



IHO Input to Part I of the Report of the UN Secretary General on Oceans and Law of the Sea

This contribution is provided in response to letter *LOS/SGR/2015* dated 10 December 2014 as the input from the International Hydrographic Organization to Part I of the report of the UN Secretary General on Oceans and Law of the Sea. It addresses the topic of the sixteenth meeting of the Informal Consultative Process: “Oceans and sustainable development: integration of the three dimensions of sustainable development, namely, environmental, social and economic”.

Executive Summary

The International Hydrographic Organization (IHO) is the inter-governmental organization whose principal aim is to ensure that all the world’s seas, oceans and navigable waters are surveyed and charted. The current membership of the IHO stands at 82 Member States with 7 other States in the process of joining the Organization.

Although safety of navigation remains a major driver for the IHO, hydrographic products and services are meant to support all activities which take place on, in or under the sea. Hydrography is inherent to the three dimensions of the sustainable development of the oceans and the IHO is therefore one of the important actors underpinning the sustainable development of the oceans.

The activities of the IHO in 2014 which addressed specifically the sustainable development of the oceans concerned four areas: developing standards, guidance, products and services; building capacities; raising awareness on the role of hydrography; and contributing to the promotion of the marine dimension in global agendas.

From the IHO perspective, the major challenge in addressing the sustainable development of the oceans in a holistic approach is that many parts of the world’s seas, oceans and coastal waters remain unsurveyed. This has a major impact on the effective management, sustainable exploitation, and well-informed policing of the seas and oceans. It is impeding progress and economic development in many, if not most coastal States. This situation results notably from the fact that only about half of the States Parties to the SOLAS Convention have arrangements in place to provide adequate hydrographic surveying and nautical chart services and are Members of the IHO. In this context, it is important to continue to call upon States that have not yet done so to consider actively becoming members of the IHO, and urge all States to work with the IHO to increase the coverage of hydrographic information on a global basis.

The concurrent development of the post-2015 agendas related to fostering sustainable development, addressing climate change and mitigating the risks associated with natural disasters offers a formidable opportunity to integrate the three dimensions of sustainable development with regard not only to the oceans but more generally to our whole planet Earth. Realizing the full benefits of this opportunity raises the issue of establishing efficient coordination and cooperation mechanisms across the whole spectrum of stakeholders, including at the intergovernmental and inter-agency levels.

INTERNATIONAL HYDROGRAPHIC BUREAU

**4b, quai Antoine 1er
BP 445
MC 98011 MONACO CEDEX
PRINCIPAUTE DE MONACO**

**Tel: +377 93 10 81 00
Fax: +377 93 10 81 40
e-mail: info@iho.int
web: www.iho.int**

Information regarding the activities of the International Hydrographic Organization fostering an integration of the three dimensions of sustainable development with regard to oceans

General

1. The International Hydrographic Organization (IHO) is the inter-governmental organization whose principal aim is to ensure that all the world's seas, oceans and navigable waters are surveyed and charted, through the coordinated endeavours of national Hydrographic Offices. The IHO has been hosted by the Government of Monaco since its creation in 1921 and its current membership stands at 82 Member States with 7 other coastal States in the process of joining the Organization.
2. The reference to “navigable waters” does not infer that the IHO cares only about the safety of navigation. Although safety of navigation remains a major driver for Hydrographic Offices, their products and services are meant to support all activities which take place on, in or under the sea. This was highlighted through the themes of the last two World Hydrography Days: “Hydrography - underpinning the Blue Economy” in 2013, “Hydrography - much more than just nautical charts” in 2014. The IHO is one of the important actors underpinning the sustainable development of the oceans.
3. Hydrography involves measuring the depth of the water (bathymetry) and fixing the position of all the navigational hazards that lie on the seafloor, such as wrecks and rocks. This is done mainly with specialized ships and boats operating echo sounders and sonars, but also using survey aircraft fitted with lasers. Useful information can also be derived sometimes from satellite observations. Hydrography also involves measuring the tide and the currents.
4. Hydrographic information is essential for the safe, efficient and sustainable conduct of every human activity that takes place in, on or under the sea. Without hydrography, no ship sails; without hydrography, no port is built; without hydrography, no offshore infrastructure is developed; without hydrography, no environmental plan is implemented; without hydrography, no shore is defended, no island protected; without hydrography, no search and rescue operation is attempted, without hydrography, no maritime boundary is delimited. Therefore, hydrography is inherent to the three dimensions of the sustainable development of the oceans, ensuring that the marine environment is respected and that no adverse economic or social impact is incurred.
5. The activities of the IHO in 2014 which addressed specifically the sustainable development of the oceans concerned four areas: developing standards, guidance, products and services; building capacities; raising awareness on the role of hydrography; and contributing to the promotion of the marine dimension in global agendas.

