

Paper for Consideration by WENDWG
Interim Report on the development of S-101 ENC Scheming Guidelines

Submitted by:	Japan (on behalf of the S-101 ENC Scheming Guidelines Drafting Group)
Executive Summary:	The drafting group was established at WENDWG11 (February 2021) to develop S-101 Scheming Guidelines as Annex to WEND-100 Principles (adopted on September 2021). This paper is the interim report of the progress made by the drafting group in 2021.
Related Documents:	WENDWG11-04.1A, WENDWG11-04.1C, Action WENDG11/06
Related Projects:	S-100 Implementation Roadmap – S-1xx Implementation Guidelines Drafting Group.

Introduction / Background

- At WENDWG11 held on February 2021, IHO Resolution on the WEND-100 Principles and the associated documentation framework including Annex on the recommendation for S-101 ENC Scheming for the transition from S-57 to S-101 and Guidelines for the Implementation of S-1xx Products were proposed and discussed. Then, the ad hoc drafting group was established to do a feasibility and impact study on new grid-based schemes or keeping the existing S-57 ENC for the next decade and prepare some guidelines and recommendations on the establishment of S-101 ENC Schemes before the production starts. 9 members (Colombia, Finland, France, Germany, Italy, Japan, UK and US (NOAA, NGA)) offered their contributions to the drafting group. Japan, supported by the IHO Secretariat (Associate Professional Officer (Japan) in particular), agreed to take the lead of the drafting group.

Analysis/Discussion

- A survey was done by correspondence among the members of the drafting group on July and August 2021.
- Also, a short VTC meeting among the members of the drafting group was held on 13 October 2021. They discussed based on the presentation prepared by Japan, which includes the scope, key drivers, examples of ENC schemes and an ideal scheme for S-101 ENC.
- The outline the presentation is as follows:
 - The scope of guidelines is the future phase after the transition (S-57 to S-101) phase and the future means a very long-term, not a short-term. And the timing to start rescheming depends on data producers.
 - The key drivers to be considered are;
 - ✓ Overlapping
 - ✓ Number of ENC cells
 - ✓ Interoperability with S-1XX product
 - ✓ Identification by users
 - ✓ Impact on transition from S-57 to S-101
 - ✓ Number of ENC cells
 - ✓ Flexible arrangement (coverage, boundaries...)
 - ✓ Maintenance
 - Interoperability is one of the most important factors because S-1XX products have a large variety of specific information, which means the intended scale range depends on S-1XX products. So, the flexibility of the scheme will be more required.
 - Overlapping is another one. The common grid scheme (ENC cells produced by neighbouring countries share their boundaries) is one possible solution for

this issue because users can simply choose which cell to purchase and the harm of overlapping data on ECDIS will be reduced.

- The examples of common grid systems are NGA ENC Grid System, the scheme defined on S-57 ver.2 and hexagonal grid which is used by the private company "Uber" or considered at Arctic HC (ARHC).
- The concepts of Usage Bands are eliminated in S-101 ENC. So, 6 Usage Bands in S-57 ENC on each grid scheme need to be re-organized for S-101 ENC. Additionally, it is necessary to coordinate with ARHC to cover the polar regions.

Conclusions

5. In the VTC, useful comments were invited by the members and the agreement and conclusion has NOT been reached yet.

Action Required of the WENDWG

6. The WENDWG is invited to:
 - a. note this report
 - b. prepare an interim report for consideration at IRCC-14.
 - c. consider the following options for the next actions (if necessary, to be considered at IRCC-14);
 - Option 1; Based on the current situation and various positions, no need for Guidelines, keep S-57 general framework "as is" in the transition to S-101 production, disband drafting group for now
 - Option 2: RHCs (and RENCs?) Reps to report at WENDWG-13 on their views and general strategy about the transition from S-57 to S-101 (dual) production and also on their views on a long term objective for ENC re-scheming needs or not based on cost-effective analysis to speed up the implementation of the S-100 Roadmap in a consistent manner world-wide (* If option 2 is chosen, as a consequence, at WENDWG-13, reconsider the establishment of the drafting group based on outcome of option 2, to define a minimum common denominator for drafting guidelines)