Paper for Consideration by IRCC

Future Strategic Plan of the IHO

Submitted by:	Chair of the Strategic Plan Review Working Group of the IHO Council
Executive Summary:	Following decision of the Council, a provisional list of targets and Strategic Performance Indicators is proposed for consideration by the IRCC, in order to provide feedback on their possible implementation in the future.
Related Documents:	Report of the 2nd meeting of the IHO Council - http://iho.int/mtg_docs/council/C2/C2_2018_S_EN_SummaryReport_v1.2_clean.pdf Draft IHO Strategic Plan, dated 17th of March 2019 (Annexe I enclosed) Additional comments on draft SPI (Annexe II enclosed)
Related Projects:	Strategy for S-100 Preparation of the 3-year plan Work Programme 2021-2023

Introduction / Background

At its first meeting in April 2017, the Assembly of the IHO tasked the Council to conduct a comprehensive review of the Strategic Plan and to provide a draft revised Plan, as appropriate, in time for the consideration of the 2nd ordinary session of the Assembly (decision A1/03).

Consequently, the IHO Council established at its first meeting in October 2017 a Strategic Plan Review Working Group (SPRWG). Its TOR and ROP were approved by IHO Member States (MS) via IHO Circular Letter 20/2018. 23 IHO member States and the Secretary General of IHO are members of the SPRWG.

In its report to the Council, the SPRWG recommended to prepare a revised strategic plan, with a simpler structure and a limited number of measurable targets.

At its second meeting in October 2018, the Council tasked the SPRWG to develop the Strategic Plan 2021-2026 on the basis of three overarching goals endorsed by the Council (decision C2/39). It was noted that consideration should be given to the international context like the United-Nations "Decade of Ocean Science for Sustainable Development" and the negotiations on "Biodiversity Beyond National Jurisdiction".

The Council asked the SPRWG Chair to engage with HSSC and IRCC Chairs and provide them with draft Strategic Targets and Performance Indicators that could be considered at HSSC-11 and IRCC-11 for their initial feedback on the possible implementation in the future (decision C2/40).

A drafting team met in Monaco end of January, and prepared an initial list of targets and performance indicators under the three overarching goals. The drafting team also reviewed the general structure of the Strategic Plan and has proposed to the SPRWG some orientations on the content. The resulting draft is attached in annexe I.

Analysis/Discussion

A table of targets and performance indicators is presented in section III of annexe I. The last column refers to the article II of the Convention on the IHO (Object of the IHO). This synthetic form may be difficult to understand by readers outside of the IHO, to whom the Strategic Plan is also aimed: the SPRWG is considering adding short explanations for each of the targets.

The first goal endorsed by the Council takes into account the on-going transformation in navigation, such as e-navigation, autonomous shipping etc. which will lead to profound evolution of hydrographic services, in a context of high requirements on digital data.

The second goal acknowledges the broadening use of hydrographic data in many other fields than navigation. Building on the work accomplished by MSDIWG and the IHO Secretariat, a first target proposes to give more visibility to IHO in this area, for bolstering coordination and cooperation. A second target addresses the need for new data to feed new applications of marine data.

The third goal aims to provide a broad perspective to IHO's activity, in order to make it an effective and recognized contributor to the main Ocean challenges identified by the international community.

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The draft strategic was sent to HSSC[1] for comments on the strategic performance indicators and the possibility of implementing them, and discussed at its 11th meeting in Cape Town[2].

Following this meeting; proposals of the SPRWG's Chair addressing some of issues raised are given in annexe II. They will be submitted for review to the SPRWG, and will be completed after the IRCC meeting.

A question raised during the HSSC was the handover between the HSSC and the IRCC, i.e. the limit of responsibility of HSSC with regard to IRCC. If the respective ToR of HSSC and IRCC were unhelpful in this regard, the Council could be the right coordinating organ, when necessary.

Another question raised was the "implementation strategy" necessary to achieve the strategic targets. Since the Council decided that the strategic plan should be a concise document, it seems that the implementation tools should be the responsibility of the Committees and the Secretariat, as is already done, for instance, for the Capacity Building strategy or the S-100 strategy.

Recommendations

It is proposed to IRCC to consider at its 11Th meeting the list of targets and performance indicators, for analysing the possibility of their implementation in the IHO Work Programme, and especially in the programme Inter-Regional Coordination and Cooperation. At this stage, the list is an initial draft, and is not proposed to IRCC for formal endorsement. It is recommended that feedback be provided to SPRWG by mid-June.

