REPORT TO IMSO ASSEMBLY 22 ON GMDSS

Submitted by IHB

SUMMARY

Executive Summary: This document provides details of the activities of the IMSO Directorate relating to the GMDSS and the provision of GMDSS services by Inmarsat Global Ltd.

Action to be taken: Paragraph 2.

Related documents: IMSO Assembly 22/6

1. See attached document.

2. The Sub-Committee is invited to note the information provided and take action as appropriate.

S226

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GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

Executive Summary:	this document provides information on the activities of the Directorate relating to the GMDSS, and the provision of GMDSS services by Inmarsat Global Ltd.
Action to be taken:	to note the information provided
Related documents:	ASSEMBLY/22/10

1 BACKGROUND

1.1 The Organization's responsibilities in relation to the Global Maritime Distress and Safety System (GMDSS), are prescribed in Articles 3 and 5 of the IMSO Convention, as amended, which states that the Primary Purpose of the Organization is to ensure the provision, by each Provider, of maritime mobile satellite communications services for the GMDSS according to the legal framework set up by IMO. In implementing the Primary Purpose, the Organization shall act exclusively for peaceful purposes; and perform the oversight functions in a fair and consistent manner among Providers. Oversight of the GMDSS is enabled by the execution of a Public Services Agreement (PSA) with each Provider. IMSO Parties shall take appropriate measures, in accordance with national laws, to enable Providers to provide GMDSS services. IMSO, through existing international and national mechanisms dealing with technical assistance, should seek to assist Providers in their effort to ensure that all areas, where there is a need, are provided with mobile satellite communications services, giving due consideration to the rural and remote areas.

1.2 The only recognized GMDSS provider at this time is Inmarsat Global Ltd (Inmarsat); the Public Services Agreement executed with Inmarsat in 1999 remains in force until such time as another GMDSS Provider is recognized by IMO, under IMO Resolution A.1001(25) "Criteria for the Provision of Mobile-Satellite Communication Systems in the Global Maritime Distress and Safety System (GMDSS)."

1.3 The Director General reported to the Twenty-First Session of the Assembly on Inmarsat activities including contingency exercises, meetings of the Public Services Committee and information relating to potential GMDSS providers. At that Session, the Assembly also received presentations on Inmarsat's activities, future plans and safety services. The Assembly noted the broad support provided by the Directorate to the GMDSS in general and encouraged the Director General to continue to promote all aspects of the use of maritime mobile satellite communications in the GMDSS.

2 GMDSS SERVICES PROVIDED BY INMARSAT

2.1 Analysis of GMDSS Performance

2.1.1 IMSO reports annually to the IMO Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) on its Analysis and assessment of the GMDSS performance of Inmarsat Global Ltd. Since the previous session of the Assembly, such reports have been submitted to the Fifteenth and Sixteenth Sessions of COMSAR. Copies were sent to all IMSO Member States and are available on request. These reports covered the period from 01 November 2009 to 31 October 2010 (COMSAR 15/5/1) and 01 November 2010 to 31 October 2011 (COMSAR 16/5/1). In these documents, IMSO informed IMO it had assessed that, during these periods, Inmarsat has continued to provide a sufficient quality of service to meet its obligations under the GMDSS.

2.1.2 However, IMSO had made this assessment for the year ending 31 October 2011 on a provisional basis because, at the time of submission of the report to COMSAR 16, it had not received full information and analysis concerning a significant satellite service outage on 22 October 2011. After IMSO had provided verbally further information concerning that event, derived from the subsequent inquest conducted by Inmarsat with participation by IMSO, COMSAR agreed to modify IMSO's assessment of Inmarsat's performance during the year as follows: *"It is assessed that, with the exception of the service outage in the Pacific Ocean Region (POR) on 22 October 2011, Inmarsat has continued to provide a sufficient quality of service to meet its obligations under the GMDSS."* (COMSAR 16/17 paragraph 5.6). Further information about this event is given in paragraph 2.9 below.

2.2 Apparent Loss of Control of Inmarsat Satellite in Pacific Ocean Region on 22 October 2011

2.2.1 At approximately 08:58 UTC on the morning of Saturday 22 October 2011 Inmarsat lost control of the Inmarsat third generation satellite (I3F3) acting as the

prime satellite over the Pacific Ocean Region (POR). All maritime distress and safety services, plus the maritime general communication services provided by that satellite were lost at the same time. Emergency reconfiguration of the network over the POR was commenced at 11:07 UTC and maritime distress and safety services were restored to the western part of the POR some 10 minutes later. However, additional technical problems delayed restoration of distress and safety services to the eastern part of the POR until 13:30 UTC. The satellite was eventually brought back under control and maritime distress and safety services were fully restored to the prime satellite by 00:15 UTC on 23 October. IMSO was informed of the incident immediately after the problem was detected, and remained in contact with Inmarsat to assist subsequent decision making throughout the weekend.

