

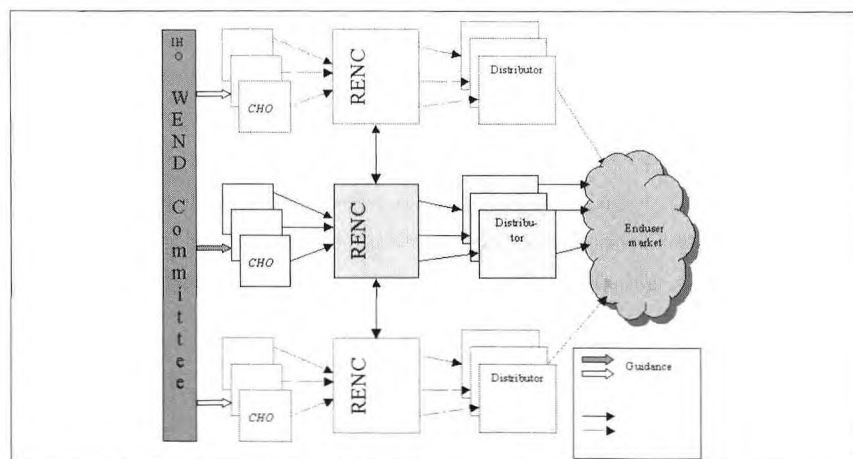
## WEND and RENC: Keywords for IHO's Distribution System for ECDIS Data - An Evaluation of Terminology and Concept

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### Overview of Historical Development of the WEND Concept

In 1990, the Norwegian Hydrographic Service undertook an initiative for a world-wide ECDIS (Electronic Chart Display and Information System) centre, which thoroughly shook up the hydrographic community. It became clear that in order for the ECDIS-concept to materialise, a new dimension of co-operation of hydrographic offices within IHO (International Hydrographic Organisation) was needed. After discussion with IHO [2], Norway, in 1992, established a regional centre for Northern Europe, which soon became known as the 'Electronic Chart Centre' (ECC). However, the need for a more systematic approach was recognised, and the IHO at the XIVth International Hydrographic Conference established a Special Committee on the 'World-wide Electronic Navigational Chart Data Base (WEND)'. The outcome of this important work, was the WEND concept, composed of:

- A set of principles for co-operation (the so-called WEND Principles)
- A conceptual model (see Figure 1) for its data flow and its organisational set-up, which further refined an early blueprint developed in [1], and for the first time introduced the notion of the 'Regional Electronic Navigational Chart Coordinating Centre' (RENC)



The conceptual WEND schema (after [3])

After completion of the WEND concept and its adoption by IHO Member States, the Special Committee on WEND was transformed into a regular IHO Committee tasked with implementing the WEND concept (1994).

In 1995 the Electronic Chart Centre (ECC), Norway embarked on a joint venture with the British Admiralty, UK, which is the basis for the work of the RENC Northern Europe since then. In late 1998, the RENC/NE established itself as the 'European ENC Coordinating Centre' and adopted 'PRIMAR' as the global brand name for its services.

In April 1999, PRIMAR as the world's first RENC, was officially opened by the Norwegian King Harald. The current legal structure of PRIMAR (Figure 2) rests on two pillars:

- A Memorandum of Understanding (MOU) between the UK (Hydrographic Office (UKHO)) and Norway (Norwegian Mapping Authority) which establishes UK and Norway as the operators of PRIMAR, providing the necessary funds and responsibilities for operating PRIMAR
- A Co-operation Arrangement (COA), signed by UK and Norway and eight other co-operating HOs (CHOs) setting out the terms and the management structure of the co-operation

PRIMAR currently employs 18 persons, responsible for management, development, marketing, quality assurance (QA) and data services.

No other RENC has yet been established in any other region of the world. Several HOs already producing ENCs have shown some interest in using PRIMAR at least as a temporary mechanism for distributing the ENCs to the market. A close co-operation has developed in the South Asian area with a particular focus on the Malacca Strait, which has led to the development of ENCs for this area. Although no formal arrangement has yet been established, some HOs, led by Japan, have shown interest in a more networked form of a RENC, sometimes referred to as 'Virtual RENC'. This sort of RENC would not require a central, physical body for the RENC, but would be completely based on distributed responsibilities under central guidance. A more detailed model for a Virtual RENC (VRENC) has recently been proposed by Italy for the Mediterranean region [6].

