

**9th MEETING OF THE IHO INTER-REGIONAL COORDINATING COMMITTEE
IHO-IRCC9
Paramaribo, Suriname, 12-14 June 2017**

Paper for Consideration by IRCC9

IHO Response to Disasters

Submitted by:	IHO Secretariat
Executive Summary:	This paper proposes an initial draft for the revision of the IHO Resolution 1/2005 – IHO Response to Disasters, as amended
Related Documents:	IHO Resolutions 2/1997 and 1/2005, Proceedings of the IHC18, doc. A.1/G/02Rev1, A-1 Decision 19, CLs 11, 18, 31, 43, 59, 89/2005, 73, 94/2012, 64/2013, 14/2014 and 29/2015, doc. IRCC5-07C
Related Projects:	Nil

1. Introduction / Background

Following the conclusion of the 3rd Extraordinary International Hydrographic Conference a special session was held in the Auditorium Rainier III on Saturday 16 April 2005 to discuss the Tsunami Disaster which hit the Indian Ocean on 26 December 2004. In this session a draft paper on *An IHO Response to Disasters* was presented by the IHO Secretariat and was later adopted as the Resolutions 1/2005 (Circular Letters 11, 18, 31, 43, 59 and 89/2005 refer).

This Technical Resolution had the purpose to put in place procedures and guidelines so as to be able to provide an immediate and appropriate response to any future disaster affecting coastal areas of the world. These procedures and guidelines should aim to ensure the immediate assessment of the damage, its effect on National and International shipping and to inform mariners and other interested parties of that damage, particularly with respect to navigational hazards. They should also identify actions required and support needed to recover from the damage. Likewise the intention is to describe the procedures and provide guidance to be followed, at National, Regional and International level within the structure of the IHO. However, it is not intended to establish or operate disaster warning systems and services.

In April 2012, during the XVIII International Hydrographic Conference, Japan submitted Proposal 1 to amend the IHO Resolution 1/2005 - *IHO Response to Disasters*, in order to add actions to be taken by Member States for the immediate re-establishment of basic maritime transportation routes based on experiences of the earthquake that occurred in Japan in March 2011 (Proceedings of the IHC18 refers).

During IHC18, concerns were expressed on the specific role of national HOs that may vary considerably from Member State to Member State and on the role of the IHO Secretariat acting as a coordinator. To accommodate these concerns the IHO Resolution 1/2005 - *IHO Response to Disasters* was amended on 12 November 2012 (Circular Letters 73 and 94/2012 refer).

In June 2013, during the fifth meeting of the Inter-Regional Coordination Committee (IRCC5), the Committee discussed and endorsed a proposal submitted by France (*document IRCC5-07C*) to amend IHO Resolution 1/2005 - *IHO Response to Disasters*, as amended. The proposed amendments included an extension of the title of the Resolution (*IHO Response to Marine Disasters and Contribution to Prevention and Alert Systems*) and the inclusion of certain preparatory and preventative measures, such as the exchange of near real-time sea-level data. These changes were approved on 26 March 2015 (Circular Letters 64/2013, 14/2014 and 29/2015 refer).

During the 1st Session of the IHO Assembly (A-1), Japan submitted Proposal 3, to amend IHO Resolution 1/2005 - *IHO Response to Disasters*, as amended (Red Book, doc. A.1/G/02Rev1 refers). The Assembly (A-1 Decision N^o 19 on PRO-3) tasked the IRCC to review and redraft IHO Resolution

1/2005 – *IHO Response to Disasters*, as amended taking into consideration PRO-3 and related comments and submit a draft revision to the Council.

2. Analysis/Discussion

The focus of the Resolution N° 1/2005 – *IHO Response to Disasters*, as amended, has been on the guidance, at a national, regional and international level within the IHO structure to provide an immediate and appropriate response to any future disaster affecting coastal zones. This is within the scope of the objectives of the IHO, specifically in facilitating the coordination of hydrographic activities among Member States; and improving cooperation in hydrographic activities between States on a regional basis.

