

  3 yes, 4 no, 3 no answer.

  Dependent on yes to previous question. One answer:

  - How severe the damage is
  - the type of water (deep/shallow) weather(storm or calm) and so on
  - How many passengers onboard the possibility to evacuate due to facilities and type of water temperature . . .
  - Yes the prediction of how stable the ship is and how many watertight sections is affected

- Question 2.1:

  Mustering:

  a counting passengers at the assembly stations Easy with a small number of passengers Difficult with large number Avoid panic

  b Passengers up to max capacity is will be crowdy

  c Making the crew feel at ease with the oldfashioned equipment on board even modern ships .

  d Confidence in accounting for all persons within a reasonable time

  Embarkation:

  a It is differcult to Embark LSA with maximum passengers Launchning with list is also differcult and demanding Emabrkation Lifeboats in calm waters could work but is very differcult in high seas

b Information via ships PA system is very important. The message has to be short and clear easy to understand in an emergency situation Launching life boats in heavy seas is risky and dangerous

c Old equipment not always working properly not even though well maintained. Launching of LSA has it´s risks! The equipment is heavy and difficult to work with. Risk of injuries. The launching system for life rafts does not function well in very strong winds.

d Safely launching LSA in heavy weather or list. And lack of training during these conditions in LSA launch.

Navigation:

a MRCC is activated and now the positions. EPIRB SART is activated Time is more important

b No

c Lifeboats are big and heavy. Not always easy to manouvre.

d Having sufficient towing power for rafts

Recovery:

a Hig seas is a proplem Hyperthermia will also be a proplem

b In heavy weather and high seas every thing is differcult

c Same as embarcation.

d RETRIVING THE BOATS THEY ARE USUALLY NOT BUILT FOR THAT PURPOSE AND INJURIES ARE FREQUENT.

e Lack of safe recovery arrangements in heavy seas and lack of training during realistic conditions in using the recovery arrangements that does exist

- Question 2.2:

a Information not working in all areas PA system faillure Communication dead spots in some ships areas causes missunderstanding or no information

b Launching lifeboats is differcult and dangerous The boat is heavy when fully loaded with passengers. There is potensial for injuries wires and saftety lashings

c Engine failure life boat. Rudder failure life boat. Davit and/or winch failure.

d BROKEN FINGERS WHEN RETRIVING BOATS. HOOKS DAMAGING THE BOATS DUE TO SWELL.

e Guests showing up at the wrong station as they want to be with friends and families. Poor design of Schat-Harding bowsing gear makes a controlled bowsing operation tricky under easy conditions with just a few crewmembers on board and almost unthinkable during conditions of a fully loaded boat and listing ship.

- Question 2.3:

a Life boat launching is always differcult with heavy boats in a stress situation The authorities does not recomend lifeboatdrill with crew onboard therfore the knowlegde is getting poor.

b Lifeboatswire broken during launching in 1979 causes one crew members to fall to the keyside causes his death

c Life raft not inflating properly. Life raft falling into water from 20m. with people due to hook releasing.

d BROKEN FALL WIRE AND BOAT FELL DOWN AND CREW INJUERD.

e Guests showing up at the wrong station as they want to be with friends and families. Poor design of Schat-Harding bowsing gear makes a controlled bowsing operation tricky under easy conditions with just a few crewmembers on board and almost unthinkable during conditions of a fully loaded boat and listing ship.