Developing standards, guidance, products and services

6. The IHO develops standards and guidance to ensure that hydrographic information is delivered to users through appropriate harmonized and interoperable products and services. Current developments are mainly driven by two contributors to the sustainable development of the oceans: enhancing navigational safety, in particular through the implementation of “e-navigation”, and supporting more efficient integrated management tools of the marine environment. Both elements require easy access to standardized high quality digital geographic information describing the marine environment. Both elements are supported by the development of IHO standards related to new generation digital products and services under the framework of the IHO standard known as S-100 - *Universal Hydrographic Model*. An improved version of S-100 is currently being finalized and a number of S-100 based product specifications are being developed by the IHO and other partner organizations. S-100 has been recognized by the UN's International Maritime Organization (IMO) as the baseline standard for creating a common maritime data structure for e-navigation data access and services.
7. The IHO is also developing and maintaining guidelines to assist stakeholders in implementing the requirement of international instruments supporting the sustainable development of the oceans. A recent example is the 5th Edition of the Manual on Technical Aspects of the UN Convention on the Law of the Sea (TALOS Manual - IHO Publication C-51) published in June 2014. The TALOS Manual is maintained jointly by the IHO and the International Association of Geodesy (IAG). Its purpose is to

provide guidance in order to ensure maximum international standardization of the technical aspects of UNCLOS. The Manual can be downloaded from the IHO website¹.

8. There are three main product types under the aegis of the IHO which supports the sustainable development of the oceans:

- nautical charts, issued on paper or in digital format (Electronic Navigational Charts), which are produced by national Hydrographic Offices to support safe navigation in accordance with the requirements of the International Convention for the Safety of Life at Sea (SOLAS);
- the maritime component of spatial data infrastructures being developed at the national and regional levels, which includes in particular high resolution bathymetry (depth data) compiled by national Hydrographic Offices;
- the global reference bathymetric data sets developed and made available through the GEBCO project (General Bathymetric Chart of the Oceans) operated jointly by the IHO and the UN's Intergovernmental Oceanographic Commission (IOC).

9. The IHO continues to encourage and support its Member States to achieve an adequate coverage of nautical charts and contribute to the development of maritime spatial data infrastructures. To assist in prioritizing charting improvements and resource allocation, the IHO is promoting the use of risk assessment methodology.

10. The current worldwide coverage of Electronic Navigational Chart is close to the corresponding paper chart coverage. Further progress is hindered by the lack of reliable survey data. While most of the world's established shipping routes are relatively safe navigationally because of widespread use by many ships over many years, the advent of larger vessels and the need for vessels to travel to new destinations, in particular with regard to the expansion of the cruise industry, are not being supported by adequate surveys and charts. In that respect, the Polar Regions are a major area of concern. The IHO ensured that the relevant risks and precautionary measures are reflected in the International Code for Ships Operating in Polar Waters (Polar Code) which was adopted in 2014 by the IMO. The IHO also prompted the 37th Antarctic Treaty Consultative Meeting to adopt a Resolution on Strengthening Cooperation in Hydrographic Surveying and Charting of Antarctic Waters.