Responses to disasters vary due to the nature of the impact in the affected countries and the capacities of the affected regions and countries to respond to them. In this context, the Resolution needs to be flexible to accommodate all the variables related to natural disasters rather than being a prescriptive set of rules that may be difficult to achieve by the RHCs, Member States and the IHO Secretariat. Additionally, the Resolution needs to be in line with other IHO resolutions. IHO Resolution N° 2/1997 - *Establishment of Regional Hydrographic Commissions*, as amended provides guidance for the working of the RHC which *are intended to provide, in pursuance of the resolutions and recommendations of the IHO, regional co-ordination with regard to nautical information, hydrographic surveys, production of nautical charts and documents, training, technical cooperation and hydrographic capacity building projects*. RHCs are not intended to have executive powers nor to be subordinated to the IHO.

RHCs are key elements in coordinating the immediate restoration of adequate hydrographical and cartographic services of vital importance and coordination between hydrographic offices to facilitate this response. The objective is to properly respond to natural disasters that seriously affect the safety of navigation through the destruction of port facilities and the creation of new obstacles, making maritime support impossible to supply shortages of food, water and fuel.

3. Conclusions

IHO Resolution No. 1/2005 – *IHO Response to Disasters*, as amended was created to facilitate, at the national, regional and international levels within the IHO structure, an immediate and appropriate response to any future coastal zone disaster and is aligned with the objectives of the IHO.

The Resolution has been amended on a number of occasions and has increasingly established functions and directives. Some of these functions may not be in the mandate of the RHCs, Member States and the IHO Secretariat. Most of the comments provided in the Red Book and during A-1 recommended that the wording of the Resolution be less prescriptive, leaving room for the necessary coordination of the available resources from those affected.

4. Recommendations

In order to facilitate the work of the IRCC, the IHO Secretariat prepared the attached draft amendments (in red) to the IHO Resolution No. 1/2005 – *IHO Response to Disasters*, as amended (Annex A), based on PRO-3 (proposed amendments in red) and the relevant comments from the Red Book (Annex B) and from the discussions in the plenary (Annex C).

5. Justification and Impacts

The comprehensive review of IHO Resolution No. 1/2005 – *IHO Response to Disasters*, as amended

would allow the RHC Chairs, Member States and the IHO Secretariat to have general guidance to coordinate and facilitate the necessary assistance to countries affected by natural disasters.

6. Action Required of IRCC

The IRCC is invited to:

- a. note the report
- b. take any action as appropriate

Annexes:

A – IHO Resolution 1/2005 – *IHO Response to Disasters*, as amended, with the amendments as in PRO-3 in red.

B – Comments from Member States from the Red Book

C – Comments from the A-1 Plenary

IHO RESPONSE TO DISASTERS	1/2005 as amended	29/2015	K4.5
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Note: proposed amendments in red

1 Introduction

The 2004 and 2011 Indian Ocean and Japan tsunami not only severely affected local communities through the widespread loss of life and the extensive destruction of most facilities, but also severely affected safety of navigation through the destruction of port facilities and the creation of new navigational obstacles. A huge number of refugees were created and immediately suffered from shortages of food, water and fuel. In such circumstances support by sea transport was vital and depended on the immediate restoration of appropriate hydrographic and charting services.

Furthermore, various data and information obtained from hydrographic and charting activities are indispensable for the development of restoration plans for damaged coastal areas and for strategies for disaster risk reduction.

In order to reduce disaster risk, Hydrographic Offices should therefore plan to respond immediately after the occurrence of such severe disasters and participate in and cooperate in the development and implementation of the restoration plans for the damaged coastal areas and the strategies for disaster risk reduction within their area of responsibility, which may vary from Member State to Member State.

The International Hydrographic Organization, the Member States, and the Regional Hydrographic Commissions should also cooperate and coordinate their activities in relation to mitigation measures for significant disasters and for the improvement of the capacity of the Member States to cope with disasters, in cooperation with other international organizations as appropriate.

The International Hydrographic Organization, its Member States and the Regional Hydrographic Commissions should ensure that appropriate procedures and guidelines are in place so as to enable an immediate and appropriate response to any future disaster affecting coastal areas of the world.

These procedures should provide guidance to be followed at the national, regional and international levels within the over-arching structure of the IHO.

Such procedures and guidelines should aim to:

- ensure the immediate assessment of damage and its effect on the safety of navigation of national and international shipping,
- immediately inform mariners and other interested parties of relevant damage and any dangers, particularly with respect to navigational hazards,
- re-establish the basic key maritime transportation routes, and
- ensure that charts and other hydrographic information of affected areas are updated as soon as possible.