Justification and Impacts

The Assembly, in its 2nd meeting in April 2020, will have to adopt a revised Strategic Plan and a three-year Work Programme, which will be proposed by the Council. Feedback from IRCC will facilitate alignment between the Strategic Plan and the 3 year-Work Programme.

In this perspective, it is recalled that Resolution 12/2002, as amended, has established a final review of the 3 year Work programme by the Council 2 months before the session of the Assembly.

Action Required of IRCC

The IRCC is invited to:

a. note the list of targets and performance indicators listed in section III of annexe I, and the additional comments of the SPRWG Chair in annexe II
b. examine the possibility of their implementation in the Work Programme
c. make any proposal as appropriate
c. instruct IRCC Chair to provide feedback to SPRWG

[1] http://iho.int/mtg_docs/com_wg/HSSC/HSSC11/HSSC11_2019_04.2A_FutureStrategicPlan_v1.pdf

[2] http://iho.int/mtg_docs/com_wg/HSSC/HSSC11/HSSC11_2019_04.2C_EN_Chair_Future%20strategic%20Plan_v2.pdf

Annexe I

International Hydrographic Organization (IHO) Strategic Plan For 2021-2026 Draft - 17 March 2019

The sea, the great unifier, is man's only hope. Now as never before, the old phrase has a literal meaning: we are all in the same boat.

-Jacques-Yves Cousteau

I. PREAMBLE

Hydrography is the branch of applied science which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time.

The International Hydrographic Organization (IHO), which was established in 1921 and now has 89 Member States (MS), is an inter-governmental consultative and technical organization. It primarily supports the safety of navigation and the protection of the marine environment, and coordinates on a worldwide basis the setting of hydrographic standards. It also facilitates capacity building of national hydrographic services. It provides a forum at an international level for the improvement of hydrographic services through the discussion and resolution of hydrographic issues and it assists member governments to deliver these services through their national hydrographic offices.

Purpose

The purpose of the IHO Strategic Plan is to identify specific strategic goals and targets that will direct the IHO`s Work Programme in a way that will foster the IHO vision, mission, and objects.

Vision [IHO Conv. recitals]

The vision of the IHO is to be the authoritative worldwide hydrographic body which actively engages all coastal and interested States to advance maritime safety and efficiency and which supports the protection and sustainable use of the marine environment.

Mission [IHO Conv. recitals]

The mission of the IHO is to create a global environment in which States provide adequate, standardized and timely hydrographic data, products and services and ensure their widest possible use.

Object [IHO Conv. Art. II]

The Organization has a consultative and technical nature. It is the object of the Organization:

a. To promote the use of hydrography for the safety of navigation and all other marine purposes and to raise global awareness of the importance of hydrography;

b. To improve global coverage, availability and quality of hydrographic data, information, products and services and to facilitate access to such data, information, products and services;

c. To improve global hydrographic capability, capacity, training, science and techniques;

d. To establish and enhance the development of international standards for hydrographic data, information, products, services and techniques and to achieve the greatest possible uniformity in the use of these standards;

e. To give authoritative and timely guidance on all hydrographic matters to States and international organizations;

f. To facilitate coordination of hydrographic activities among the Member States; and

g. To enhance cooperation on hydrographic activities among States on a regional basis.

II. CHALLENGES

Hydrographic offices (HO) everywhere are facing significant and rapidly developing challenges. Some challenges impact the mission of the IHO and shape the context to be taken into account by the Organization for building its strategy to fulfil its vision.

More and more diverse customers, with increasing demands

There is an enlarged global demand for hydrographic data either through the evolution of requirements of navigation, or for the management of the marine environment.

For navigation, safety challenges are marked by the development of harbours in many countries, and of new routes of navigation. Moreover, the core role of shipping in globalization puts pressure on its efficiency, which through digitisation and automation generates needs for new, reliable services supporting the safety and efficiency of navigation. All categories of navigators, from merchant mariners to leisure boaters, are eager to access the new services enabled by digital technology. In the same time, complexity of technologies available to mariners raises new concern regarding their appropriation.

An increasing need for marine data is strived by the development of a sustainable Blue Economy, the concern for the protection of the marine environment, and the prevention or mitigation of consequences of marine disasters or climate change. A wide range of related data is now crucial in supporting important decisions. These data, and associated skills, are very similar to those used for supporting navigation.

Progress in technology

The pace of technological changes, from sensors to digital services, is increasing, bolstering the need for continuous adaptation of training and standards, thus requiring strong effort from HO in investment and training. This is particularly significant for the automation of sensors carrying devices, and for new processing techniques from the field of artificial intelligence, which make it possible to handle 'big data' and augment the capacity of human teams.

