HSSC1-07.1A

1st HSSC Meeting
Singapore, 22-24 October 2009

Status Report on Inland ENC Development and Standardization

Submitted by:	European - North & South American - Russian Federation Inland ENC Harmonization Group (IEHG)
Executive Summary:	This paper describes the activities of the IEHG as it relates to Inland ENC development/implementation in Europe, North America, Russia and South America. In addition to describing the legal authority, structure, organization, and procedures, an explanation is provided about the activities of IEHG in regard to the new IHO Register, S-100 and IHO Working Groups.
Related Documents:	IHO S-57 Edition 3.1 → IHO S-100
Related Projects:	nil

Objective of IEHG

To develop and to maintain a harmonized standard for an Inland Electronic Navigational Charts (IENC) suitable for inland navigation that is based on the standards of the International Hydrographic Organisation (IHO) for 'maritime' Electronic Navigational Charts (ENC).

Guiding Principles

a. Goal - To agree upon specifications for Inland ENCs that are suitable for all known inland ENC data requirements for safe and efficient navigation in European, North and South American, and Russian Federation inland waterways. However, it is intended that IENC standards meet the basic needs for Inland ENC applications, worldwide.

b. The framework for Inland ENC standards includes:

1. Use of IHO S-57 (Edition 3.1), including:
   - 'Maritime' ENC Product Specification (Appendix B1)
   - Object Catalogue (Appendix A)
   - Use of Object Catalogue (Appendix B.1, Annex A)
2. A minimum Inland ENC Product Specification that includes mandatory requirements for safety-of-navigation on inland waterways, worldwide.
3. An Inland ENC Encoding Guide that provides guidance on recommended object classes, attributes, and attribute values for encoding IENC data.
4. Inland ENC Feature Catalogue.
5. Establishment of an Inland ENC Register for additional real-world, IENC features, attributes, and enumerations that are not already contained in IHO S-57 Edition 3.1 Object Catalogue.
6. Use of the *Open ECDIS Forum* (OEF) as a means of communication and to register additional Inland ENC object classes, attributes, and attribute values.
7. Align with the future IHO S-100 Standard for Geospatial Data.

Recognition

As the competent international technical group on Inland ENC technical standards development, implementation and maintenance, IEHG is recognized by:

Europe - European Union, Central Commission for Navigation on the Rhine, UNECE, and the Danube Commission.

North America – US Army Corps of Engineers

Russian Federation - Russian Ministry of Transport

South America – Directorate of Hydrography and Navigation of the Brazilian Navy (DHN)

International Hydrographic Organization (IHO) – On 14 April 2009, IEHG became recognized as a Non-governmental International Organization (NGIO) of IHO. IEHG supports, advises and provides input to IHO regarding Inland ENC matters. Specifically, IEHG attends:

- Hydrographic Services and Standards Committee (HSSC)
- Transfer Standard Maintenance and Application Development (TSMAD) WG

Composition, Organization, and Membership

a. Composition - IEHG is a combined government/non-government technical group that works towards the development of international standards meant to facilitate the implementation of inland electronic charting and navigation, worldwide.

b. Regions – IEHG regions are comprised of countries within a continent (North America, South America) or a recognized social-economic region (e.g., Europe, Russian Federation).

c. Organization – By simple majority vote, chairpersons, vice-chairs and technical coordinators are elected.

1) Chair – Two persons (co-chairs) each from a different region. Only representatives of waterway authorities can become chairpersons.

2) One vice-chair from each region, which is not already a chair.

3) Technical Coordinators - One technical coordinator for each region.

4) Core Group – The two Chairs, the Vice-Chairs and Technical Coordinators.

d. Membership

All the members of IEHG should have current expertise in the field of Inland ENCs.

1) Participants – Anyone who is involved in the production of Inland ENCs or the production of Inland ENC applications and representatives of user groups can participate in IEHG, make proposals and take part in the discussions.

2) Members - Representatives of competent authorities involved in the provision of Inland ENCs are entitled to become members. If proposed by a competent authority, membership can also include expert contributors, such as representatives of:

- international governmental organizations in the area of inland navigation and members of the working groups of these organizations that are dealing with Inland ENCs
- inland navigation user groups
- private companies that are producing Inland ENCs or applications for Inland ENCs.

IEHG Procedures

IEHG normally meets once per year. The 7th Meeting of IEHG was held on 9-12 September 2009 at the Federal Ministry of Transport – Innovation and Technology, Vienna, Austria. [Note: a brief report on the outcome of IEHG7 will be submitted for inclusion into this report immediately after the meeting].

However, most of the work of the IEHG is accomplished via e-mail correspondence and the IEHG website *[iehg.openecdis.org]*.

Gelöscht: .

IEHG has established a process for submitting proposals for amendments (i.e., Change Requests) to Inland ENC standards. This includes the Inland ENC Encoding Guide, Feature Catalogue, and Product Specification. Every participant in IEHG is entitled to submit proposals. Proposal submission and review is described in Annex A of the IEHG Terms of Reference.

