20th CHRIS Meeting
Niteroi, RJ, Brazil, 3-7 November 2008

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. <u>Goal</u> - 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 <u>framework</u> 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) – Committee on Hydrographic Requirements and Information Systems (CHRIS).

Since there are several countries with Inland Navigation that are not Member States of IHO, IEHG does not intend to become a part of IHO. Instead, IEHG supports, advises and provides input to IHO regarding Inland ENC matters.

Composition, Organization, and Membership
   a. <u>Composition</u> - 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. <u>Regions</u> – 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. <u>Organization</u> – 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. <u>Membership</u>
All the members of IEHG should have current expertise in the field of Inland ENCs.
      1) <u>Participants</u> – 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) <u>Members</u> - 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 6th Meeting of IEHG was 8-10 October 2008 at the Center for Coastal and Ocean Mapping – University of New Hampshire, Durham, USA. However, most of the work of the IEHG is accomplished via e-mail correspondence and the *Open ECDIS Forum (OEF)*. On the OEF, there is an established 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. The IEHG Discussion Forum on the OEF has an official status in the European Inland ECDIS Standard, as well as the harmonized IENC Product Specification and Encoding Guide.

Inland ENC Register
Currently, the *Open ECDIS Forum* (www.openecdis.org) serves as a "register" for Inland ENC extensions based on IHO S-57 Edition 3.1. However, in conjunction with the planned IHO Registry, there will be an Inland ENC Register. The IEHG will be responsible for its content and management. 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.

Clarification will be requested of TSMAD regarding changes in the Register that will affect Product Specifications. Further, how to best deal with S-57 objects/attributes that currently exist in both the Hydro Register (i.e., "UPPER CASE") and the IENC Register (i.e., "lower case"). An example is **DEPARE** in the Hydro Register and **depare** with "additional" inland ENC-specific attributes that occur in the IENC register.
Currently, examples of portrayal of IENC features are contained in the IENC Encoding Guide. Currently, there are no plans to begin to develop an IENC Portrayal Register. However, IEHG will monitor IHO S-100 developments as they occur.

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 Dictionarie*s.

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 – 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 location of the meeting, at least one member of the "Core Group" of IEHG (Chairs, Vice-Chairs, or Technical Coordinators) attends.

IHO Working Group on Hydrography and Cartography of Inland Waters – Based on a decision made during the 17th IHC, this new IHO Working Group was established. 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)."

Based on what was discussed during the IEHG 5 meeting in Niteroi, Brazil, it became evident that a key focus of this Working Group was on policy (not technical) issues related to legal and regulatory responsibilities for navigation products services on inland waterways that have vessels on international voyages. However, since there were a number of issues that affected IEHG and its future work, the Co-Chairs of IEHG actively participated in this Working Group. Based on the recommendations contained in the WG Report to IHO, IEHG will apply to become an accredited NGIO with observer status in IHO.

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Action Required of CHRIS

CHRIS is invited to:
- Note the activities related to Inland ENC development and implementation.
- Provide clarification regarding the relationship of changes made to the IHO Registry (i.e., various Registers) and the related Product Specifications.