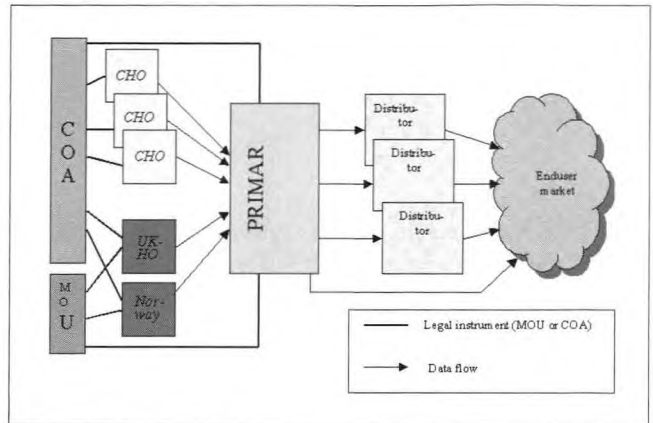
## Discussion

It is not the purpose of this contribution to discuss in any great detail the strengths and weaknesses of various forms of RENC organisation. However, as the only RENC presently in operation, PRIMAR is often seen as the only viable model for a RENC. Given the difficulties and the long history of the development of PRIMAR, and the complexity of its current organisation, this has led to an increasing scepticism about the viability of setting up a global network of RENCs. To contribute to some clarification of the WEND concept, an attempt is made here to determine the notions 'WEND' and 'RENC' in more generic terms, based on the underlying ideas.

## WEND

The WEND concept is outlined in Annexes 4, 5 and 6 to the 'Report of Special Committee on WEND' [3]. It contains a definition for the term WEND as follows:

2. A common worldwide network of ENC data sets, based on IHO Standards, designed specifically to meet the needs of international maritime traffic using ECDIS, which conforms to the IHO Performance Standards



The present legal structure of PRIMAR

2. The System will utilise HO national ENC datasets, which are integrated and may be distributed and updated through regional centres

3. WEND represents an IHO System based on the co-operation of participating Member States

The definition emphasises the co-operative nature of WEND, which is further elaborated in the WEND Principles. Basically, the WEND Principles describe a set of common rules to be observed in the collaboration of HOs on the worldwide supply of ENCs and ENC updates. Taking into account the collaboration Member States of IHO have agreed upon in acceding to the Convention of the IHO, the WEND Principles can be regarded as a special arrangement between IHO member states under the Convention in order 'to meet the needs of international maritime traffic using ECDIS which conform to the IHO Performance Standards'.

Indeed, the Special Committee for WEND [3] had been requested to examine the need for amendments to the Convention, a protocol or any legal instrument. However, installing these formal instruments was found to be a too time-consuming and complex process. The 'WEND Principles' therefore may be considered as a pragmatic approach, in lieu of e.g. an amendment to the Convention. Although of a much less binding nature than an instrument of international law, like a convention, the principles have been approved by IHO Member States, lending them a status of recommendation, like any other decision of the IHO. What are the specific issues regulated on within or by the WEND Principles adopted by IHO? They fall, broadly speaking, into two groups:

- Principles regulating internal, mutual relationships between HOs, particularly:
  - Ownership and responsibility
  - Co-operation and co-ordination
  - Reimbursement and financial arrangements
  - Assistance and training
- Principles defining the core business to be conducted under the umbrella of WEND, namely:
  - Standards and quality management
  - Distribution
  - Updating

Whilst these WEND Principles are adopted as a basis for collaboration between HOs for the services to be supplied, they are too generic to serve as a concrete agreement between HOs on specific relationships and services. They must be put into a concrete term in form of additional agreements, for which the WEND Principles will only be the general framework.