2.2.2 The time taken to achieve restoration of the distress and safety services on this occasion was extended because of some particular technical issues with this specific satellite. Taking account of these known issues, Inmarsat did not begin the restoration process until well after the delay allowed for in their standard operating procedures (which are exercised regularly under the oversight of IMSO – see paragraph 2.6 above). At that point unexpected technical problems delayed restoration in the eastern POR for a further period. As a result, it took approximately 2hrs 19 mins to restore distress and safety services in the western POR, and a further 2hrs 13mins before those services were recovered in the eastern POR. These times are considerably longer than the 60 minutes maximum outage time allowed by IMO Resolution A.1001(25) paragraph 3.6.1.

2.2.3 IMSO has written to the Chairman of Inmarsat to formally draw attention to this failure by the company to fulfil its obligations under the terms of the Public Services Agreement and IMO resolution A.1001(25). The matter has also been discussed at the highest level within the Public Services Committee. Additionally, IMSO is continuing to work with Inmarsat technical and operational staff to apply the lessons from this incident, monitor the health of the specific I3F3 satellite concerned and develop procedures to minimise the potential of a re-occurrence anywhere in the network.

2.3 **Inmarsat Activities**

2.3.1 This document should be read together with document Assembly/22/10 which reports in more detail on Inmarsat corporate affairs, including Inmarsat's shareholdings, plans for future generations of satellites. The Director General has continued to keep the Advisory Committee informed of Inmarsat activities, summarized, and updated as appropriate, as follows:

(a) Inmarsat has decided that the next (fifth) generation of Inmarsat satellites will operate in the Ka-band and will be optimised to provide broadband

connectivity to maritime and other mobile users.[1] These satellites will not therefore be configured initially to provide maritime distress and safety services. Inmarsat currently intends to maintain these vital services on the Inmarsat-4 constellation whose lifetime is expected to extend into the 2020s. Inmarsat intends to continue to procure future L-band satellites which will be capable of continuing to support safety services. The Director General will keep the Advisory Committee informed as this situation develops;

(b) Inmarsat intends to seek future recognition and approval for the Inmarsat FleetBroadband FB500 terminal to be used in GMDSS ship installations. Inmarsat is now working to develop and implement the specific elements of service and backup that would be required by the Organization before FB500 terminals could be approved for such use. IMSO remains closely involved in discussions relating to the design and implementation of the proposed new capabilities and the timetable for their introduction;

(c) the Inmarsat **'**505' emergency calling service provides a non-GMDSS-compliant voice connection to an RCC via some FleetBroadband terminals. This valuable service, which is seen as a precursor to full GMDSS compliance for FleetBroadband FB500 terminals, passed its first anniversary having been utilised in some 100 incidents. Use of the service is monitored on a regular basis and no misuse or false calls have been noted;

(d) a presentation was made to the Advisory Committee concerning the Ancillary Terrestrial Component (ATC) development by LightSquared in the United States, using some L-band spectrum leased from Inmarsat to extend cellular telephone coverage within the continental United States; the United States' Federal Communications Commission (FCC) has subsequently received firm evidence that this proposed service will interfere with some essential uses of the Global Positioning System (GPS) within the USA, and has denied LightSquared the permissions it would need to proceed with further technical development at this time. The proposal also had some potential; to interfere with essential Inmarsat C based GMDSS services in US coastal and internal waters. This potential situation might also have concerned other States in the future, and it was understood that the ITU, which sometimes refers to this ground based

[1] Broadband connectivity to maritime and other mobile users, as well as in rural and remote areas and in case of natural disasters is being promoted as part of the "Broadband Challenge" proclaimed by the UN Broadband Commission of which the Director General is a Founder Commissioner.

infrastructure as “complementary ground component” (CGC)” was also considering this matter.

3 REFERENCE PUBLIC SERVICES AGREEMENT AND POSSIBLE FUTURE PROVIDERS OF GMDSS SERVICES

3.1 At its Twentieth Session, the Assembly approved the text of the Reference Public Services Agreement (PSA), and authorized the Director General to negotiate and sign PSAs with GMDSS providers recognized by the International Maritime Organization (ASSEMBLY/20/Record of Decisions, Section 6.2 and Annex 8 refer) .

3.2 The Director General has kept the Advisory Committee informed of developments in relation to possible new GMDSS providers. IMO COMSAR 15 noted the widespread desire to include additional satellite system providers in the GMDSS, considered that the development of more precise guidance on how applications should be submitted to the Organization and evaluated would be necessary, and invited interested parties to submit proposals in this respect. Bearing in mind the complexities of the issues involved, COMSAR invited IMSO to contribute specifically to the work of the Correspondence Group in this regard. Meanwhile, IMSO continues to maintain a close liaison with Thuraya and its technical and operational advisers, and other potential additional satellite operators in the GMDSS, to ensure that the future evolution of the GMDSS takes full account of the advantages that may be achieved from the participation of other satellite operators in the GMDSS.