The procedures and guidelines should **also** identify the type of actions required and the likely support from Hydrographic Offices needed to recover from the damage **as well as preventive measures, such as the improvement of capacity and capability for disaster management, development of disaster risk reduction strategies, and the monitoring and research and development activities for disaster risk reduction.**

Appropriate global or regional actions can be coordinated through the **IHO Secretariat**, in liaison with the relevant Regional Hydrographic Commissions, IHO Member States, other Coastal States and relevant International Organizations, as appropriate to the circumstances, based on the general framework described in section 2 below.

It is also very important for Coastal States to collect relevant coastal and bathymetric data in their areas of responsibility and to make this available to the appropriate organizations to support the establishment and improvement of tsunami early warning systems, protection of coastal areas and relevant simulation studies. In particular, Coastal States should cooperate and support the **Intergovernmental Oceanographic Commission (IOC) Tsunami Warning Programme** (www.ioc-tsunami.org) in setting up sea-level and tide gauges networks, procedures and systems for the exchange and transmission of near real time sea-level data. One to five minute transmission of sea-level data, properly sampled (~1 min rather than 15 min or 1 h) is recommended for specific gauges likely to provide early warnings of tsunamis and storm surges. Any necessary regional cooperation for the collection of data can be coordinated through the Regional Hydrographic Commission with other States in the Region and regional bodies of other International Organizations as appropriate, such as the IOC.

2 Procedures and Guidelines

a) By Coastal States:

All Coastal States should have contingency plans developed in advance in order to be prepared in case a disaster occurs. After the occurrence of a disaster affecting coastal areas under its jurisdiction, each State should promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes, according to the extent of the damage. In response to the reconstruction of ports, each State should undertake hydrographic surveys so as to keep the charts updated. These actions should be coordinated with neighbouring States, Regional Hydrographic Commissions and others as appropriate.

Member States are requested to consider and prepare support plans in advance that can be implemented in the event of a significant disaster occurring in other countries.

It is important that each Coastal State provides both a senior point of contact and a working point of contact for communication and coordination purposes; this could include the Director of the Hydrographic Service or Maritime Safety Agency or other appropriate persons with the appropriate authority and who are familiar with maritime procedures.

Contingency plans should contain the following key elements:

- i) Immediately upon the occurrence of a disaster, including tsunami, promulgate appropriate navigational warnings and necessary information and advice to shipping through existing channels (e.g. NAVTEX, SafetyNET, etc...) **using appropriate ways**

for the public to understand easily, such as graphical information on maps. In addition and following further monitoring and assessment, promulgate updated warnings, information and advice in accordance with the development of the event.

- ii) Cooperate with the NAVAREA Coordinator and other national coordinators so that warnings, information and advice can be made available to mariners beyond the area of national jurisdiction as soon as is practicable.
- iii) Assess the extent of damage to the coastal area particularly to ports, harbours, straits, approaches, and other restricted areas.
- iv) Assess, in cooperation with other national agencies, for example, lighthouse and port authorities, the extent of damage to navigational aids.
- v) Prioritize actions and allocate resources in order to identify requirements and undertake preliminary re-surveys starting with the most critical areas for navigation, aiming at ensuring the passage of support and supplies through maritime channels and ports, and the marking of new dangers where necessary.
- vi) Assess the specific effects on shipping of the existence of obstacles and any changes to the seafloor that can hinder navigation, taking full account of the effects of drifting obstacles which may also hinder preliminary survey results.
- vii) Inform the Chair of the Regional Hydrographic Commission and the IHO Secretariat of the situation, providing details of the damage, actions taken and indicating what support, if any, is needed. **Furthermore, prepare procedures, equipment and materials to support the affected country.**
- viii) Take the following action to assess and define new hydrographic or cartographic requirements, including:
 1. Conducting hydrographic surveys in harbours and approaches as soon as practicable wherever the depth is likely to have changed due to geomorphic change, obstacles, or accumulation of sediment. Surveys should be progressed incrementally in support of progress in reconstruction of port facilities.
 2. Checking and confirming relevant benchmarks. Re-defining chart datum, if necessary.
 3. Providing nautical information as soon as practicable. Providing chart correction information or new editions of charts incrementally according to priorities and available resources. Indicating newly surveyed areas in chart correction information or on new editions of charts **in accordance with the relevant IHO chart specifications** in order to highlight areas of more reliable information in areas where significant changes of depth have taken place.
 4. **In the case of an earthquake, the ground level may continue to change for many years due to post-seismic crustal deformation, which may accumulate and affect charted depths significantly. Therefore the change of water depths should be monitored regularly, even after the revision of the charts, especially when this kind of change is anticipated.**
- ix) Provide follow-up reports to the Chair of the Regional Hydrographic Commission and the IHO Secretariat.