## RENC

The WEND concept does not provide a rigid definition of the term RENC. The WEND definition refers, without further details, to a 'regional centre' as a means for data distribution. The WEND Principles explicitly mention the RENC Northern Europe, however only as a potential example and as a source of experience. The only place where the term RENC has been given a more concrete visualisation is in the conceptual schema for WEND, Annex 6 of [3]. This could be seen as if every RENC would have to be a physical centre like PRIMAR. However, as Japan commented on this conceptual schema in 1994 [4], the conceptual scheme should only be 'taken as an example, and some changes may therefore be made to the model in materialising such a service in the future according to different situations and conditions of regions'. This has been explicitly noted by the IHB.

Referring to the regional adjacency exemplified in this conceptual schema for WEND, Kerr comments in [5] that "modern data communication has no boundaries and in the servicing of a database the need to consider adjacency may be less important than the need to service the customers". And "... it will be necessary for the international geographic community to consider the best organisation structure for a WEND". Considering the diversity of political and cultural situations in the world, it may indeed be detrimental to the fundamental ideas of shared work and international co-operation underlying the WEND concept if the conceptual schema would be narrowly interpreted as consisting of physical centres, being responsible across a coherent region.

In fact, one should accept the WEND Principles as the heart of the WEND concept. This means, that a RENC is any legal and organisational implementation of the WEND Principles, agreed upon usually between two or more HOs. Implementation means a concrete arrangement of terms of mutual collaboration and services to be provided, as well as of an organisational structure. Whilst this would take place, for practical reasons, most likely within a coherent region, one could very well imagine an implementation also extending across long distances, as well as an implementation in just one HO if this makes some sense to shipping, and as long as the WEND Principles are adhered to.

If HOs are willing to co-operate in a RENC, it is essential, therefore, that they agree first on the goals, which jointly shall be achieved. This may even be more than required under the WEND concept, e.g. services for the ECS market. Depending on the common goals, the political, legal and infrastructural boundary conditions prevailing with co-operating HOs, the most suitable organisational realisation can be determined, and the appropriate legal instrument to establish the RENC be derived. This may be e.g. an MOU, a set of bilateral agreements, a GIE<sup>1</sup>, the agreement with a private company acting on behalf of HOs, or even a convention of its own.

It is nothing else than the common will of HOs to co-operate, as expressed in some kind of mutual arrangement, which really constitutes the RENC. In this generalised meaning of the term 'RENC', it is not necessary to introduce any further terms like VRENC for 'Virtual RENC', as this would only be a special technical and organisational solution to implement the WEND Principles.

## Conclusions

On implementing the WEND, attention should be given to the WEND Principles as the core of the concept. They establish a general framework for the collaboration of HOs on the supply of ECDIS services. Any RENC is just a concrete arrangement between individual HOs on the specific terms of such co-operation. There is no need for amending the WEND concept in order to overcome the presently stalling WEND implementation as the WEND Principles allow of a broad range of different implementations including a 'Virtual RENC'. For any specific RENC it is necessary rather to develop the Principles appropriately into concrete arrangements accommodated to the requirements of those HOs willing to co-operate (e.g. within a region).

## References

- <sup>[1]</sup> IHO: Report of the IHO (COE) Working Group on Updating the Electronic Chart. Special Publication SP 52, Appendix A. Monaco, 1988
- <sup>[2]</sup> IHO: Seminar to Discuss the Norwegian Electronic Chart Data Base Proposal. Summary of Discussion. Special Publication SP 58. Monaco, 1992
- <sup>[3]</sup> IHO: Report of Special Committee on WEND. IHO Circular Letter 27/1994
- <sup>[4]</sup> IHO: Report of Special Committee on WEND, Responses to C.L. 27/1994. IHO Circular Letter 49/1994
- <sup>[5]</sup> Kerr, A.J.: International Perspectives on ECDIS. International Hydrographic Review, LXXIII (1). Monaco, 1996
- <sup>[6]</sup> Italy: The Mediterranean and Black Seas Virtual RENC. Paper presented at the IHO/Industry Interface Meeting, 18 March 2000. Monaco

<sup>1</sup> Groupement d'intérêt économique, an organisation under EU law currently being considered by PRIMAR.