3.3 A submission was made to IMO MSC 88 by the United Arab Emirates concerning the Thuraya Satellite System in relation to GMDSS under the Criteria of Resolution A.1001(25). Should IMSO be requested to carry out any work in connection with this submission, the cost of such work should not be borne by Inmarsat nor by LRIT Data Centre Operators. The Advisory Committee has agreed that a daily fee for GMDSS related work, which is outside of the scope of its Inmarsat-related activities, should be calculated by dividing the annual agreed GMDSS budget by 260 working days. The fees for 2011 and 2012 were set at £2,500 and £2,700 respectively. Any expenses incurred would be charged at cost.

4 OTHER GMDSS-RELATED ACTIVITIES OF THE DIRECTORATE

4.1 A significant proportion of the effort of the Directorate is expended on activities in relation to the satellite-based elements of the GMDSS. The Advisory Committee has expressed a desire that IMSO should take a more active role in the promotion and management of satellite services for maritime distress and safety in

general, and the Director General has undertaken to seek opportunities to do so within the resources available. In this regard, the Directorate currently undertakes a wide range of GMDSS-related activities, generally in co-operation and co-ordination with various organs of IMO, WMO and/or IHO.

4.2 Since the previous session of the Assembly, IMSO has submitted a number of significant GMDSS-related documents to IMO, which are notified to IMSO Member States and posted to the IMSO Website, as follows:

- MSC 88/8/3 - Use of Inmarsat FleetBroadband 500 communications equipment within GMDSS

- COMSAR 15/3/2 - Operational and technical coordination provisions of maritime safety information (MSI) services including review of the related documents – Review of the NAVTEX Manual – co-sponsored with IHO and WMO

- COMSAR 15/5 - Shore-to-Ship voice Distress Priority Calls via Inmarsat

- COMSAR 15/5/1 - Analysis and assessment of the GMDSS performance of Inmarsat Global Ltd.

- COMSAR 16/3/3 - Review of COMSAR/Circ.36 on the broadcast of warnings for tsunamis and other natural disasters – co-sponsored with IHO and WMO

- COMSAR 16/3/4 - Draft amendments to MSC.1/Circ.1382, annex 8 on the International SafetyNET Service – co-sponsored with IHO and WMO

- COMSAR 16/5 - Shore-to-Ship Voice Distress Priority Calls via Inmarsat

- COMSAR 16/5/1 - Analysis and assessment of the GMDSS performance of Inmarsat Global Limited

4.3 In addition to participating in all sessions of the IMO Maritime Safety Committee, COMSAR and NAV Subcommittees, the Directorate has participated actively in a number of GMDSS-related international committees and working groups, as follows:

- Joint IMO/ITU Experts Group – Sixth and Seventh sessions
- ICAO/IMO Joint Working Group on the Harmonization of Aeronautical and Maritime SAR – Seventeenth and Eighteenth sessions
- IMO Correspondence Group on the Scoping Exercise to establish the need for a Review of the Elements and Procedures of the GMDSS – ongoing
- International NAVTEX Co-ordinating Panel – in continuation

- International SafetyNET Panel – in continuation
- WMO International Forum of Users of Satellite Data Communication Systems
- IHO Subcommittee on the World Wide Radio Navigational Warning Service (WWNWS) – Second and Third sessions
- IALA Working Group on eNavigation – Eighth to Eleventh sessions
- NATO Industrial Resources and Communications Services Group 2012 Plenary Meeting on Evaluation and vulnerabilities of civil maritime telecommunications (including GMDSS services).

4.4 Specific activities in which IMSO is actively involved within these various forums are regularly reported to each session of the Advisory Committee. The current status of some of these activities is summarized in the following paragraphs.

4.5 **Annual Reports on the Analysis and assessment of the GMDSS performance of Inmarsat Global Ltd**

These reports are timed to include the latest statistical information derived from Inmarsat's operational monitoring systems that is available by the final date for the submission of documents for the COMSAR session concerned. Therefore they are not always able to be seen by the Advisory Committee before submission to IMO. The reports incorporate statements of the current status of the space, ground and mobile terminal segments of the Inmarsat networks, relevant to GMDSS operations, as well as statistical analyses of the performance of distress alerting, distress communications and maritime safety information broadcasts during the period under review. These reports reflect the broad range of information that IMSO keeps under continuous review as the core of its GMDSS-related monitoring activity. Based on this knowledge, IMSO provides IMO with an assessment of the actual performance of the Inmarsat networks in respect of GMDSS during the period. The two annual reports that have been produced since the previous session of the Assembly are available from the Directorate on request (COMSAR 15/5/1 and COMSAR 16/5/1).

4.6 **Spectrum issues**

4.6.1 Spectrum issues are an ongoing activity that is dealt with by the Joint IMO/ITU Experts Group. This meets annually and is responsible for the preparation of the IMO position for each triennial ITU World Radio Conference. There must be a continuous effort to protect the maritime frequency allocations, guard against the many proposals for re-allocation of that spectrum, and make the case for additional maritime spectrum allocations to permit the evolution of new technologies (e.g. revision and modernization of GMDSS or eNavigation). IMSO always attends this group to support the existing maritime mobile satellite spectrum allocations and ensure that IMO maintains a watchful eye against any attempt to dilute the protection of the distress frequencies in particular. IMSO does not have the

resources to attend the series of lengthy ITU Conferences and Preparatory Meetings.