In anticipation of potential disasters, coastal States are encouraged to take the following actions:

- i) To plan and organize capacity building activities to enhance disaster management in cooperation with other Member States and organizations as appropriate,
- ii) To participate in and cooperate with the development and implementation of a disaster risk reduction strategy in each coastal State incorporating the existing and available hydrographic and charting capabilities,
- iii) To participate in monitoring disaster risk, and research and development activities thereby incorporating the skills and knowledge of hydrographic offices, and
- iv) To promote the collection, analysis, management and use of relevant data for disaster risk reduction by using, as applicable, geospatial information technology.

b) By Regional Hydrographic Commissions:

The Chair of the Regional Hydrographic Commission will be responsible for coordinating the actions needed within the Region. In order to achieve this, the RHC should develop a ‘disaster’ action plan, aimed at supporting States in the area to assess the hydrographic damage, provide support and coordinate actions and efforts **including capacity building, monitoring disaster risks, and research and development to enhance disaster management**. These plans will be focused on the following:

- i) Communicating, by the quickest means available, with the focal points of the States in the Region, in order to make an initial evaluation of the extent of the damage.
- ii) Deciding whether a Regional technical task team needs to visit States in the area to support the evaluation of the damage and support needed.
- iii) Deciding, based on the information collected, whether an Extraordinary Meeting of the RHC is needed, in order to discuss in detail the problems, evaluate the damage and respond to requests for support.
- iv) Deciding if the Chair needs to take a coordinating role in assessing damage, providing support and broadcasting information to mariners.
- v) Informing the IHO Secretariat on the situation, the actions taken and the need, if any, for external support.
- vi) Monitoring the progress of the actions agreed in the area, keeping Member States in the Region and IHO Secretariat informed accordingly.
- vii) Including this issue as a permanent Agenda item on RHC meetings in order to monitor the readiness of the Commission to respond to disasters and conducting regular table-top exercises to evaluate the procedures.

c) By the IHO Secretariat:

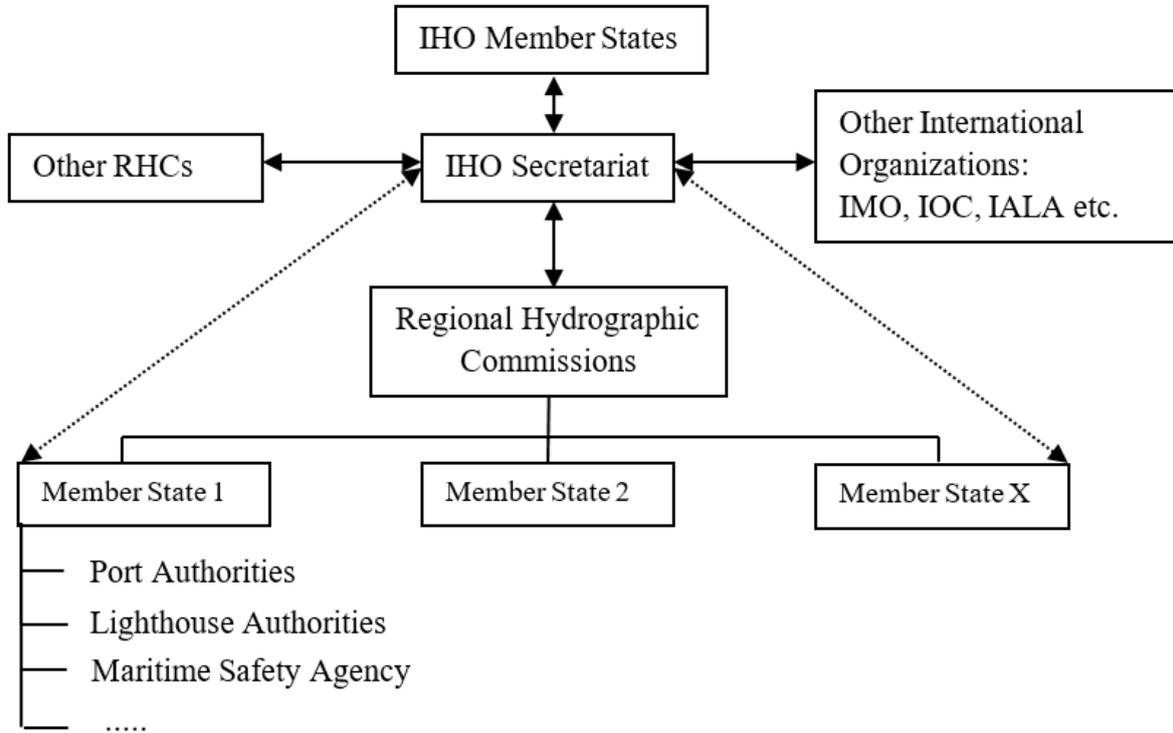
The IHO Secretariat will coordinate the actions required of Member States and Regional Hydrographic Commissions in order to assess damage and will cooperate with other International Organizations as appropriate to coordinate any external support required.