Data, transforming the hydrographic ecosystem

While the demand for hydrographic data is increasing, the assets or resources available to many hydrographic offices have not increased at a similar rate. However, the accessibility to technology and the interest in citizen science (or crowd-sourced data) has given opportunities to many actors to collect valuable data. This information can be used for many purposes, including for improved navigation. These tools and techniques being used are often considered to be outside traditional hydrographic methods, and this calls for the IHO and HOs to redefine their relationships with these new sources of hydrographic data.

More generally, the crucial role of data and information in our societies entails important consequences on public policy (e.g. open data), the need for data assurance, including cyber security, all along the value chain, and on the involvement of the private sector, which are likely to have an impact on how investments in hydrography are sustained, and how standards are developed.

III. GOALS, TARGETS FOR 2026 & STRATEGIC PERFORMANCE INDICATORS

To face these challenges, the IHO Strategic Plan for 2021-2026 is structured through three overarching goals, focusing the exercise of its mission during the period.
Under the three goals, the Organization has identified targets to be reached by 2026. The progresses towards these targets are measured by strategic performance indicators (SPI). The following tables summarize for each overarching goal the targets and associated SPI. Related object items of the IHO (Convention) are given for reference purpose.

Goal 1: <u>Evolving the support of safety and efficiency of a transforming navigation</u>

Targets	*SPI (measure for success)*	*Relation with IHO Object*
1.1 Deliver standards for data formats and product specifications including accompanying transition and implementation support.	The IHO and IMO have established a common implementation strategy/plan for the S1XXdata model and data products based on. Complete and implement a refurbished standardisation of paper charts as "print on demand" based on content of electronic nautical charts S1XX caters for the requirements of autonomous shipping	a, d, e d, e a
1.2 Develop standards and best practices in the areas of data assurance, including cyber security and data quality assessment.	Data products and service delivery and distributing chains are certified as cyber secure. Level of ENC overlaps For areas with water depth less than YY meters, the adequacy of the hydrographic knowledge is assessed	b b b

Goal 2: <u>Developing the use of hydrographic geospatial data for the benefit of society</u>

Targets	*SPI (measure for success)*	*Relation with IHO Object*
2.1 Build a digital platform to support and promote regional and international cooperation in marine spatial infrastructures (MSDI).	The digital platform shows a strong positive trend in the number of hits	b, g
2.2 Adopt or promote new tools and methods to accelerate and increase coverage, consistency, quality of surveys in poorly surveyed areas, e.g. crowd-source bathymetry; satellite-derived bathymetry.	Quality indicators available and applied to all sorts of hydrographic data New S-44, for all kind of applications, navigation and others, is promulgated.	b d

2.3 Adopt and apply UN guiding principles for geospatial information management in order to ensure interoperability of hydrographic data with other marine-related data.	S1XX data sets play a strong and recognized role in the global MSDI.	d, g

Goal 3: <u>Participating actively in ocean-related activities</u>

Targets	*SPI (measure for success)*	*Relation with IHO Object*
3.1 Enhance existing capacity building programme and strategies, and collaborate with other bodies who deliver capacity building and training.	90% of Coastal States have reached Phase 1 (MSI).	c
3.2 Enhance knowledge of the world's seafloors through establishment of streamlined automated processes for acquisition, harmonization and ingestion of bathymetric data from any sources into the global data repository of the IHO Data Centre for Digital Bathymetry (DCDB).	All accessible public bathymetric data of MS is uploaded to and available from the DCDB. DCDB takes advantage from ingestion of expert survey contributions from industry and crowd source bathymetry from ships of opportunity	b, f b
3.3 Enhance IHO digital communication and Web presence in order to maximize visibility and accessibility of standards and data provisions.	IHO is present on social media IHO web-site gives access to a fully traceable repository of all documents and incorporates GIS services.	a b,e

IV. IMPLEMENTATION FRAMEWORK

To deliver on the designated Targets and achieve the three Goals, the IHO Secretariat and the two IHO Committees – the Hydrographic Services and Standards Committee (HSSC) and the Inter-Regional Coordination Committee (IRCC) – will deliver and pursue the respective Work programmes, using the following means:

- Standardization
- Coordination & Cooperation
- Capacity Building
- Communication

The advancement of the IHO Strategic Plan is only possible through the participation of MS at the working group and committee levels, and by the support and direction provided by the IHO Secretariat.
The Strategic Plan is not a comprehensive description of the activity of IHO, which is fully described in its Work Programme.