4.6.2 The importance of this work is reflected in the fact that the World Radio Conference that took place early in 2012 (WRC-12) adopted 22 resolutions that impact specifically on maritime radiocommunications in general and the GMDSS in particular. The WRC-12 also adopted resolutions that affect communication capabilities in developing countries, including one relating to the use of orbital positions and associated spectrum for delivering public telecommunication services in developing countries, which the WRC requested ITU to bring to the specific attention of IMSO and ITSO.

4.7 **Maritime Search and Rescue Operations**

It is particularly important to maintain close knowledge of and liaison with the operational end of maritime Search and Rescue. This is achieved through visits to RCCs, whenever possible, and regular attendance at the annual meetings of the ICAO/IMO Joint Working Group on the Harmonization of Aeronautical and Maritime SAR. This group works on all aspects of operational SAR, including maintenance of the IAMSAR Manual, development of operational methods and techniques, as well as consideration of possible future enhancements. As such, input from IMSO concerning practical satellite capabilities for maritime SAR can be extremely valuable.

4.8 **Broadcast of maritime safety information**

4.8.1 The broadcast of maritime safety information is one of the most valuable contributions that satellite communications can make to maritime safety. The International SafetyNET broadcast is provided via the Inmarsat satellites to Inmarsat C and mini-C terminals in almost all GMDSS ships. IMSO staff worked on the fundamental design of these services and now maintain a close watch on the ongoing provision of this broadcast. SafetyNET dovetails precisely with the terrestrial NAVTEX service and so it is vital that IMSO also assists in the international co-ordination of those services through active participation on the International NAVTEX Panel. This work also involves close liaison with the World Meteorological Organization (WMO) and the International Hydrographic Organization (IHO). This work includes detailed drafting to maintain the currency of the relevant operational handbooks: the International NAVTEX Manual and the International SafetyNET Manual. A completely revised text of the NAVTEX Manual, which had been co-sponsored by IMSO, was approved for publication by MSC 89.

4.8.2 In this regard, and in view of the increasing interest in opening up a Northern Sea Route within Arctic waters, IMO, WMO and IHO have been working to introduce new NAV/MET Areas covering the waters concerned. After much

development work and operational testing, these areas were finally declared operational on 1 June 2011. IMSO has been closely involved in the technical and operational work supporting the establishment of these new NAV/MET Areas and continues to work with Inmarsat to ensure that the required SafetyNET receiver modifications are introduced in the most appropriate manner;

4.9 **IMO Correspondence Group on the Scoping Exercise to establish the need for a Review of the Elements and Procedures of the GMDSS**

4.9.1 MSC 86 in 2009 approved a proposal to undertake a Scoping Exercise on how any review of the elements and procedures of the GMDSS may be implemented and further advise on the shape, size and structure of this review. IMSO has taken a particularly active role in this work because the IMO/ITU Expert Group has noted general support for the consideration of the future recognition of regional satellite service providers in the GMDSS, and COMSAR:

> *3.31 . . noted the comments provided by the Working Group regarding additional satellite system providers for the GMDSS and considered that the development of more precise guidance on how applications should be submitted to the Organization and evaluated would be necessary. The Sub-Committee invited interested parties to submit proposals in this respect.*
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> *3.32 ... invited IMSO to actively participate in the Scoping exercise process.* (COMSAR 15/16).

4.9.2 In addition, MSC 88 in 2010 "*noted a view that certain issues needed to be investigated and that IMSO might be requested to submit a report with regard to the conformity of the Thuraya Satellite System."* At that Session, IMSO "*informed the Committee that they had on previous occasions provided assistance to the United Arab Emirates and Thuraya and intended to continue doing so. They also stated their commitment to provide assistance to the Committee and the COMSAR Sub-Committee, as required."*

4.9.3 The IMO Correspondence Group on the Scoping Exercise included in its report to COMSAR 16 a detailed proposal by IMSO concerning guidance on a procedure for the submission and evaluation of applications by additional satellite system providers for participation in the GMDSS. This proposal was subsequently endorsed by COMSAR 16 as a draft MSC Circular on Guidance to prospective GMDSS satellite service providers for subsequent approval by the Committee (attached at **Annex I**). This guidance provides for IMSO to undertake the Technical and Operational Assessment of any applicant satellite system to be recognized as a

GMDSS provider, and produce a report as part of the evaluation process to be carried out by COMSAR prior to the eventual recognition by MSC.

4.9.4 COMSAR 16 in March 2012 also approved a draft revised Work Plan on the "Review and Modernization of the Global Maritime Distress and Safety System". The plan of work from this draft work plan extends from now until 2017, and is included at Annex II to this document. It is envisaged that actual implementation of the Plan would begin in 2017 and extend for a period of perhaps five years thereafter.

4.9.5 Following the request of COMSAR 15 and the outcome of MSC 88, the Directorate will continue to co-operate closely with the Correspondence Group on the Scoping Exercise, in particular in relation to the development of detailed requirements and procedures for the integration of additional satellite operators into a future GMDSS.