Inland ENC Website

Previously, the *Open ECDIS Forum* (www.openecdis.org) was used to host Inland ENC related activities and publications. However, beginning in 2009, all Inland ENC publications and functions are now hosted at a consolidated Inland ENC site [http://ienc.openecdis.org].

Key publications include:

- Inland ECDIS Standard, Ed. 2.0/2.1 (16 May 2008)
- IENC Product Specification, Ed. 2.1 (16 May 2008)
  - Feature Catalogue, Ed. 2.1 (19 May 2008)
  - IENC Encoding Guide, Ed. 1.3.1 (16 May 2008)
- IENC Presentation Library, Ed. 2.1 (16 May 2008)

Two main activities that are conducted include:

- A forum for general discussions on inland ENCs:
  Subscription: http://www.ienc.openecdis.org/cgi-bin/mailman/listinfo/ienc

Archive: http://ienc.openecdis.org/pipermail/ienc/)
- A forum for formal Change Requests for the Inland ENC Encoding Guide
Subscription: http://www.ienc.openecdis.org/cgi-bin/mailman/listinfo/egcr
Archive: http://ienc.openecdis.org/pipermail/egcr).

The site also contains:

Information about the work of the IEHG (Terms of Reference, Meeting Minutes, presentations, etc.)
Papers related to Inland ENC matters.

IENC Register

In conjunction with the planned IHO GII Registry, it is expected there will be an Inland ENC Register. As reported to CHRIS 20, the IEHG is willing to take responsibility for its content and management. In this regard, a "Process for Submitting Proposals to the Inland ENC Register" was agreed at IEHG4, and is described in Annex B of the IEHG Terms of Reference. However, IEHG seeks advice on current intentions for the IHO Registry, and the desired means/process for registering Inland ENC extensions and related Product Specifications.

Clarification was provided by TSMAD regarding changes in the Register that will affect Product Specifications. TSMAD confirmed that, "when the IENC register is merged with the Hydro register all duplicate entries [e.g., "UPPER CASE" in the Hydro Register and "lower case" in the current Inland ENC Product Specifications] would be retired (from the Inland ENC Register)." Lower case objects and attributes would still be allowable in charts produced to the current standards, however they would no longer be available in future IENC standards (once S-100 has been adopted). Additionally, all attribute values that presently conflict with current S-57 attribute values will be reconciled so that IENC attributes (soon to be enumerations) would fit with the existing hydro numbering system.

Currently, examples of portrayal of IENC features are contained in the IENC Encoding Guide. Consideration is being given to compiling portrayal guidance for IENCs. In the meantime, IEHG will monitor IHO S-100 developments as they occur related to a Portrayal Register.

Alignment with new IHO S-100

It is the intention of IEHG to conform to what is being planned for IHO S-100. There will be several benefits:

a) All real-world Inland ENC-related object classes, attributes, and attributes values can be included with S-100. The current Object Catalogue will become a series of *Feature Data Dictionaries*.

b) Ideally, the Inland ENC Register will contain only those object classes, attributes and attribute values that are not already in the Hydrographic Register.

c) An *application schema* will specify how:
- features, attributes and associations are used to specify a data model
- the various components are 'glued' together (i.e. a feature and its spatial component)
- to use a register as part of an overall registry.

These rules can then be applied to develop a product-specific application schema (e.g., Inland ENC) that in turn forms the basis of the product specification.

d) The *Inland ENC Product Specification* is separate "profile" consisting of a feature catalogue, an application schema, and encoding.

Relationship to IHO Committees/Working Groups

CHRIS/HSSC – Beginning in 2005, IEHG has submitted an annual Status Report. In addition, a member of the IEHG Core Group has attended each annual CHRIS meeting.

TSMAD – A formal letter inviting IEHG to participate in TSMAD was received from IHB on 27 September 2007. Depending on the meeting location, at least one member of the "Core Group" of IEHG (Chairs, Vice-Chairs, or Technical Coordinators) will attend.

IHO Working Group on Hydrography and Cartography of Inland Waters (HCIWWG) – As stated in IHO CL 62/2007 (10 July 2007):

"The purpose of the Working Group will be to analyse and recommend the level and nature of IHO involvement in Hydrography and Cartography of Inland Waters."

Further:

"The Working Group should involve all relevant non-IHO international bodies in its deliberations, including the Inland ENC Harmonization Group (IEHG)."

Since there were several issues that were related to IEHG and its future work, IEHG Core Members (Co-Chairs and Technical Coordinators) actively participated in this Working Group.

The primary focus of this Working Group was on policy -- not technical -- issues related to legal and regulatory responsibilities for navigation products and services on inland waterways that have vessels on international voyages. The 4th Extraordinary International Hydrographic Conference adopted the report of the working group and the proposed resolution which ensures that IHO will continue to deal with hydrography and cartography on inland waterways in the future, and will cooperate with IEHG.

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Action Required of CHRIS

CHRIS is invited to:

- Note the activities related to Inland ENC development and implementation.
- Advise on current intentions for the IHO GII Registry, and means/process for registering Inland ENC extensions and related Product Specifications.