The IHO Secretariat will coordinate with other International Organizations as appropriate to provide capacity building, monitoring and research and development to enhance disaster management.

The IHO Secretariat will undertake the following tasks:

- i. Communicate with the Chairs of the Regional Hydrographic Commissions and, where necessary, directly with Member States in the region(s) affected, in order to collect information relating to the scale of the damage, actions taken, the support needed and the desirability of a regional meeting.
- ii. Participate as appropriate in meetings organized by the RHC or Member States, to determine problems and the actions required to remedy the situation
- iii. Cooperate with other International Organizations, informing them of matters affecting the safety of navigation, the needs of Member States, and actions taken and seeking where appropriate, support from these Organizations for the repair of the damage.
- iv. Invite other International Organizations to participate in Regional Meetings, in order to contribute to the discussions and to the required actions.
- v. Monitor developments and inform Member States on all issues associated with the damage, actions taken and support needed.
- vi. Investigate the willingness of Member States to provide support and coordinate the appropriate actions with the affected States in close cooperation with the Chair of the RHC.
- vii. Participate in discussions at RHC meetings to monitor requirements, develop responses to possible disasters and test the procedures and readiness to respond by tabletop exercises.

3 IHO Disaster Reaction Organization



COMMENTS - RED BOOK**AUSTRALIA**

1. Australia welcomes the proposal by Japan to review Resolution 1/2005, as amended, *IHO Response to Marine Disasters, and Contribution to Prevention and Alert Systems*. The comments provided by Australia are also made as Chair of the South West Pacific Hydrographic Commission (SWPHC), having discussed Japan's proposal during the SWPHC meeting in Noumea in November this year. The comments provided are also made in the context of two recent SWPHC responses under the current Resolution to natural disasters caused by Severe Tropical Cyclones Pam (2015) and Winston (2016), which struck Vanuatu and Fiji, respectively.

2. Responses provided in the SWPHC to recent disasters, albeit similar disasters have varied slightly due to the nature of the impact on the affected countries, the nature of the support required, and the nature of the support requested. In the immediate 'response phase' to a disaster, the main matter to consider is 'where can the IHO Secretariat and RHC have the most positive impact and be of most assistance'. Similarly, in the longer term 'recovery phase' the RHC and IHO Secretariat should be looking at where resource allocation and support can best be delivered to address those matters that genuinely fall within the remit of the IHO and RHC. The reality of most disaster responses is that they do not generally follow a prescriptive list.

3. The nature of any response is also influenced by the capabilities of the region and the affected countries, and by the capabilities that may or may not be at the disposal of RHC members (i.e. specifically available to the Hydrographic Offices or other relevant hydrographic authorities). In this context, the prescriptive and directive language within the Resolution does not reflect the ability (i.e. the inability) of most RHCs, RHC Chairs, or the IHO Secretariat to undertake, or in some case even influence, the many activities detailed within the Resolution (both current and proposed).

4. Therefore, a more generic description of the IHO's commitment to disaster response would be more appropriate. This also then allows for a positive reflection on disaster response activities, as each would have been undertaken on their merits and within the available resources, rather than a list of activities that were not achieved due to a range of circumstances that were outside of the control of the IHO Secretariat and the RHC. In most cases many of the listed activities are outside of the role of the IHO Secretariat and the RHC.

5. In view of these comments and also acknowledging the genuine need to ensure the IHO Secretariat and the RHC can have the most positive impact and be of most assistance, Australia suggests, and considers appropriate, for the IRCC to be tasked with reviewing Resolution 1/2005, with appropriate input from RHCs and the IHO Secretariat, with a view to redrafting Resolution 1/2005.

