PRO-2.2   **Establishment of an S-100 Infra Center to support the implementation of S-100**

Submitted by: Republic of Korea

References:

> A. Decisions No. 32 to 36 of C-6: Roadmap for the S-100 Implementation Decade (2020 – 2030)
>
> B. HSSC14-10B INF Establishment of an S-100 Infra Center for supporting the implementation of S-100

With the main transition period from S-57 ENCs and nautical publications to S-100 Universal Hydrographic Data Model only a few years away, we need to run the elements that are fundamental for maintaining S-100 standards at a stable level for the successful implementation of the IHO S-100 Roadmap. This paper proposes the need to establish an S-100 Infra Center (tentative name) that is required to support the framework for S-100 implementation mainly the maintenance of the S-100 GI Registry and its associated components; and the consequently expected outcome and the specifics of its establishment.

PROPOSAL

The Assembly is invited

> a) **to recognize the need to establish the S-100 Infra Center and approve the foundation of a new Project Team under HSSC with a three-year work plan including the establishment of the S-100 Infra Center to prepare for the actual implementation period with consideration of the possible location of the Center.**
>
> b) **to request the HSSC to propose to the Council how a S-100 Infra Center could support the S-100 framework.**
>
> c) **the potential Project Team to report to the 4th IHO Assembly the progress of its three-year operation including the establishment of the S-100 Infra Center.**

EXPLANATORY NOTE

1. IMO MSC106 approved S-100 ECDIS performance standard drafted by the IHO and other related stakeholders on 11 November 2022. S-100 ECDIS will be legal to use after 1 January 2026 and from 1 January 2029. The new systems must comply with the IMO Resolution on ECDIS Performance Standards. (MSC.530(106))

2. IHO has commitments towards the IMO and other stakeholders to achieve operational status on the prioritized S-100 product specifications and substantial coverage of S-101 and related products by 2026.

3. Due to the nature of S-100 standards, when developing them, some tasks need to be commonly and continuously performed by producers and Member States – namely

managing and improving catalogues, managing test datasets, and running a testbed – and they need to be appropriately supported by the IHO Secretariat.

4. Changes to S-100 standards vary – New Editions, revisions, and clarifications – and whenever there is a change to a standard, all the annexes (e.g. data model (application schema), feature catalogue, portrayal catalogue, DCEG, GML schema, test datasets) need to be changed at the same time, so the workload of maintaining S-100 standards is significant, compared to a single standard S-57 ENCs.

5. One of the backbone tools for developing and maintaining S-100 standards is the S-100 Geospatial Information (GI) Registry, run with the support of the Republic of Korea. However, according to a HSSC ISO 9001 Cell risk analysis, the Registry might be vulnerable in terms of sustainable operation. Thus it proposed to establish a Project Team under the HSSC/S-100 Working Group or improve the Arrangement between IHO-KHOA on Technical Cooperation.

6. In order to support the successful transition to S-100 by IHO and its Member States according to the S-100 Roadmap, a permanent S-100 Infra Center is proposed to be established to be able to provide technical support, such as the sustainable operation of the GI Registry system, managing and improving S-100 infra tools, managing S-164 test datasets, supporting documents updates including FC, PC and etc. as per changes to 13 types of S-10X products (New Editions, revisions, clarifications), running a testbed and supporting Member States.

OBJECTIVE AND SCOPE

S-100 Infra Center (tentative name)

Objectives:

The S-100 Infra Center supports IHO Member States and related stakeholders to transition to the S-100 world stably by managing critical framework of S-100 implementation and guides how S-100 is applied to the future industry of hydrography. Furthermore, the Infra Center supports the IHO community to collect the series of S-100 products and services in cooperation with other domains such as IALA as Aids to Navigation, WMO as weather information, and IEC as route monitoring to build an S-100 as a whole.

Scope:

a) Maintain the IHO GI Registry system according to S-100, and provide technical assistance in prompt and efficient manner.

b) Maintain S-100 Infra Tools and provide trainings and/or technical support for IHO committees and/or participants engaged in the development of S-100 standards.

c) Support the production and update of S-100 Catalogues (Feature Catalogue, Portrayal Catalogue) and Schema in line with S-100 and its product specifications.

d) Support the production and maintenance of S-164 test datasets and manage them.

STRUCTURE AND COMPOSITION

7. To provide leadership and set the direction for the S-100 Infra Center, it will be managed by a General Manager (GM) and a Technical Advisory Board (TAB). The TAB will be composed of an IHO Technical Director, Chair of the Hydrographic

Services and Standards Committee (HSSC), Chair of S-100WG, and one representative with administrative and technical expertise nominated by the host country, among who is to be appointed as the chair of the TAB. The host country recommends candidates for the GM position to the TAB and TAB approves. Further details for its procedure needs to be discussed at TAB

8. The TAB will endorse a plan for updating and maintaining the S-100 infrastructure system and prioritize technical support for the components of S-10X product specifications. The General Manager maintains an annual work plan of the S-100 Infra Center based on mutual consent with the TAB.

9. The Chair of the TAB assisted by the General Manager reports to the IHO HSSC annually on the work plan, activities, and outcomes, and conducts proposed work with feedback from the HSSC.

Key Outcomes

10. Support the successful performance of the IHO S-100 Implementation Roadmap by supporting the stable operation of the IHO GI Registry and updating the tools for developing S-100 in a timely manner.

11. Support Member States to work efficiently and minimize repeated tasks among different parties through the revision of the components of IHO S-100 product specifications (FC/PC/DCEG/Schema/etc.) and the production and systematic management of S-164 test datasets.

12. Support potential topics in hydrography such as MASS, AI technology and digital twin whose values can be foreseen based on S-101 ENC and related S-100 products.

Location Requirements

S-100 Infra Center could be located in:

13. A Member State which is able to support a minimum of three permanent staff to maintain the IHO GI Registry, equipped with an IT infrastructure capable of remote operation of the GI Registry, management of standards and related documents, and testbed management.

14. A Member State which has a stable network and hardware IT infrastructure also has experience in operating the IHO system

15. A Member State which is able to work close not only with the IHO but also with other potential partners on S-100 development implementation, such as IMO, IALA, and WMO.

ACTIONS REQUIRED OF THE ASSEMBLY:

The Assembly is invited

a) to recognize the need to establish the S-100 Infra Center and approve the foundation of a new Project Team under HSSC with a three-year work plan including the establishment of the S-100 Infra Center to prepare for the actual implementation period with consideration of the possible location of the Center.

b) to request the HSSC to propose to the Council how a S-100 Infra Center could support the S-100 framework.

c) the potential Project Team to report to the 4th IHO Assembly the progress of its three-year operation including the establishment of the S-100 Infra Center.