Work Programme

The triennial IHO Work Programme covers the period starting on 1 January of the year following the ordinary session of the Assembly and ending on 31 December of the year of the next ordinary session.
The triennial IHO Work Programme is divided into following three programmes:

- Corporate Affairs under the responsibility of the Secretary General,
- Hydrographic Services and Standards under the responsibility of the relevant Committee (HSSC), The HSSC programme includes the activities to be conducted by its subordinate bodies as well as by inter-organizational bodies that report to the HSSC.
- Inter-Regional Coordination and Support under the responsibility of the Inter Regional Coordination Committee (IRCC). The IRCC programme includes the activities to be conducted by its subordinate bodies as well as by the Regional Hydrographic Commissions and by inter-organizational bodies that report to the IRCC.

Review cycles

The review cycles for the Strategic Plan, the Work Programme and the Budget are set out in IHO Resolution 12/2002 as amended. The triennial IHO Work Programme is reviewed annually by the Council in liaison with the Chairs of the HSSC and the IRCC.

Progress monitoring

The success in achieving of the Strategic Goals and Targets is measured by Strategic Performance Indicators (SPIs).

Taking into account the object of the Organization and the overarching goals and targets, the success of Work Programme will also be measured by indicators which show the progress of the various elements of the Work programming that contribute to these objects, goals and targets.

Annexe II

Comments and Proposals for strategic performance indicators (SPI)
26 May 2019

Goal 1: <u>Evolving the support of safety and efficiency of a transforming navigation</u>
*<u>Comments:</u> It was asked to clarify "*a transforming navigation*". Improved wording could be "*Evolve the support for safety and efficiency of navigation, which is undergoing profound transformation*"*

Target 1.1 <u>Deliver standards for data formats and product specifications including accompanying transition and implementation support</u>

- [SPI] The IHO and IMO have established a common implementation strategy/plan for the S1XXdata model and data products based on
  <u>Comments:</u>
  - *This SPI could be modified to a quantification of the level of maturity of the implementation strategy / plan (including the IHO strategy on S-100 under development - see HSSC11-04.2A). It could be associated with the "TRL" of the S-10x standards, as introduced at the last HSSC (see doc. HSSC11-05.1D).*
  - *The question could arise to monitor the availability of the products, as done for ENCs in the current strategic plan (SPI2 & SPI9). This would depend of the outcomes of the work on the WENS concept, under consideration by IRCC (see doc. WENDWG9-05B Straw man Paper "WENS Principles" and IRCC11-07D2).*
  - *Since S-101 is pivotal in the transition from "S-57 ENC only" to S-100 based e-navigation, monitoring the level of transition to S-101 could be a good indicator of the progress to the larger transition to S-100.*

- [SPI] Complete and implement a refurbished standardisation of paper charts as "print on demand" based on content of electronic nautical charts
  <u>Comments:</u> Transition from paper to electronic is a strategic point for the coming years, impacting users, distributors and producers. Such a transition will depend on national contexts: a SPI could be focused on the availability of a relevant IHO framework, allowing member States to base eventual paper charts services on the content of ENC. SPI could be the level of maturity of this framework.

- [SPI] S1XX caters for the requirements of autonomous shipping
  *<u>Comments:</u> IMO has started to work on this subject (see doc. HSSC11-07.2A), and IHO could be proactive and work with IMO and stakeholders to build the specifications of what should be hydrographic support to autonomous shipping, and its possible implementations. SPI could therefore be: "*Level of maturity of the technical specification of the hydrographic support of autonomous shipping*"*

Target 1.2 <u>Develop standards and best practices in the areas of data assurance, including cyber security and data quality assessment</u>

- [SPI] Data products and service delivery and distributing chains are certified as cyber secure.

*Comments: such a certification may be under national or RENC-like structures responsibility. However, it is probably essential that IHO provides a general framework / policy to support national or regional responsibilities. It is therefore suggested that the performance indicator could read: "*Level of maturity of the IHO principles and framework for standards and best practices in the area of data assurance, including cyber security and data quality assessment*".*

- [SPI] Level of ENC overlaps
  Comments: it has been suggested that such an indicator could be left to the implementation level (i.e. IRCC or WENDWG). Over the period 2021-2026, progress on such an indicator should be considered in the context of S-101.