- Question 3.1:

4 yes, 3 no, 3 no answer

- Question 3.2:

<u>Mustering:</u>

a The threat was a bomb threat and we debarkated in harbour 2 hours later and had no problem at all. Oure stress was would we have enought time? Of coarse if a bomb did exploded onboard the situation would be completly different

b Good information is essential My experience was a bombthreat. According to the threat a bomb will explode onboard within too ours. We had to turn around back to port and evacuate all passengers and crew. No bomb was detected the debarkation at port vent ok We could start again the next day

<u>Embarkation:</u>

a No need this time for LSA but we prepared Deckparty was in standby for LSA just in case

b Not neccesary

- Question 3.3:

  PA system not working in all areas Walkie talkies not working in all areas Walkie talkie battery function lasts less than 30 minutes

- Question 3.4:

  Not really. Well trained crew is the best argument for success

  2 yes

- Question 3.5:

  What to do: quite sure,

  What is happening: not very sure,

  Others, rather sure

- Question 3.6:

  1 yes, 1 no

- Question 3.7:

  2 yes

  2 yes

- Question 4.1:

  Detailed in table in section 2.2.1 of the report

  Additional information:

  - To stay onboard is safe if you now the ships will stay afloat.
  - Having passengers at assembly stations are important just in case if you have to abandon ship in order to save important time.
  - Passengers can be regularly be informed by the captain and the crew

- You can prepare for abandoning in order to save time Good precise and short messages to passengers are important.
- A method of risk evaluation would be good to have.
- Regularly training of the crew regarding proper information to passengers

- Question 5.1:

  3 yes, 1 no

  1 yes, 3 no

  1 helpful, 1 very helpful

  Improvements:

  a MORE USER FRIENDLY AND BETTER ACCURACY.

  b Ensure quality and reliability of data

- Question 5.2:

  Detailed in a table in section 2.2.1

  Additional information:

  - The system must be as simple as possible
  - All system involved to be emergency feed from batteries

- Question 5.3:

  Unanswered, due to an error in the kwiksurveys website.

- Question 5.4:

  2 yes, 2 no

- Question 5.5:

  a Yes bridge/Safety centre

  b Bridge/safety centre only.

c ON THE BRIDGE

d Engine control room Evacuation control centre

- Question 5.6:

a Captain and his officers

b Master bridge officers chief engineer.

c ALL BRIDGE OFFICERS

d Evacuation control leader Bridge team Engine team

- Question 5.7:

- 3 for clickable lists,
- 1 for typing,
- 1 for no information entering at all

- Question 5.8:

a One screen if possible

b One screen

c SEPARATE SCREENS.

d Separate windows with an option to overlay it all in one screen (toggle information on/off)

6.2 SAR Body questionnaire

The SAR body questionnaire contains roughly the same questions as the master's one.

- Exchange of information between large passenger ships and SAR services
- Evacuation/abandonment and rescue procedures
- Evacuation tests feedback
- Real life difficulties
- Decision process for evacuating – refers to advisory role of SAR

There is an extra question at the start that asks what sort of information is exchanged between SAR bodies and ships, if at all. The SAR questionnaire does not ask about decision support at the end, as the SAR personnel will not be using an advanced DSS and will have a different opinion on its probable usage. It does still ask earlier about whether they think that DSS might be useful. Unsurprisingly, they do not.

Below are listed, first, the questionnaire itself and then secondly the answers. The answers have been listed in order. Where a simple yes or no was required the number of yeses and no's are listed. Where the answer is textual, the answers from each individual are listed numerically. Some questions have been further separated out into categories of mustering, embarkation, navigation and recovery. Finally, the results of a few of the questions are detailed in tables in the main text of the document, so these are referenced appropriately.
The SAR questionnaire is less well participated than the master's questionnaire, therefore there is often only one answer in each section.

6.2.1 The SAR questionnaire

The full questionnaire sent to SAR bodies is presented below.

Floodstand project - Questionnaire for Search and Rescue (SAR) bodies: Managing a flooding situation onboard large passenger ships

FLOODSTAND

Floodstand is a 3-years research project partly funded by the European Commission, which started in March 2009. Its main purpose is, for large passenger ships (**cruise ships and ferries**), to define how the risk of staying onboard and the risk of abandoning the ship can be assessed in crisis situation in order to help the Master make the decision to stay or abandon the ship. Therefore, Floodstand focuses on two aspects namely (1) modelling progressive flooding in case of a breach in the hull (whatever the initial event may be) and (2) modelling and assessing the whole evacuation process while the vessel is being flooded.