CROATIA:

Croatia supports this proposal.

FINLAND:

Finland is in favour.

FRANCE:

The Japanese experience is very valuable, and the IHO Member States should give it their utmost consideration.

Nevertheless, mitigation and restoration measures may cover wide-ranging activities, some of which are beyond the scope of the IHO. More specifics, or examples in terms of what should be considered would be helpful. In that respect we could learn from recent experiences in the Pacific (Pam, Winston) and in the Greater Antilles (Matthew), to investigate what may have been missing. To this end, the preparation of support plans, including activation procedures, is a good idea (the commitment of resources implies a decision making process which goes beyond the scope of Regional Hydrographic Commissions – eg : Matthew in Haiti, where the lack of an official request for support from Haiti made it impossible for certain Member States to provide assistance). Finally, the main difficulty concerning the follow-up of the changes to the vertical datum after an earthquake is a real new issue (in hydrography), and it might be a subject matter for a HSSC WG (TWCWG?).

ITALY:

Italy thoroughly supports Japan's proposal.

NETHERLANDS:

The Netherlands, also in the capacity as outgoing Chair of the MACHC, thanks Japan for its proposed revision to the IHO Resolution 1/2005 on Response to Disasters.

The Netherlands note that the Resolution has been amended on several occasions and has become increasingly prescriptive by placing obligations and directions on the IHO Secretariat, the Chairs of RHC's and on HO's, for instance with contingency/action plans which suggest executive responsibilities. Moreover, the described responsibilities of coastal states, RHC's and the IHO Secretariat seem overlapping.

The RHC's as the MACHC, have been established in line with the (overarching) IHO resolution 2/1997 on the establishment of RHC's. The MACHC is advisory, scientific and technological in character with aims to promote hydrographic surveying, marine cartography and nautical information. In that sense it has no executive remit. The Chair of a RHC as the MACHC is not envisioned to have a standing 'Command and Control Capability' for disaster response.

IHO resolutions 1/2005 and 2/1997 are therefore not fully aligned. In a revision of IHO resolution 1/2005 this needs to be taken into account. Depending upon the circumstances of the disaster, the regions involved, and the resources of individual HO's and Chairs, many of the directives in IHO resolution 1/2005 cannot be achieved because of lack of resources, difficulties in communication, political or diplomatic protocols

A better lesson identified during the passage of Hurricane Matthew last October, is that the ambition level of what can be expected of a RHC should be realistic. The role of the Chair of the MACHC was essentially restricted to that of a broker of hydrographic demand (from the affected countries) and supply (by countries offering assets). For immediate disaster response this focused on supporting other relief activities as an enabler. During the subsequent recovery phase the main focus was updating charts and hydrographic information.

Another important lesson identified is the need for functioning channels. Effective hydrographic support predicated on diplomatic clearance to actually deploy the offered hydrographic assets in theatre. It was the responsibility of affected states to institute procedures to progress 'hydrographic' requests timely through their Nations Diplomatic channels. The Chair of the MACHC had no means to absorb these national responsibilities. The IHO resolution on Disaster Response should therefore also be outward looking and be placed in the proper diplomatic context.

Based on this very recent experience in relation to natural disasters in the MACHC region, and as supported by the 17th MACHC meeting in Belém, Brazil (14-17 December 2016), the Netherlands take the view that the Resolution does not continue to be overly prescriptive or place obligations upon the Chairs of all RHC's or the IHO Secretariat, or HO's, that they cannot fulfil for various reasons. Also, the Resolution needs to take into account other (overarching) resolutions and existing standing procedures to avoid friction and/or duplication.

The Netherlands therefore suggests that it would be appropriate to task the IRCC to take note of the input provided by Japan and this letter, and to seek the further opinion of the Chairs of the RHC's and the IHO Secretariat, with a view to completely redrafting the Resolution 1/2005 instead of continuing the current incremental approach. This work should assess the original needs and aims of the guidance with a view to creating a generic set of guidelines and best practices for consideration by RHC's when faced with a disaster in their region.

NEW ZEALAND:

New Zealand supports the amendments proposed by Japan.

RUSSIAN FEDERATION:

No objections.

SPAIN:

Spain supports this proposal.