11. The lead GEBCO bathymetric product is a global seabed model at 30 arc second grid interval. A new version of the GEBCO Grid, GEBCO_2014, was released in December 2014. It is a significant update to the previous GEBCO_08 released in January 2009. The grid is presently available in netCDF form with additional formats to be made available soon; it is also available as a web map service².

Building capacities

12. Capacity building continues to be a major component of the IHO Work Programme. The IHO defines capacity building as the process by which the organization assesses the status of current arrangements and assists States to achieve sustainable development and improvement in their ability to meet hydrographic, cartographic and maritime safety obligations with particular reference to recommendations in UNCLOS, SOLAS, and other international instruments. The scope encompasses all hydrographic needs as it underpins every other activity associated with the sea, including safety of navigation, protection of the marine environment, national infrastructure development, coastal zone management, marine exploration, marine resource exploitation (minerals, fishing, etc.), maritime boundary delimitation, maritime defence and security, and coastal disaster management.

13. A new version of the IHO Capacity Building Strategy was reviewed and endorsed by the International Hydrographic Conference (equivalent to an Assembly in other intergovernmental organizations) in 2014. This new version stipulates that the focus should be on achieving enduring output which will benefit safe navigation, safety of life at sea, protection of the marine environment and economic development, rather than on creating enabling infrastructure per se.

¹ www.iho.int.

² See www.gebco.net.

Raising awareness on the role of hydrography

14. The theme of the World Hydrography Day (WHD) 2014 was “Hydrography - much more than just nautical charts” highlighting the significant value of hydrography to all human activities that take place in, on or under the sea. A number of WHD events were held during the year notably in Bangladesh, Brazil, Chile, Japan, Mauritius, Monaco, Nigeria, Poland, Spain, United Kingdom and USA.

15. Raising awareness on the role of hydrography was also the objective of advisory visits conducted in 2014 in Jordan, Lebanon, Nicaragua and Samoa.

Promoting the marine dimension in global agendas

16. The IHO Secretariat has contributed directly to two agenda items of the UN Committee of Experts on Global Geospatial Information Management (UN-GGIM): the global map for sustainable development and the implementation and adoption of standards for global geospatial information.

17. Triggered by input from the IHO, the report of the UN-GGIM Global Map for Sustainable Development Working Group (GM4SD) emphasizes the need to address the lack of appropriate marine geospatial data and the linkage between land and marine data in many national spatial data infrastructures in the preparation of the post-2015 development agenda and the post-2015 framework for disaster risk reduction.

18. A “Guide to the Role of Standards in Geospatial Information Management” and a “Companion Document on Standards Recommendations by Tier” was prepared cooperatively by the Open Geospatial Consortium (OGC), the Technical Committee 211 on Geographic information/Geomatics of the International Organization for Standardization (ISO) and the IHO to assist Member States in implementing and adopting geospatial standards within their national frameworks. The Guide acknowledges the growing recognition in both government and the private sector that geography is a vital component of effective decision making and notes that geospatial information must be easy to access and use in order to leverage its value. The Guide explains that standards have a key role in this respect and are essential to delivering authoritative geospatial services and products which meet the requirements of the wider community of users. Standards and conformance provide significant value to society and government, are essential for an expanding national economy and vital to the global competitiveness of both industry and nations.

19. The IHO is a participating organization to GEO, the “Group on Earth Observations”. GEO is a voluntary partnership of governments and international organizations which is coordinating efforts to build a Global Earth Observation System of Systems (GEOSS) in order to exploit the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world. At the plenary sessions of GEO in January and November 2014, the IHO supported the objective of improving global coverage and availability of earth observation data, products and services as a foundation for sustainable growth and expressed its concerns related to the inadequate status of hydrographic surveys and nautical charting in many parts of the world’s coastal waters, and most of the world’s seas and oceans. The IHO highlighted the need for coordinating and bridging the various programmes and initiatives dealing with the observation of the Earth at the national, regional and international levels, in order to make better use of existing arrangements, avoid duplication, address gaps and improve overall efficiency. The IHO statement also noted that its capacity building programme contributes to the strengthening of the engagement of GEO with developing countries.