For the second aspect, three main types of information are of interest:

- Evacuation procedures, their possible alternatives and the decision criteria used to select which procedures & routes to be used.
- Feedback on possible minor and major incidents that have been encountered during evacuation drills and in real crisis situation, videos of drills and real situations.
- Types of information accounted for and decision criteria used by the Master to decide whether to remain onboard the ship or to abandon her.

See project website for more information
http://www.tkk.fi/Units/Ship/Research/FloodStand/Public/index.html

INTRODUCTION TO THE QUESTIONNAIRE

The objective of this questionnaire is to get information from experienced SAR surveyors who have witnessed and experienced emergency situations and evacuations of large passenger ships about how they deal with search and rescue operations in case of flooding.

We want to focus the respondents' attention on the following points:

1. ***The questionnaire is anonymous and no information on the respondents or their organisation shall be made public or available to any party not participating in the project***

2. ***The questionnaire's developers are well aware that only the Master can make the final decision on whether or not to abandon the vessel. The results of the projects would ideally help the Master and the SAR services to decide the best way of managing the event***

3. ***For more convenience, the questionnaire can be answered online at the following link:***

http://www.kwiksurveys.com/online-survey.php?surveyID=ONJIG_d3443fe2

Definitions:

- It is considered here that the whole **evacuation process** is composed of several successive phases: mustering, Embarking and Launching LSAs, LSA floating at sea with evacuees onboard, and rescue. Each of these phases can be further refined in several steps.
- **A decision support system** counts as anything that advises the ship's Master and crew in the event of a crisis. This might encompass existing loading calculation software, such as NAPA and LODIC, that can offer advice in the event of a crisis; for instance, advice related to loading conditions that can be changed to stabilise the ship.

Please answer all the questions

BEFORE THE EVENT – STAND BY ACTIVITY

Note: Section 1 deals with normal situations

1.1 Is there generally some exchange of information between SAR bodies and large passenger ships?

☐ Never ☐ Punctually ☐ On a regular basis

Comments

1.2 If Yes, in which situation? What type of information is exchanged?

Criteria	Type of information
When the vessel is launched	
During each voyage planning	
When leaving harbour	
In case of bad weather forecasted	
Other:	
Other:	

EVACUATION PROCEDURES & ROUTES

1.3 What is the typical scenario of intervention of SAR bodies (from the moment they receive an emergency or just a preventive call to the moment there is no risk for passengers, and the environment)?

Please describe briefly the 'conventional' procedures applicable in case of flooding (for instance, procedures for communications with the ship at stake, with other ships, with the shipping company, with the Emergency Response Services, with the Coastal/Flag State/Port State Administrations, procedures for sending helicopters, rescue boats, etc…)

1.4 Are there alternatives to these procedures?

☐ Yes ☐ No

If yes, what are the criteria for using alternative procedures in case of a crisis situation? Elaborate

Criteria	Explanation
The type of the initial event: Collision, grounding,… (Breach position / extent / beginning of flooding, …)	
Location of initiating event (remote area, coastal area, etc.)	
Passenger features, such as age, location of people, time of the day when the incident occurs,	
Prediction of the possible escalation (flooding, fire, smoke propagation, ship motion/heel…)	
Other criteria …	

2 FEEDBACK FROM EVACUATION TESTS

2.1 What types of passenger ships were involved in the evacuation test you witnessed/took part in?

☐ Cruise vessels ☐ Ferries

2.2 During evacuation tests of large passenger ships that you witnessed, as far as you can remember, what were the main difficulties encountered?