UNITED KINGDOM:

UK welcomes the proposal to review the resolution on IHO Response to Disasters but is concerned that the document is now rather proscriptive and is not necessarily suited to meeting the differing demands of our individual Hydrographic Commissions each of which will have a unique set of issues to tackle with a varying capability and resource available to them to support such disaster response activity. The proposal contains useful recommendations and guidance but noting that this is a proposed further amend to the original documentation it may be better to task a subordinate body such as IRCC to review the original needs and aims of the guidance with a view to creating a truly generic set of guidelines and best practice recommendations that should be considered by Regional Commissions when faced with a disaster in their region.

COMMENTS - PLENARY

CHILE stated they are also a country like Japan that has suffered from a large number of earthquakes and tsunamis. Chile is aware of the fact that not all hydrographic services know what to do under the tsunami system like in Japan and don't realize that their maps or their charts are affected when a tsunami or earthquake takes place and it's necessary sometimes to redo the charts. Chile supports the proposal.

IRAN stated that it believes since the risk of natural disaster cannot be reduced or prevented, it would be better to use disaster response and/or prevention measures. Iran also pointed out that in the amendment the strategic plans for participation in the disaster occurring in other Member States is of an obligative nature, namely, the word "should" has been used. Since this sort of cooperation usually needs the deployment of equipment and/or personnel on a voluntary basis, Iran proposed changing the wording in order to take these points into account.

BRAZIL stated that it supports the proposal as long as it improves the guidelines for use of resources and mobilization of Member States in case of a natural disaster. Brazil also supports the proposal made by Iran.

INDIA relayed it's experience after the 2004 tsunami and explained how it has taken around eight, nine years to complete the resurfacing of the region. India fully support Japan's proposal.

UNITED STATES strongly supports the spirit of this resolution. USA shares the concerns of the Member States as expressed in the Red Book comments.

With the proposed amendments, the resolution is becoming increasingly prescriptive and neither the IHO nor RHCs have authority to direct nations to respond in a particular way. Therefore, the United States recommends certain adjustments to the proposed text should be made and suggests that the IRCC be tasked to view the original intent and solicit input from the RHCs and Member States to redraft a streamlined Resolution 1/2005 that reflects a generic set of guidelines and best practices for consideration by Member States and RHCs when faced with disasters in their regions.

IOC stated that 1/2005 in its current form makes much reference to response activities of IHO member institutions following the occurrence of the marine disaster. IOC suggests the resolution be amended to also appropriately stress areas where IHO and its member institutions can contribute to tsunami preparedness and awareness.

IHO stated that several IHO member institutions carry out observations and contribute these towards the IOC regional tsunami warning systems. However, some institutions are capable of providing sea-level observations in real time but do not presently do so. Lack of this data delays the issuance of tsunami warnings.

IOC suggested that member institutions be requested in the resolution to make every effort to provide such data towards tsunami warning systems in the Pacific, Indian, Caribbean, Mediterranean, and connecting seas.

IOC is happy to provide advice and facilitate technical assistance in this area as collection and access to coastal bathymetry with adequate resolution is essential.

IOC stated that tsunami wave exercises are carried out every one to two years. Coordinators are routinely invited to participate in the tsunami wave exercises. Exercises are important for hydrographic agencies to take part and test their own readiness and response processes. The IOC requests this be acknowledged in their resolution.

ECUADOR stated that it will spare no efforts to fit in with this proposal. Ecuador is also exposed to seismic events and many give rise to tsunamis. Ecuador relayed their experience last year with an earthquake that required them to review charts because of the various reconstructions that proved necessary. Ecuador stated that any country exposed to this kind of event may provide an immediate response, but it's not possible to guarantee that this will be effective, particularly in terms of reliance. Ecuador observed that that the capabilities that need to be rolled out involve a process of planning and implementation which presumably are necessary but may be extremely costly for certain countries, particularly developing countries.

Ecuador suggested that it's necessary to create and to check the coordination mechanism so that these processes become as feasible as possible and it is absolutely necessary to work in this direction.

Ecuador is keenly interested in this proposal. Of course there are certain points which may prove problematic from an economic stance in terms of closer coordination and creating national capacities which will make it possible to avoid such disasters in the future.

INDONESIA supports the proposal of Japan. Indonesia also reported that Indonesia will be hosting training in disaster relief this year and Member States of EAHC will take part in that training. Indonesia also mentioned that it will support disaster relief in the region, if required.