

**8TH MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE
IHB, Monaco, 15-18 November 2016**

Paper for Consideration by HSSC

HSSC Contribution to the preparation of the IHO Work Programme 2018-2020

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|---------------------------|--|
| Submitted by: | HSSC Chair Group |
| Executive Summary: | This paper reports on the proposed input for the IHO Work Programme 2018-2020 prepared by the Chair Group as agreed at HSSC-7. |
| Related Documents: | IHB Letter dated 5 July 2016 - <i>Call for input to the draft IHO Work Programme 2018-2020</i> IHO CL 31/2016 dated 11 July - <i>Responses to the call for submissions to update the IHO Strategic Plan</i> |
| Related Projects: | HSSC Work Plan. |

Background

1. At its 7th meeting, the HSSC tasked the Chair Group to prepare inputs for the revision of the IHO Strategic Plan and the IHO 3-year Programme of Work. A formal call for input was issued by the IHB on 5 July 2016, requesting submissions no later than 1 December 2016.
2. This document reports on the proposed input for the IHO Work Programme 2018-2020, on the assumption that the overall content of the current IHO Strategic Plan (2009) will remain applicable, as proposed in IHO CL 31/2016 (see HSSC8-04A).
3. In accordance with the current IHO Strategic Plan, the IHO Work Programme is divided into the following three programmes:
 - Programme 1: Corporate Affairs under the responsibility of the International Hydrographic Bureau (to be replaced by the Secretary General when the revised IHO Convention enters into force);
 - Programme 2: Hydrographic Services and Standards under the responsibility of the Hydrographic Services and Standards Committee (HSSC),
 - Programme 3: Inter Regional Coordination and Support under the responsibility of the Inter Regional Coordination Committee (IRCC).

This document addresses Programme 2.

Strategic Directions

4. According to the current IHO Strategic Plan, Programme 2 focuses on the implementation of component 1.4 of Strategic Direction 1: “*developing, improving, promulgating and promoting clear, uniform, global hydrographic standards to enhance safety of navigation at sea, protection of the marine environment, maritime security and economic development*”.
5. In addition, the conduct of Programme 2 should take into account the following components of the Strategic Directions (SD):
 - SD1.1: implementing proactive, efficient and dynamic procedures and mechanisms that respond effectively to emerging trends, developments and challenges;

- SD1.2: closer and more effective cooperation with other international organizations, in order to respond to cross-agency issues and thereby promote coherence and efficiency;
- SD1.3: engaging the various stakeholders, including non-governmental international organizations, government, industry, academia and others, in the technical work of its bodies, in order to ensure a more inclusive approach to decision-making and the optimum use of high fidelity data;
- SD2.1: coordinating effectively Member State activities for the provision of coherent, standardized and well-coordinated hydrographic services, in accordance with regulation 9 of Chapter V of the SOLAS Convention;
- SD2.5: encouraging and supporting the development and promotion of integrated navigation systems and geospatial data infrastructures;
- SD2.6: promoting the use of new technologies and the opportunities offered by globalization and international cooperation;
- SD4.1: acting as a focal point and forum for all hydrographic matters;
- SD4.2: supporting national initiatives aimed at developing and enhancing hydrographic infrastructure.

Risk Assessment

6. On the basis of the risk assessment framework at Annex A of the current IHO Strategic Plan, the risks listed in Table 1 are considered relevant to Programme 2.

*Table 1
Risk relevant to Programme 2*

| Designation | Probability | Impact | Risk |
|--|--------------------|---------------|-------------|
| <i>Internal risks</i> | P (1 to 5) | I (1 to 5) | P x I |
| Lack of means (capacity/competence/budget) | 4 | 4 | 16 |
| Lack of consensus „how“ | 3 | 4 | 12 |
| Deficiency in standards | 4 | 4 | 16 |
| Member States not able/not willing to comply | 4 | 5 | 20 |
| <i>External risks</i> | | | |
| Technological developments too fast to cope | 3 | 4 | 12 |

7. The Chair Group acknowledges that “Deficiency in standards” is the main risk related to Programme 2. It considers that there are no major issues with regard to the S-57 framework and identifies “not delivering the S-100 infrastructure” as the major issue. The challenge is to provide the appropriate environment allowing the full development of S-100 based product specifications (including portrayal). The Chair Group suggests that the measure of success will be the completion of the S-101 ENC Product Specification in 2018.

