Liaison Note to IMO Correspondence Group

Preliminary Response to e-Navigation SAR Gap Analysis

# Introduction

At the 26-30 July 2010 meeting of the IMO Sub-Committee on Safety of Navigation (NAV 56), it was agreed that the development of e-Navigation had now entered the gap analysis stage.

The IMO e-Navigation Correspondence Group subsequently sought input from the e-Nav Committee (20 September 2010, VTS31/12/2) and other stakeholders, advising that the IMO strategy implementation timetable allows for a year to complete this work, and that gap analyses should be submitted by 15 October 2010.

# Background

The e-Navigation User Needs Survey Questionnaire (NAV 55/INF.9, Annex) states that e-Navigation is a new concept being developed by IMO that may have impact on work practices. It is defined as:

*... the harmonised collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment.*

Further, it highlighted that the vision of e-Navigation is embedded in the following general expectations:

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| **On board** | **Ashore** | **Communications** |
| Navigation systems that benefit from the integration of own ship sensors, supporting information, a standard user interface, and a comprehensive system for managing guard zones and alerts. | The management of vessel traffic and related services from ashore enhanced through better provision, coordination, and exchange of comprehensive data in formats that will be more easily understood and utilized. | An infrastructure providing authorized seamless information transfer on board ship, between ships, between ship and shore and between shore authorities. |

# Discussion

IALA has focussed its response to the request for input to the IMO CG gap analysis based on the following:

* Addressing the Shore-based User Needs identified to date as provided in IMO Nav 56/WP.5/Rev.1, Annex 4;
* What it perceives as the ‘User Needs’ from a SAR perspective, which is focused on the ‘Ashore’ component of the e-navigation vision as defined above;
* Recognising the interactive nature of SAR with individual vessels and other RCC’s it has attempted to also reflect possible gaps in the ‘Ashore’ and ‘Communications’ expectations as defined above.

Noting that the deadline for contributions is 15 October 2010, only a preliminary Gap Analysis was possible. IALA members are therefore encouraged to provide any supplementary analysis to the IMO CG directly.

In addition, IALA recognises that views from the joint IMO/ICAO SAR group will be sought, and further work on the analysis will be conducted at IMO COMSAR 15 in March 2011.

# Additional information

Information on radionavigation and communications, provided in NAV53/13 has been reviewed and is still considered relevant. Further information will be provided in due course.

1. Preliminary Response – SAR Gap Analysis

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| **User Need**  **SAR should have access to relevant information contained within the e-navigation domain** | IMO Ref: NAV 56 WP 5 rev1 Annex 4 |
| **Stakeholder:**  SAR | |
| **Description of User Need:**  SAR services need a full range of information pertaining to ships and their domain to support the saving of lives.  **Current State:**  Regional cooperation is satisfactory. Exchange of information in non-digital format is common, but could be improved.  **Desired State:**  Free flow of information, in a digital format, underpinned by international agreement. It should be noted however that for the foreseeable future, many RCCs may not have the resources to upgrade their systems and that non digital information may need to be provided to ensure effective SAR response. | |

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| **Context** | **Gap Identification** | **Additional Comments** |
| **Technical**  Hardware  Software  Equipment  Links  Data structure | Hardware:  Resources and capability available for infrastructure can be lacking and therefore tools needed for accessing digital data may not be available.  Lack of data in digital format. | There is a danger in constraining RCCs to use only digital data.  It must be noted that not all RCC will be capable of handling digital data in the short term. |
| **Regulation/Standards** | National implementation of regulations can vary, leading to gaps in coverage on an international basis.  GMDSS in place, but implementation across the world varies.  Gap is between ‘aspiration’ and ‘delivery’. | Consideration ought to be given to strengthening the implementation of SAR facilities through IMO administrative (Voluntary IMO Audit Scheme) VIMSAS scheme.  Use to be made of best practices and common formats. |
| **Operationa**l  Procedural | Lack of an effective SAR system in some parts of the world.  Lack of adequate number of trained personnel. | Many national RCCs in the foreseeable future will need the ability to source information in analogue format.  In the foreseeable future, information coming in from the On Scene Coordinators will come across on a voice rather than a data link  It should be noted during the development of e-navigation that these limitations are to be taken into account so as not to diminish the effectiveness of SAR services  The use of LRIT data for SAR purposes is increasing.  Access to better information from ships in distress will reduce uncertainly in the rescue phase (i.e., ‘less search, more rescue’) |
| **Training**  Human Element | Gaps may appear as new tools and techniques become available for sourcing information. | As e-navigation evolves, and greater amounts of information become available in digital format, SAR training will have to take into account new hardware and software tool. |