4.10 **Electronic Navigation (eNav)**

4.10.1 IMSO is following developments concerning the communications aspects of the electronic navigation (eNav) project being undertaken under the auspices of IMO and in IALA. IMO COMSAR 15 noted that work on the user needs for communications in the e-navigation concept had identified and adopted different needs for communication in different areas and for different operations, and had concluded that the three main areas for further review and discussion were the following:

- Identification of essential communication needs for safe navigation;
- Identification of different stakeholders and operational areas; and
- Identification of different needs of each stakeholder in their operational area.

4.10.2 IMO has concluded, in its eNav strategy, that "***GMDSS communications are essential to safe navigation and will play a key role in the implementation of the eNavigation strategy***."

4.10.3 The Directorate will therefore continue to monitor the evolution of the communications elements of the e-navigation project and provide assistance to IMO and the IALA process as needed.

4.11 **Other GMDSS-related Issues**

In addition to the major activities noted above, the following notes give an indication of the breadth of GMDSS-related issues progressed by the Directorate since the previous session of the Assembly:

(a) advice and discussions regarding **counter-piracy operations** - the Directorate has been involved in leading efforts to implement effective maritime information flows to naval forces engaged in counter-piracy operations and merchant shipping in the North West Indian Ocean area of operations;

(b) the **withdrawal of telex services** – has been an issue of concern because it has not yet been possible to identify a sufficiently reliable and robust replacement for SAR communications; the Directorate is monitoring this situation carefully because it affects the reliable and immediate delivery of distress alerts to RCCs;

(c) general **distribution of distress alerts** within the Search and Rescue (SAR) system; there remains a desire to establish a workable method of delivering distress alerts directly and immediately to the responsible RCC, as opposed to the present system whereby an alert is delivered to the "first" RCC which then assumes the responsibility for either prosecuting the distress itself or passing it on to the responsible RCC when possible. This procedure is often hampered by the non-availability of some RCCs, and that factor also frustrates efforts to deliver all distress alerts to the appropriate responsible RCC. The efficient delivery of ALL distress alerts to an RCC that will act upon those alerts remains a matter of concern for the Directorate;

(d) **Satellite Detection of AIS** (Automatic Identification System for Ships) – is now being provided by some commercial satellite operators; it is generally being seen as a complement to the LRIT system rather than a replacement for it; the costs of purchasing satellite AIS data can exceed the cost of LRIT data by a considerable margin. The Directorate is continuing to monitor the development of satellite AIS services;

(e) **Distress priority communications in the shore-to-ship direction** – there has been a number of incidents in the past in which the acting RCC has had difficulty establishing a shore-to-ship communications link to the vessel in distress, and IMSO was requested by the COMSAR Subcommittee to work with Inmarsat and some Member States to identify ways of improving the situation. Two issues affect this: the lack of priority over the public switched networks generally used by RCCs for SAR communications, and the possible "blocking" of the Land Earth Station (LES) gateway by other ongoing calls. The Directorate has worked with Inmarsat to develop operational means whereby an RCC can pre-empt ongoing calls at an LES in favour of SAR communications, and reported the outcome to IMO (COMSAR 15/5).

ANNEX I

DRAFT MSC CIRCULAR

GUIDANCE TO PROSPECTIVE GMDSS SATELLITE SERVICE PROVIDERS

1 The Maritime Safety Committee, at its [ninetieth session (16 to 25 May 2012)], approved the attached Guidance to prospective GMDSS satellite service providers, prepared by the Sub-Committee on Radiocommunications and Search and Rescue, at its sixteenth session.

2 The purpose of this circular is to provide guidance with respect to the provisions of resolution A.1001(25) on Criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS).

3 Member Governments are invited to bring this Guidance to the attention of all parties concerned.

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GUIDANCE TO PROSPECTIVE GMDSS SATELLITE SERVICE PROVIDERS

INTRODUCTION

1 IMO Assembly resolution A.1001(25) provides the adopted criteria for the provision of mobile satellite communication systems in the Global Maritime Distress and Safety System (GMDSS) and requests the Maritime Safety Committee to:

(a) apply the criteria set out in the annex to the present resolution, through the procedure set out in section 2 of the annex, to evaluate satellite systems notified by Governments for possible recognition for use in the GMDSS, within the context of the relevant regulations of SOLAS chapter IV; and

(b) ensure that mobile satellite communication systems recognized by the Organization for use in the GMDSS are compatible with all appropriate SOLAS requirements, and also that such recognition takes into account existing operational procedures and equipment performance standards.

2 The Maritime Safety Committee, at its eighty-eighth session agreed on the need to further study the implementation of the concept of regional satellite systems in the GMDSS and instructed the COMSAR Sub-Committee to consider the matter under its agenda item "Scoping exercise to establish the need for a review of the elements and procedures of the GMDSS". As a result, the COMSAR Sub-Committee developed this Guidance to prospective GMDSS satellite service providers with respect to the provisions of resolution A.1001(25).