Performance Monitoring and Reporting

8. The Chair Group proposes to amend the current HSSC Working Level Performance Indicators as indicated in Table 2.

9. Considering that the six-month reporting mechanism put in place by Decision No. 3 of the 5th Extraordinary International Hydrographic Conference (EIHC-5) provides little added value, the Chair Group recommends reverting to an annual reporting mechanism, in accordance with the provision of Chapter 6 of the current Strategic Plan and with the annual cycle of the Committees and of the Council (when established), subject to the identification of specific critical tasks which may require more frequent reporting.

Table 2
HSSC Working Level Performance Indicators

| No. WPI | Metric | Data Collection Point | Rationale | Proposal |
|----------------|--|------------------------------|--|--|
| HSSC1 | Number of S-100 based product specifications approved | IHB | Relative indicator of uptake of IHO standards including for purposes other than SOLAS navigation | Restrict scope to the number of targeted S-100-based product specifications (as listed in the Work Programme) |
| HSSC2 | Percentage of annual work programme achieved | HSSC WGs (all) | Progress against objectives in the strategic plan | Replace with the number of annual targets achieved (in accordance with the timeline indicated in the Work Programme) |
| HSSC3 | Total number of participants at meetings (MS and Expert Contributors) | HSSC WGs (all) | Indicates participation of MS and wider community in execution of the plan | Replace with the number of Member States and Companies represented in the working groups and project teams |
| HSSC4 | Number of technical revisions and clarifications approved | IHB | Indicative of ability to provide comprehensive, safe and effective standards | Replace with the number of <i>remedial</i> technical revisions of standards (target = 0) |
| HSSC5 | Number of ENCs distributed annually under license (equivalent annual licences) | WEND WG | Relative indicator of ENC usage throughout SOLAS market | Indicator not relevant, to be discontinued |

Draft outline of Programme 2 for 2018-2020

10. A draft outline of Programme 2 for 2018-2020 is provided in Annex A. The following seven elements are proposed:

- Element 2.1 Programme Coordination
- Element 2.2 Foundational nautical cartography standards
- Element 2.3 S-100 Framework
- Element 2.4 S-57 Framework
- Element 2.5 Support of the implementation of e-navigation and Marine Spatial Data Infrastructures (MSDI) (*except tasks related to element 2.2*)
- Element 2.6 Hydrographic surveys (*pending the consideration by HSSC-8 of the outcome of the H2SPT*)

- Element 2.7 Hydrographic aspects of UNCLOS
- Element 2.8 Other technical standards, specifications, guidelines and tools (*items not included in the previous elements*)

11. The format of the outline is aligned with the requirements of paragraph 5.3 of the Strategic Plan. Noting that the structure of the HSSC working groups (WG) may change at the discretion of the Committee, it is proposed to include the items related to WG meetings in a single task of element 2.1. The details will be provided in the HSSC work plan.

Action required of HSSC

12. The HSSC is invited to:
- a. **note** this report,
 - b. **consider** the proposals related to risk assessment and performance monitoring and reporting,
 - c. **consider** the proposed outline of Programme 2 for 2018-2020,
 - d. **decide** on arrangements to finalize the submission to the IHB,
 - e. **take** any other actions considered necessary.

Annex A

Draft Outline of Programme 2 for 2018-2020

Programme 2 – Hydrographic Services and Standards

Concept: Programme 2 focuses on the implementation of component 1.4 of Strategic Direction 1: “*developing, improving, promulgating and promoting clear, uniform, global hydrographic standards to enhance safety of navigation at sea, protection of the marine environment, maritime security and economic development*”. In addition, the conduct of Programme 2 takes into account the following components of Strategic Directions 1, 2 and 4:

- SD1.1: implementing proactive, efficient and dynamic procedures and mechanisms that respond effectively to emerging trends, developments and challenges;
- SD1.2: closer and more effective cooperation with other international organizations, in order to respond to cross-agency issues and thereby promote coherence and efficiency;
- SD1.3: engaging the various stakeholders, including non-governmental international organizations, government, industry, academia and others, in the technical work of its bodies, in order to ensure a more inclusive approach to decision-making and the optimum use of high fidelity data;
- SD2.1: coordinating effectively Member State activities for the provision of coherent, standardized and well-coordinated hydrographic services, in accordance with regulation 9 of Chapter V of the SOLAS Convention;
- SD2.5: encouraging and supporting the development and promotion of integrated navigation systems and geospatial data infrastructures;
- SD2.6: promoting the use of new technologies and the opportunities offered by globalization and international cooperation;
- SD4.1: acting as a focal point and forum for all hydrographic matters;
- SD4.2: supporting national initiatives aimed at developing and enhancing hydrographic infrastructure.