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| **User Need**  **Effective communication and information sharing** | IMO Ref: NAV 56 WP 5 rev1 Annex 4 |
| **Stakeholder:**  SAR | |
| **Description of User Need:**  SAR must be able to use the e-navigation infrastructure to communicate and share information effectively with all parties involved in an incident  **Current State:**  Information is currently shared according pre-agreed protocols by the SAR coordinator in the RCC, mostly using voice communications.  **Desired State:**  Greater use and sharing of information in a digital format, intergated and presented, will aid decision support. However, the use of voice will remain critically important from a human element point of view.  Note that the GMDSS scoping exercise may result in changes in communication means, both on board and ashore, which will have to be taken into consideration | |

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| **Context** | **Gap Identification** | **Additional Comments** |
| **Technical**  Hardware  Software  Equipment  Links  Data structure | Limited resources for communication infrastructure | Fully automated data network, where all parties involved in a SAR incident are ‘connected’ is desirable.  .  Consideration should be given to improve communication between assets at sea, air and land and the RCCs. |
| **Regulation/Standards** |  |  |
| **Operationa**l  Procedural | Currently, collecting info pertaining to a distress situation consumes valuable time. | The efficient gathering and exchange of information pertaining to an incident in digital format and on digital displays will allow greater time for essential personal communication with persons in distress. |
| **Training**  Human Element | Gaps may appear as new tools and techniques become available for sourcing information. | As e-navigation evolves, and greater amounts of information become available in digital format, SAR training will have to take into account new hardware and software tools. |

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| **User Need**  **Priority for distress communications** | | IMO Ref: NAV 56 WP 5 rev1 Annex 4 | |
| **Stakeholder:**  SAR | | | |
| **Description of User Need:**  Within the e-navigation doman, distress communications should take priority over all other communications  **Current State:**  The use of voice communications allows priority to be given to distress communications.  **Desired State:**  With the move to broadband and digital data, priority afford to distress communications must be maintained | | | |
| **Context** | **Gap Identification** | | **Additional Comments** |
| **Technical**  Hardware  Software  Equipment  Links  Data structure | Potential loss of priority | | The move to digital communications needs to be managed to ensure that the distress communications continue to receive priority |
| **Regulation/Standards** |  | | Addressing this issue will require work at forums such as IMO, ITU and IEC. |
| **Operationa**l  Procedural |  | | Establish procedure for activating priority messages …. |
| **Training**  Human Element |  | | Ensure training is provided for correct use and activation of priority messages |

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| **User Need**  **SAR authorities need access to the details of all relevant onboard communications equipment and capabilities.** | IMO Ref: NAV 56 WP 5 rev1 Annex 4 |
| **Stakeholder:**  SAR | |
| **Description of User Need:**  To maximise incident response, SAR needs to be able to determine the best means for communications.  **Current State:**  Current best practice is to communicate with the distress vessel using the same means as the distress message. In the case of a distress beacon being the means of distress alerting, contact with the vessel is usually by trial and error.  **Desired State:**  SAR authority to have access to the details of all communications methods available to the distress vessel  **General comment:**  Solutions to this user need may be achieved through technology, regulation or best practice. How this is taken into account in an e-Navigation enviorment is yet to be determined. | |

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| **Context** | **Gap Identification** | **Additional Comments** |
| **Technical**  Hardware  Software  Equipment  Links  Data structure |  |  |
| **Regulation/Standards** |  |  |
| **Operationa**l  Procedural |  |  |
| **Training**  Human Element |  |  |

# Action requested

The IMO Correspondence Group is requested to note the information provided.