Phase	Difficulties encountered
Mustering	
Embarking and launching Life Saving Appliances (LSA)	
Navigating in LSA	
Recovery	

2.3 Can you think of minor incident that occurred during evacuation tests you witnessed that were carried out onboard large passenger ship(s) (minor equipment failure, congestion while mustering or embarking in LSA, counting of people in assembly stations…, difficulties for recovering passengers)?

2.4 Can you think of major incident that occurred during evacuation tests you witnessed that were carried out onboard large passenger ship(s) (LSA failure, injuries, …)?

3 FEEDBACK FROM SAR IN REAL CRISIS SITUATION

3.1 Have you in the past participated in/coordinated search and rescue operation for (a) large passenger ship(s)?

☐ Yes ☐ No

If you answered "No" to this question, skip to section 4

3.2 What types of passenger ships were involved?

☐ Cruise vessels ☐ Ferries

3.3 Among the SAR operations for large passenger ships that you have experienced, were the ship(s) abandoned? Partially evacuated?

☐ Yes ☐ No

If you answered "No" to question 3.3, skip to question 3.7

If you answered "Yes"', explain briefly

3.4 During (a) real evacuation(s) that you experienced, what were the main difficulties you can think you encountered?

Phase	Difficulties encountered
Mustering	
Embarking and launching Life Saving Appliances (LSA)	
Navigating in LSA	
Recovery	

3.5 Can you think of minor incident which occurred during evacuation that you experienced (minor equipment failure, congestion while mustering or embarking in LSA, counting of people in assembly stations, difficulties for recovering passengers; etc.)?

3.6 Can you think of major incident which occurred during evacuation that you experienced (LSA failure, injuries, etc.)?

When these incidents occurred, was the situation clear to all personnel at all times?

☐ Yes ☐ No

If no, elaborate.

3.7 During the SAR operations for large passenger ships that you have experienced, what degree of uncertainty was experienced by the SAR bodies involved? This can refer to uncertainty as to what to do, uncertainty as to what is happening, or anything else the user can think of.

Type of Uncertainty	Assessment
On what to do	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain
On what is happening	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain
Other: …….....	Quite sure ☐1 ☐2 ☐3 ☐4 ☐5 Very uncertain

Comments

3.8 Was there any panic amongst the crew that could have affected decision making?

☐ Yes ☐ No

3.9 Hypothetically, could wrong/inappropriate decisions have been made under such pressure?

☐ Yes ☐ No

Would an advanced Decision Support System have been helpful?

☐ Yes ☐ No

Please comment on this

4 DECISION PROCESS FOR EVACUATING

On which basis and in what extent do you (SAR services) advise the Master of the ship in difficulty on the most appropriate decision to be made? In what extent do you collaborate with him?

4.1 What are the different options for SAR operations in case of flooding onboard a large passenger ship?

4.2 In case of flooding, what are the main decision criteria? How do you evaluate the means of SAR and amount of resources to deploy? What are the important criteria? Assess their importance using the scale from 1 to 5 (1 being the less important and 5 the more important)

Criteria	Importance for mustering and abandonment	Importance for SAR operations	Explanations (assessment method and required input)
The type of the initial event: Collision, grounding,… (Breach position / extent / beginning of flooding, …)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Location of initiating event (remote area, coastal area, etc.)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
How long will the ship remain afloat;	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
What will be her motion/heel/trim angle	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
How can the above evaluations be mitigated: possible solutions, selection criteria	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Time needed to muster and abandon the ship	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	

Risk for passenger health related to embarking in LSA	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Risk of LSA deployment failure	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Conditions to which evacuees will be exposed while in LSA at sea (LSA motions, temperature, LSA type…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Time that evacuees will have to spend in LSA at sea before rescue (distance to coast, SAR, other ships…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Available means of Rescue (Helicopter, pilot ladder on other ship…)	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Other criteria:	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	
Other criteria:	☐1 ☐2 ☐3 ☐4 ☐5 Less More	☐1 ☐2 ☐3 ☐4 ☐5 Less More	

6.2.2 Questionnaire Answers

- Question 1.1:

  2 regularly,

  1 never,

  Additional comments:

  There should be between vessels and SAR coordinators. Whether there is or not I don t know. Our organisation provides marine surface SAR units around the coasts of the British Isles and as an organisation we do not exchange information with large passenger vessels

- Question 1.2:

  one: I don't know

- Question 1.3:

  From our perspective:

  Alarm is raised by vessel in distress using any one of the accepted distress message types (choice radio GMDSS etc).