BACKGROUND

3 Section 2 of Assembly resolution A.1001(25) provides information and guidance on the recognition for mobile satellite communications systems for use in the GMDSS. It includes some key provisions, as follows:

.1 The evaluation and recognition of satellite systems participating, or wishing to participate in the GMDSS are undertaken by the Organization;

.2 Satellite system providers wishing to participate in the GMDSS should apply to the Organization, through a Member State;

.3 Such applications should be notified to the Organization by Governments;

.4 The application will be reviewed by the Maritime Safety Committee (the Committee);

.5 If the Committee decides that there are no objections in principle to the application, it will forward the application to the COMSAR Sub-Committee for evaluation;

.6 Recognition of the satellite provider to operate in the GMDSS will be undertaken by the Committee on the basis of the evaluation report;

.7 The governments concerned should make available to the Organization all necessary information to enable it to evaluate the satellite system in relation to the criteria;

.8 Governments proposing such satellite systems for possible recognition and use in the GMDSS should provide evidence to show that:

.1 the satellite system conforms with all the criteria specified in (resolution A.1001(25));

.2 the charging policies and provisions of resolution A.707(17), as amended, on Charges for distress, urgency and safety messages through the Inmarsat system, are complied with;

.3 there is a well-founded confidence that the company concerned will remain viable for the foreseeable future, that the company has a well-organized quality and risk management programme, and that the company will remain in a position to deliver the required services over an extended period; and

.4 the provider of the satellite system is ready to submit any recognized services to oversight by IMSO and sign the required Public Services Agreement (PSA) with that organization; and

.9 The COMSAR Sub-Committee should verify and evaluate the information, seeking clarification as required direct from the service provider concerned, and decide whether the satellite system meets the criteria established by resolution A.1001(25).

4 The main questions requiring additional guidance to these provisions of resolution A.1001(25) are:

.1 What constitutes: "… all necessary information …";

.2 Must a satellite system offer full global coverage in order to be considered for participation in the GMDSS;

.3 Should the proposing government(s) accept responsibility for the accuracy and completeness of the information provided;

.4 On what basis can the proposing government(s) and the Organization establish "… *a well-founded confidence that the company concerned will remain viable for the foreseeable future …*";

.5 How does the COMSAR Sub-Committee undertake its evaluation and produce an evaluation report; and

.6 How can the evaluation and recognition process be accomplished within a timescale that coincides with the commercial realities of successful and proper Company administration and management?

These questions are addressed in the following paragraphs:

WHAT CONSTITUTES: "… ALL NECESSARY INFORMATION …"?

5 The information and evidence that will be necessary for a full and comprehensive evaluation of any submission to be carried out is very wide-ranging and quite detailed. Experience of designing, implementing and operating the present satellite-based elements of the GMDSS, and evaluating their initial and continuing operational and other capabilities, has shown that it will not be sufficient, for example, to accept a plain statement such as: "the system can deliver a distress alert to an RCC within 60 seconds of it being originated". In such a case, in order to provide an assurance to the Committee that the candidate system will meet this target reliably on a high percentage of occasions, the evaluation would need to take into account such diverse factors as:

.1 Spectrum: frequency band; type of allocation; reliability of signalling in this band; etc.

.2 Constellation: number and arrangement of satellites; link budget; number of on-orbit spares required and provided; inter-satellite hand-offs; etc.

.3 Ground segment: number and geographical disposition of ground stations, satellite and communication network control arrangements; contingency arrangements in the event of satellite or network failures; availability; time of contingency service restoration; communication links to RCCs; distress alert distribution arrangements; message prioritization; personnel availability, shift patterns, training; etc.

.4 Mobile terminals: design, manufacture and market availability; test procedures and type approval, IEC compliance; capabilities; signalling modes and protocols; ship installation guidelines and arrangements; etc.

.5 Live end-to-end system and contingency tests.

.6 Availability, performance and arrangement comparable to existing GMDSS satellite services, including Maritime Safety Information.

This list is not fully comprehensive. However, it serves to illustrate the complexity of the consideration when evaluating submissions from potential additional satellite system providers for participation in the GMDSS under the requirements of resolution A.1001(25).

MUST A SATELLITE SYSTEM OFFER FULL GLOBAL COVERAGE IN ORDER TO BE CONSIDERED FOR PARTICIPATION IN THE GMDSS?

6 According to section 1.3 of resolution A.1001(25), the Coverage Area of the satellite system is the geographical area within which the satellite system provides an availability in accordance with the criteria stated in section 3.5 in the ship-to-shore and shore-to-ship directions, and within which continuous alerting is available. Section 3.5, dealing with availability, states among others that the satellite system should provide continuous availability for maritime distress and safety communications in the ship-to-shore and shore-to-ship directions.

If the system(s) which a ship is licensed to use does not offer full global coverage, administrations will need to devise a means of matching the ship's distress and safety radio capabilities with the regions of the world in which she is permitted to operate.
In this context, it is important to note that satellite systems forming part of the GMDSS should provide capabilities for all the nine maritime distress and safety communications functions specified by chapter IV, regulation 4.