Challenges and opportunities in integrating the three dimensions of sustainable development

20. From the IHO perspective, the major challenge to addressing the sustainable development of the oceans in a holistic approach is that many parts of the world’s seas, oceans and coastal waters remain unsurveyed. This has a major impact on the effective management, sustainable exploitation, and well-informed policing of the seas and oceans. It is impeding progress and economic development in many, if not most coastal States.

21. This situation results from the fact that only about half of the States Parties to the SOLAS Convention have arrangements in place to provide adequate hydrographic surveying and nautical chart

services and are Members of the IHO. Additionally, many of the national hydrographic authorities represented in the IHO are reporting that government-sponsored surveying activity is now decreasing because of financial pressures.

22. The theme for the celebration of World Hydrography Day 2015 (WHD-2015) - “Our seas and waterways - yet to be fully charted and explored” - aims at raising awareness and attracting support for improving the situation. The theme offers the opportunity to highlight both the missed opportunities and the potential risks involved in the continuing development of the so-called “Blue Economy” and all other human-related activities taking place at sea, at a time when mankind still has a relatively limited knowledge of the nature and the shape of much of the seafloor and the hazards that lie upon it. The theme also provides the opportunity to promote and encourage innovative supplementary data gathering initiatives to address the current shortfall in useful bathymetric data, including crowd-sourcing and satellite derived bathymetry that are being actively considered by the IHO, its Regional Hydrographic Commissions and its Member States.

23. Generating the appropriate levels of government commitment and support and the provision of suitable resources is a standing strategic objective of the IHO. The Secretariat of the IHO has taken every opportunity to reach out to those States that are not members of the IHO and will continue to do so. Larger Flag States have been a particular priority³ but in general they lack awareness of hydrographic and charting issues and it is not easy to convince them of the benefits of joining the IHO and helping to address the currently significant shortfall in hydrographic knowledge of the seas and other navigable waterways. Additionally, under the current rules of the Convention on the IHO, it can take two to three years to obtain the necessary agreement of the two-thirds majority of the existing Member States. The Protocol of Amendments to the Convention adopted by the International Hydrographic Conference in 2005 includes simplified and more encouraging procedures for the admission of new Member States. For the amendments to come into effect, at least two thirds of the Member States existing in 2005 must formally accede to the Protocol of Amendments. 41 of the required minimum of 48 Member State Governments have formally notified their approval to date.

24. In this context, it is important that the organs of the United Nations continue to call upon States that have not yet done so to consider actively becoming members of the IHO, encourage those Member States that have not yet ratified the Protocol of Amendments to the IHO Convention to do so as soon as possible, and urge all States to work with the IHO to increase the coverage of hydrographic information on a global basis.

25. The concurrent development of the post-2015 agendas related to fostering sustainable development, addressing climate change and mitigating the risks associated with natural disasters offers a formidable opportunity to integrate the three dimensions of sustainable development with regard not only to the oceans but more generally to our whole planet Earth. Yet realizing the full benefits of this opportunity raises the issue of establishing efficient coordination and cooperation mechanisms across the whole spectrum of stakeholders, including at the intergovernmental and inter-agency levels. The fragmentation, if not the competition, between the various organizations and programmes addressing the oceans on the one hand and geospatial information on the other hand, needs to be recognized and acted upon, taking into account the major role of the oceans in the sustainable development of the Earth.

January 2015

³ Only five of the ten largest Flag States with a declared tonnage over 29 million are members of the IHO.