- [SPI] For areas with water depth less than 50 meters, the adequacy of the hydrographic knowledge is assessed
  *Comments: such a performance indicator would capture the importance given in RHC on risk assessment. Under strategic goal 1, such assessment is to be evaluated against navigation needs, and it is suggested that the SPI could read: "*For 100 % of areas of water less than 50 meters deep, the adequacy of the hydrographic knowledge for navigation and potential other uses is assessed*".*

Goal 2: Developing the use of hydrographic geospatial data for the benefit of society

Target 2.1 Build a digital platform to support and promote regional and international cooperation in marine spatial infrastructures (MSDI)

- [SPI] The digital platform shows a strong positive trend in the number of hits
  Comments: it has been noted that such an indicator is a measure of the usefulness of the platform, not one of its construction. The platform aims to be a component of the IHO GIS, including meta-data on MSDI, usable by member States and stakeholders as a "knowledge resource" (providing links to standards, as well as examples, tutorials, references to services provided by member States or regional organizations); the SPI could therefore be a measure of the number of member States, RHC & IHO providing information on MSDI through the IHO GIS.

Target 2.2 Adopt or promote new tools and methods to accelerate and increase coverage, consistency, quality of surveys in poorly surveyed areas, e.g. crowd-source bathymetry; satellite-derived bathymetry

- [SPI] Quality indicators available and applied to all sorts of hydrographic data
  Comments:
  - *Although important, quality indicator is probably not the only aspect to take into account to get IHO endorsement of new tools and methods. It is suggested that the indicator should read "*Number of new tools and methods for collecting hydrographic data, documented by IHO according to their potential uses*".*
  - *Alternatively, the effect of this target could also be monitored as a measure of success: SPI could be "*X % of poorly surveyed areas has been surveyed with an assessed quality*".*

- [SPI] New S-44, for all kind of applications, navigation and others, is promulgated
  *Comments: revised S-44, under development, will not recommend specifications for usages, but will give a matrix of specifications, providing easy references to performances, to be chosen by users. This S-44 ed.6 will give a signal that standards for hydrographic survey can be tailored according to the usage, contributing to a better assessment of the existing knowledge, and encouraging its increase. The PI could read: "*New S-44 is usable for all kind of applications, navigation and others, and communities of user communities develop from it standards and quality controls relevant to their use*"*

Target 2.3 Adopt and apply UN guiding principles for geospatial information management in order to ensure interoperability of hydrographic data with other marine-related data.

- [SPI] S1XX data sets play a strong and recognized role in the global MSDI.
  Comments: the link with UN-GGIM is not direct, and "global MSDI" itself would be difficult to define. A SPI could be the number of guiding principles, amongst the 15 of the UN-GGIM, that are implemented at the IHO level (resolutions, procedures…).

Goal 3: Participating actively in ocean-related activities

Target 3.1 Enhance existing capacity building programme and strategies, and collaborate with other bodies who deliver capacity building and training

- [SPI] 90% of Coastal States have reached Phase 1 (MSI).
  Comments: Since CB is not limited to Phase 1, it was suggested that an indicator be added on number of IHO member States that have reached Phase 2. The current strategic plan includes a similar SPI (SPI 3: Percentage of Coastal States which provide hydrographic services, directly or through an agreement with a third party, categorized by CB phases). Due to the lack of reports from the RHCs on this point, no estimates are available, at least since 2012.

Target 3.2 Enhance knowledge of the world's seafloors through establishment of streamlined automated processes for acquisition, harmonization and ingestion of bathymetric data from any sources into the global data repository of the IHO Data Centre for Digital Bathymetry (DCDB).

- [SPI] All accessible public bathymetric data of MS is uploaded to and available from the DCDB.
  Comments: Technology allows bathymetric data to be managed by the competent entities responsible for updating the information, and to be automatically accessible (iaw EU Inspire Directive, for instance) via *many others without need for centralized uploading. It is therefore suggested to read: "*All accessible public bathymetric data of MS is available through the DCDB.*" The associated indicator would be the number of complying member States.*

- [SPI] DCDB takes advantage from ingestion of expert survey contributions from industry and crowd source bathymetry from ships of opportunity
  Comments: SPI could be the ratio between quantity of received data per year and the average annual quantity of data received between 2014 and 2020

Target 3.3 Enhance IHO digital communication and Web presence in order to maximize visibility and accessibility of standards and data provisions.

- [SPI] IHO is present on social media
  Comments: An indicator could more precisely report the trends in visibility, (e.g. by the number of followers on twitter or linked-in, number of RT or comments.

- [SPI] IHO web-site gives access to a fully traceable repository of all documents and incorporates GIS services.
  Comments: An indicator could report the improvement with regard with the current situation: it could be based on the number of documents or services that should be accessible via the web-site, and are not currently accessible.