Element 2.1 Programme Coordination

Objective: monitor and implement Programme 2 through the HSSC and its subordinate organs

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--|---|-----------------------------|---|---|--|---|-------|
| 2.1.1 | Organize, prepare, attend and report annual meetings of HSSC | 1.1 1.2 1.3 1.4 2.1 2.5 2.6 | | Monitor and approve HSSC Work Plan - Annual | HSSC Chair WG Chairs MS Rep. IHO Secretariat | Travel cost, per diem and working hours 1 Dir + 2 ADs Travel cost and per diem Chair’s briefing | Travel cost, per diem and working hours MS Rep. | HSSC2 |

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|---|------------|----------------------------------|---|---|--|---|-------|
| | | 4.1 4.2 | | | | | | |
| 2.1.2 | Organize, prepare, attend and report meetings of HSSC working groups | 1.4 | | As defined in the HSSC Work Plan | WG Chairs MS Rep. IHO Secretariat | Travel cost, per diem and working hours 1 AD / meeting | Travel cost, per diem and working hours MS Rep. | HSSC3 |
| 2.1.3 | Prepare and attend meetings of the Council | 1.1 | | Submit report and recommendations - Annual | HSSC Chair IHO Secretariat | Travel cost and per diem HSSC Chair Travel cost and per diem 1 Dir if/when meeting outside Monaco | | |
| 2.1.4 | Prepare (and attend?) 2 nd session of the IHO Assembly | 1.1 | | Submit reports and recommendations (through the Council) - 2020 | HSSC Chair IHO Secretariat | | | |
| 2.1.5 | Monitor the development of related international standards, specifications and guidance | 1.2 | IALA IEC IMO ISO OGC | Identify and attend relevant meetings and activities and report outcome - as required | HSSC Chair Group IHO Secretariat | | | |
| 2.1.6 | Provide technical outreach, advice and guidance | 4.1 | | Identify and attend relevant meetings and activities and report outcome - as required | HSSC Chair Group IHO Secretariat | | | |
| 2.1.7 | Specify and develop a Standard Management System | 1.1 | | Draft preliminary specifications and investigate possible solutions | HSSC Chair Group IHO Secretariat | Contract support if appropriate | | |
| 2.1.8 | Maintain and extend IHO Resolutions (M-3) related to technical issues | 1.1 | | Draft proposed amendments for the consideration of the Council -2019 | HSSC All WG | | | |

Element 2.2 Foundational Nautical Cartography Framework

Objective: develop, maintain and promote the foundational standards, specifications, guidelines and services related to nautical cartography to meet the requirements of the stakeholders

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|---|-----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.2.1 | Maintain S-4 and related publications (INT 1/2/3) | 1.4 | | | NCWG | | | |
| 2.2.2 | Maintain S-11 Part A | 1.4 | | | NCWG | | | |
| 2.2.3 | Maintain the INToGIS infrastructure | 1.1 | | | NCWG IHO Secretariat | | | |

Element 2.3 S-100 Framework

Objective: develop, maintain and promote the S-100 framework in order to meet the requirements of the stakeholders

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--|-----|-----------------------------|---|-------------------------------|-------------------------------|-----------------|----|
| 2.3.1 | Maintain and extend the S-100 GI Registry | 1.4 | | | S-100WG IHO Secretariat | | | |
| 2.3.2 | Maintain and extend S-100 Error! Reference source not found. | 1.4 | | S-100 Test bed - ???? Edition 4.0.0 S-100 - ???? | S-100WG | | | |
| 2.3.3 | Develop and maintain S-99 | 1.4 | | Edition 2.0.0 S-99 - ???? | S-100WG | | | |