  In the British isles distress watch is kept by the UK and Irish Coastguards and the Channel Islands authorities. They will in turn request the launch of the appropriate RNLI lifeboat/s whilst getting more information from the casualty putting out all-ships broadcasts and alerting other SAR units including Helicopters.

  The co-ordinating authority will then orchestrate the rescue effort guided by the master and rescue units on scene. They will arrange casualty reception points in the event of mass evacuation either ashore or onto another suitable / available vessel in the vicinity.

  Once all persons have been accounted for or the situation is otherwise resolved the co-ordinating authority will release our lifeboats to return to station.

- Question 1.4:

  1 yes, 1 no

  Unanswered

- Question 2.1:

  1 person on both crew and ferry and 1 on just ferries.

- Question 2.2:

  Mustering:

  Mustering liferafts away from the casualty vessel as towing points on liferafts are generally inadequate in that they are either to fragile and come away from the rafts or the lack of rigidity of the rafts cause the rafts to fold between the anchor-points of the towing bridle. Typically this happens at 3 knots or less.

  Evacuation:

  Most exercises involve relatively young and fit volunteers in daylight and benign weather conditions. Mustering and embarking the elderly and infirm in poor conditions or darkness is not exercised and therefore the truth will only out after a real incident.

  Navigation:

  See comments reference towed rafts above.

  Recovery:

  Egress points from liferafts over the inflated tubes need to be covered with a non slip material as survivors invariably have to step up onto the top of the tube as they leave the raft and they are very slippery

- Question 2.3:

  Liferaft towing points tearing out. Liferaft collapsing between the fixing points of the towing bridle (i.e. being pinched together) trapping occupants at very low towing speeds.

- Question 2.4:

  Personnel on evacuation slides injured (typically ankles and knees) as they got to the bottom of evacuation slides from deck level.

- Question 3.1:

  2 yes

- Question 3.2:

  2 for both cruise and ferries

- Question 3.3:

  2 yes.

  Additional comments:

  Partial evacuation of the Sally Star, evacuation of the Emeraud lines vessel off Jersey

- Question 3.4:

  Mustering:

  Getting SAR craft alongside embarkation points due to ferry belting; height of access points above the water line to both SAR craft and LSA once launched. On the Jersey job one female survivor jumped into a liferaft and bounced overboard unfortunately breaking an ankle in the process. (Successfully recovered from the water)

  Embarkation:

  Mustering liferafts away from the casualty vessel

- Question 3.5:

  See 13 answer

- Question 3.6:

  See 13 answer

  2 yes

- Question 3.7:

  On what to do: 2 quite sure,

  On what is happening: 1 quite sure, 1 rather sure

- Question 3.8:

  1 yes, 1 no

- Question 3.9:

  2 yes

  2 no

- Question 4:

  The Coxswain of an RNLI lifeboat would only give advice with regard to how to evacuate personnel and on the likely timescale to conclude a timely evacuation. There will be total collaboration with the Master who retains primacy over his vessel

- Question 4.1:

  Surface or rotary wing SAR craft to evacuate crew. Use of tugs to possibly assist vessel to an area where it can be safely beached. Early and swift evacuation is probably the best option but it totally depends on the location of the incident nature and severity of flooding speed of water ingress cause and nature of damage; ability of casualty vessel to pump maintain course and speed etc

- Question 4.2:

  In a table in section 2.2.2 of the report