SHOULD THE PROPOSING GOVERNMENT(S) ACCEPT RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION PROVIDED?

7 Individual proposing Member States are unlikely to be able to endorse technical, operational and financial statements made by a potential satellite system provider for the GMDSS, as required by paragraph 2.2.2 of the annex to resolution A.1001(25), to the breadth and depth necessary for the Committee to reach an informed decision on an application.

8 With this in mind, the COMSAR Sub-Committee should be provided with an in-depth Technical and Operational Assessment report, on which to base its evaluation and any recommendation to the Committee.

9 The universal credibility of the Technical and Operational Assessment will require that any applicant satellite communications system operator provides hard, incontrovertible evidence, including suitable metrics wherever appropriate, in support of its application. Although the sufficiency and accuracy of the evidence provided should be assured by the submitting Member State(s) before any such application is forwarded for consideration by the Committee, it is likely that both the Company and Member State representatives will need to discuss the evidence and liaise with those conducting the Assessment before the evidential submission is completed.

ON WHAT BASIS CAN THE PROPOSING GOVERNMENT(S) AND THE ORGANIZATION ESTABLISH "… ***A WELL-FOUNDED CONFIDENCE THAT THE COMPANY CONCERNED WILL REMAIN VIABLE FOR THE FORESEEABLE FUTURE …*****"?**

10 The evaluation of a potential applicant company in relation to the requirement that "there is a well-founded confidence that the company concerned will remain viable for the foreseeable future and will remain in a position to deliver the required services over an extended period" poses particular difficulties. Financial regulations and laws in many countries prevent companies from making the kind of forward-looking statements that could assist the Committee in this regard, and any publicly owned company is entirely subject to the vagaries of the stock markets. Therefore, it is recommended that the proposing government(s) should be the only entity(ies) that should make a statement to the Committee in relation to this requirement, and such a statement might probably only be phrased in terms of the requirement itself. For instance, it could be stated that the provider has been providing services for […] years, is a going concern, and that there is no reason to believe that the provider would not be able to continue to do so.

HOW DOES THE COMSAR SUB-COMMITTEE UNDERTAKE ITS EVALUATION AND PRODUCE AN EVALUATION REPORT?

11 Given the complexity of the Technical and Operational Assessment, the technical and operational experience required, the probable need for a dialogue between the

assessors and the company concerned, and the time required to achieve a sufficient understanding of all the factors affecting the probable performance of an applicant satellite system, the Technical and Operational Assessment report used to inform COMSAR's evaluation could be produced by an independent body which can report directly to the COMSAR Sub-Committee. IMSO would need to undertake that work in any case, in order for it to acquire the system-specific knowledge necessary for it to be able to oversee the performance of any successful applicant satellite system, once it is approved for participation in the GMDSS. It is, therefore, expected that the Committee would request IMSO to undertake the Technical and Operational Assessment and produce the report.

HOW CAN THE EVALUATION AND RECOGNITION PROCESS BE ACCOMPLISHED WITHIN A TIMESCALE THAT COINCIDES WITH THE COMMERCIAL REALITIES OF SUCCESSFUL AND PROPER COMPANY ADMINISTRATION AND MANAGEMENT?

12 Given that resolution A.1001(25) establishes that the application and decision are matters for the Committee, and evaluation is to be done by the COMSAR Sub-Committee, the procedure cannot be accomplished in less than one year. Some specimen processes are summarized in the following table:

YEAR			Worst Case	Fast Track A	Fast Track B
1	Mar	COMSAR			
	May	MSC	Application		
	Nov	MSC		Application	
2	Mar	COMSAR	Evaluation	Evaluation + Report	
	May	MSC		Decision + MSC Resolution	Application
	Nov	ASSEMBLY			
3	Mar	COMSAR	Report		Evaluation + Report
	May	MSC	Decision		Decision + MSC Resolution
	Nov	MSC			

The table shows that, in the Worst Case, it could be possible for the review, evaluation and decision procedure to take up to two-and-a-half years, even without any need to revert to the applicant with a request for further detail or explanation. This would be extremely likely to deter potential commercial satellite system operators from applying to become involved in the GMDSS. The Fast Track requires that the COMSAR Sub-Committee undertake the evaluation and complete its report in one session, and that the evaluation report and recommendation are sent to the next session of the Committee for consideration as an Urgent Matter. The Fast Track takes either 12 or six months depending on whether the application is made in an Assembly year or not. It may be concluded that Fast Track A is unlikely to be achieved.