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--|------------|---|--|-------------------------------|-------------------------------|-----------------|-------|
| 2.3.4 | Develop and maintain S-10x Product Specifications Error! Reference source not found. | 1.4 | ECDIS OEM GIS Community Data providers | Edition 1.0.0 S-101 - 2018 S-101 Implementation Plan - 2018 Edition 2.0.0 S-102 - 2017 Edition 1.0.0 S-111 - 2018 Edition 1.0.0 S-122 - 2019 Edition 1.0.0 S-123 - 2020 | Project teams Relevant WGs | | | HSSC1 |
| 2.3.5 | Provide advice and guidance to other organizations developing S-100 based Product Specifications | 1.2 1.3 | | | S-100WG IHO Secretariat | | | |

Element 2.4 S-57 Framework

Objective: maintain the S-57 framework fit for purpose

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|---------------|-----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.4.1 | Maintain S-52 | 1.4 | ECDIS OEM | | ENCWG | | | |
| 2.4.2 | Maintain S-57 | 1.4 | ECDIS OEM Data servers | | ENCWG | | | |
| 2.4.3 | Maintain S-58 | 1.4 | | | ENCWG | | | |
| 2.4.4 | Maintain S-61 | 1.4 | ECDIS OEM Data servers | | ENCWG | | | |
| 2.4.5 | Maintain S-63 | 1.4 | | | ENCWG DPSWG | | | |
| 2.4.6 | Maintain S-64 | 1.4 | | | ENCWG DPSWG | | | |
| 2.4.7 | Maintain S-65 | 1.4 | | | ENCWG | | | |

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|---------------|-----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.4.8 | Maintain S-66 | 1.4 | | | ENCWG | | | |

Element 2.5 Support of the implementation of e-navigation and Marine Spatial Data Infrastructures (MSDI)

Objective: provide technical support to the development of new services and functionalities required by the implementation of e-navigation and MSDI

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--|------------|-----------------------------|---|-----------------------------------|-------------------------------|-----------------|----|
| 2.5.1 | Monitor and assess requirements related to data flow, data security, data quality, backup arrangements, time-varying information, etc. | 1.1 2.5 | | | All WG | | | |
| 2.5.2 | Support the development and implementation of Maritime Service Portfolios (MSP) | 1.1 2.5 | IALA IMO | Preparation of the provision of a MSP “Hydrographic Information” – 2018 Provision of a MSP “Hydrographic Information” – 2019(<i>include participation in the IMO/IHO HGDM</i>) | NIPWG NCWG S-100WG TWCWG | | | |

Element 2.6 Hydrographic surveys

Objective: Maintain S-44 and related IHO documents fit for purpose

[*Pending the consideration by HSSC-8 of the outcome of the H2SPT*]

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|------|-------------|----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
|------|-------------|----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--------------------------|-----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.6.1 | Maintain and extend S-44 | 1.4 | | | | | | |

Element 2.7 Hydrographic aspects of UNCLOS

Objective: monitor development related to the hydrographic aspects of UNCLOS and maintain the relevant IHO publications fit for purpose

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|--|------------|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.7.1 | Organize the biennial ABLOS Conference | 1.3 4.1 | | | | | Self-funding | |
| 2.7.2 | Maintain C-51 | 1.4 | | | | | | |

Element 2.8 Other technical standards, specifications, guidelines and tools

Objective: maintain technical standards, specifications, guidelines and tools not included in the previous elements fit for purpose

| Task | Designation | SD | Stakeholder outside the IHO | Deliverables / Milestones | Lead authority / Participants | Resources from the IHO budget | Other resources | PI |
|-------|---|-----|-----------------------------|---------------------------|-------------------------------|-------------------------------|-----------------|----|
| 2.8.1 | Maintain S-12 | 1.4 | | Revision as appropriate | NIPWG | | | |
| 2.8.2 | Maintain S-32 | 1.4 | | | HDWG | | | |
| 2.8.3 | Maintain S-49 | 1.4 | | Revision as appropriate | NIPWG | | | |
| 2.8.4 | Maintain the list of standard tidal constituent | 1.4 | | | TWCWG | | | |
| 2.8.5 | Maintain the inventory of national tide gauges and current meters | 1.1 | | | TWCWG | | | |