ANNEX I

PROPOSED PLAN OF WORK FOR THE GMDSS MODERNIZATION PROJECT

Coordinated Timeline and Planned Outputs for the IMO GMDSS Modernization Project				
Y	**Q**	**Meeting**	**Output**	**Year deliverable**
2012	**2**	MSC 90	Approval of Work Plan, along with a new unplanned output on the "Revision and modernization of the GMDSS' Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat	• Draft High level review completed
	2		Correspondence Group begins GMDSS Review in preparation for COMSAR 17	
	3	NAV 58	Provide contributions from e-navigation perspective	
	3		Correspondence Group provides interim report to JEG 8	
	4	19th ICAO/IMO Joint Working Group on SAR (JWG 19)	Reviews the report of COMSAR 16 and, in particular, the Work Plan and provides recommendations in relation to the High level review to COMSAR 17	
	4	8th Joint IMO/ITU Experts Group (JEG 8)	Reviews the interim report of the Correspondence Group and the outcome of NAV 58 and provides recommendations to Correspondence Group and COMSAR 17	
	4	MSC 91	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	
2013	**1**		Correspondence Group reports to COMSAR 17	• High level review approved by COMSAR 17 • First outline of the detailed review
	1	STW 44	Reviews report of COMSAR 16 and MSC 90 Provide contributions from STCW and human element perspective	
	1	COMSAR 17	Continues GMDSS review, taking into account contributions of Correspondence Group, NAV 58, JWG 19, JEG 8 and STW 44, and completes the High level review Re-establish Correspondence Group to prepare for COMSAR 18	
	2	MSC 92	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	
	3	NAV 59	Reviews report of COMSAR 17 Provide contributions from e-navigation perspective	
	3		Correspondence Group provides interim report to JEG 9	

	3	JEG 9	Reviews the interim report of the Correspondence Group and the outcome of NAV 59 and provides recommendations to Correspondence Group and COMSAR 18	
	4	JWG 20	Reviews report of COMSAR 17 and provides recommendations to COMSAR 18	
2014	**1**		Correspondence Group reports to COMSAR 18	• Draft detailed review completed
	1	STW 45	Reviews report of COMSAR 17 Provide contributions from STCW and human element perspective	
	1	COMSAR 18	Continues GMDSS review taking into account reports of Correspondence Group, NAV 59, JEG 9, JWG 20 and STW 45 Re-establish Correspondence Group to prepare for COMSAR 19	
	2	MSC 93	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	
	3	NAV 60	Reviews report of COMSAR 18 Provide contributions from e-navigation perspective	
	3		Correspondence Group provides interim report to JEG 10	
	3	JEG 10	Reviews the interim report of the Correspondence Group and the outcome of NAV 60 and provides recommendations to Correspondence Group and COMSAR 19	
	4	JWG 21	Reviews report of COMSAR 18 and provides recommendations to COMSAR 19	
	4	MSC 94	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	
2015	**1**		Correspondence Group reports to COMSAR 19	• Detailed review endorsed by COMSAR 19 and approved by MSC 95 • First outline of the Modernization Plan
	1	STW 46	Reviews report of COMSAR 18 Provide contributions from STCW and human element perspective	
	1	COMSAR 19	Completes the GMDSS review, taking into account contributions of Correspondence Group, NAV 60, JEG 10, JWG 21 and STW 46, and begins to discuss the development of the GMDSS Modernization Plan Re-establish Correspondence Group to prepare for COMSAR 20	
	2	MSC 95	Reviews report of COMSAR 19 and approves (1) the outcome of the GMDSS review and (2) the continuation of the project in developing the Modernization Plan Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	

	3	NAV 61	Reviews report of COMSAR 19 and MSC 94 Provide contributions from e-navigation perspective	
	3		Correspondence Group provides interim report to JEG 11	
	3	JEG 11	Reviews the interim report of the Correspondence Group and NAV 61 and provides recommendations to Correspondence Group and COMSAR 20	
	4	JWG 22	Reviews report of COMSAR 19 and provides recommendations to COMSAR 20	
2016	**1**		Correspondence Group reports to COMSAR 20	• Draft Modernization Plan completed
	1	STW 47	Reviews report of COMSAR 19 and MSC 95 Provide contributions from STCW and human element perspective	
	1	COMSAR 20	Continues development of GMDSS Modernization Plan, taking into account reports of MSC 95, Correspondence Group, NAV 61, JEG 11, JWG 22 and STW 47 Re-establish Correspondence Group to prepare for COMSAR 21	
	2	MSC 96	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat [Human Element Working Group]	
	3	NAV 62	Reviews report of COMSAR 20 Provide contributions from e-navigation perspective	
	3		Correspondence Group provides interim report to JEG 12	
	3	JEG 12	Reviews interim report of the Correspondence Group and NAV 62 and provides recommendations to Correspondence Group and COMSAR 21	
	4	JWG 23	Reviews report of COMSAR 20 and provides recommendations to COMSAR 21	
	4	MSC 97	Coordination meeting of Chairmen of COMSAR, NAV, STW, and Secretariat Human Element Working Group	
2017	**1**		Correspondence Group reports to COMSAR 21	• Modernization Plan endorsed by COMSAR 21and approved by MSC 98
	1	STW 48	Reviews report of COMSAR 20 Provide contributions from STCW and human element perspective	
	1	COMSAR 21	Completes GMDSS Modernization Plan taking into account reports of Correspondence Group, NAV 62, JEG 12, JWG 22 and STW 47 Provides Final Report to MSC 98	
	2	MSC 98	Reviews report of COMSAR 21 Acts on Final GMDSS Modernization Plan	