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**CIRCULAR LETTER 68/2003**  
**10 November 2003**

## **ELECTRONIC CHARTING ISSUES**

**S-57 Edition 3.0 ENC's : Termination of Validity**  
**S-57, Edition 4**  
**New WEND Principle**  
**RHC Corresponding Members**  
**Guidelines for the Establishment of ENC Production Boundaries**  
**Assistance in ENC Production**

- Ref: 1) IHB Circular Letter 40/2003 dated 20 June 2003  
2) IHB Circular Letter 42/2003 dated 24 June 2003  
3) IHB Circular Letter 43/2003 dated 27 June 2003  
4) IHB Circular Letter 44/2003 dated 27 June 2003  
5) IHB Circular Letter 47/2003 dated 30 June 2003

Dear Hydrographer,

This is to report on the outcome of the above-referenced Circular Letters on issues related to electronic charting.

**S-57 Edition 3.0 ENC's : Termination of Validity** – CL 40/2003 asked if the planned date of December 2004 for the termination of validity of Edition 3.0 ENC's was acceptable? There were 39 replies, 38 of which said YES to this question; furthermore the latter Member States stated that they were not aware of any problems that the above date would create for ECDIS manufacturers.

It is therefore confirmed that Edition 3.0 ENC's and ENC updates will cease to be valid after December 2004.

Japan reported that their contacts with ECDIS manufacturers had revealed that a number of operational systems could still be 3.1 incompatible after December 2004 and that they therefore may have to issue Ed. 3.0 ENC's beyond that date.

**S-57, Edition 4** – CL 42/2003 announced that the best estimate for the completion of S-57, Edition 4.0 was 2006 instead of 2004 as previously stated (Task 3.1.1 in the IHO Work Programme). No particular comments or objections were expressed.

**New WEND Principle** – CL 43/2003 asked MS to approve a proposed new WEND principle with the following wording:

*"In order to promote the use of ENC's in ECDIS, Member States should strive for the greatest possible user-friendliness of their services, and facilitate integrated services to the mariner."*

Wide support has been received for this proposal with 34 Member States' responses, all in favour. However, according to Article VI (paragraphs 5 and 6) of the IHO Convention, a simple majority of the total number of MS is required in order for the proposal to be adopted, i.e. 36 positive votes at the time CL 43/2003 was issued. Since no objections to the above proposal have been received and as only a few more positive votes are needed, those MS who have not yet replied to CL 43/2003 are requested to do so by completing the response form in **Annex A**, to be returned to the IHB before 15 December 2003.

France has suggested that the term "*integrated services*" should be defined, noting that the new SOLAS Convention (July 2002) implies that IHO recommendations and resolutions are now quasi regulatory, which requires accurate definitions. It is proposed to address this issue at the next WEND Meeting (Tokyo, Japan, 5-6 March 2004).

**RHC Corresponding Members** – CL 43/2003 also requested the Chairpersons of Regional Hydrographic Commissions to appoint a suitable corresponding member to the WEND Task Group. **Annex B** provides the current list of RHC corresponding members. Those RHC Chairpersons who have not yet provided a name are urged to identify a suitable expert as soon as possible and to report to the IHB accordingly.

**Guidelines for the Establishment of ENC Production Boundaries** – CL 44/2003 reported that a proposal for additional rules to the WEND Principles (CL58/2002 refers), on guidelines for the establishment of ENC production boundaries, had not received the required support for its approval but, as an overwhelming majority of the responses were in favour of the proposal, it was agreed at the 7<sup>th</sup> WEND Meeting (May 2003) that the IHB would seek responses from those Member States who had not yet provided their opinion. **Annex C** summarizes all replies received to CLs 58/2002 and 44/2003. As can be seen from this table, a clear majority of MS answered YES to the three questions:

- 44 MS have approved the adoption of the "Guidelines for the Establishment of ENC Production Boundaries", as contained in Annex B to IHB CL58/2002.
- 43 MS have agreed that these Guidelines be made an Appendix to the WEND Principles (IHO Technical Resolution K2.19).
- 44 MS support that the "Guidance for the Establishment of Small-Scale ENC Production Boundaries", as in Annex C to IHB CL 58/2002, be conveyed to the Chairs of all IHO Regional Hydrographic Commissions for consideration.

<p>It is therefore confirmed that the proposed "Guidelines for the Establishment of ENC Production Boundaries" are adopted as Appendix A to the WEND Principles. The revised TR K2.19 is in <b>Annex D</b>.</p>
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In addition, the Chairpersons of all Regional Hydrographic Commissions are kindly requested to take into consideration the text in **Annex E** "Guidance for the

Establishment of Small-Scale ENC Production Boundaries" in the future deliberations of their respective groups.

**Assistance in ENC Production** – CL 47/2003 reported on the findings of a previous request for information (CL 54/2002 refers) on requirements for assistance in ENC production and, assuming that a number of those MS who did not answer CL54/2002 were lacking ENC production capabilities and might therefore be interested in receiving some assistance in the matter, asked them to also report on their needs. **Annex F** summarizes all responses received to CLs 54/2002 and 47/2003.

The IHB, in liaison with the WEND Task Group and all Chairpersons of Regional Hydrographic Commissions, is now considering the best way forward to match the requirements of those MS in need of assistance and the possibilities of those MS willing to assist.

Your support in bringing several of these matters to a conclusion is appreciated. Those Member States who have not voted and/or commented on these issues are urged to do so in order that we may have a complete understanding of the positions of our Member States.

On behalf of the Directing Committee  
Yours sincerely,



Rear Admiral Kenneth BARBOR  
Director

- Encl:
- Annex A – New WEND Principle Response Form.
  - Annex B – RHCs' Chairpersons and WEND Task Group Corresponding Members.
  - Annex C – Guidelines for the Establishment of ENC Production Boundaries: Summary of Replies to CLs 58/2002 and 44/2003.
  - Annex D – Revised IHO Technical Resolution K2.19 "Principles of the WEND".
  - Annex E – Guidance for the Establishment of Small-Scale ENC Production Boundaries, for consideration by Regional Hydrographic Commissions.
  - Annex F – Assistance in ENC Production: Summary of Replies to CLs 54/2002 (Annex H) and 47/2003.

Copy to: all Chairpersons of Regional Hydrographic Commissions

**NEW WEND PRINCIPLE**

**RESPONSE FORM**

*(to be returned to the IHB by 15 December 2003)*

E-Mail: [info@ihb.mc](mailto:info@ihb.mc) - Fax: +377 93 10 81 40

**Note:** IHO Member States, listed at the bottom of this page<sup>1</sup>, are requested to vote.

**MEMBER STATE:** .....

Do you agree that the following new paragraph be added to IHO Technical Resolution K2.19 “Principles of the Worldwide Electronic Navigational Chart Database (WEND)”, as recommended by the WEND Committee?

5.5 *In order to promote the use of ENC’s in ECDIS, Member States should strive for the greatest possible user-friendliness of their services, and facilitate integrated services to the mariner.*

YES

NO

Comments : .....  
.....  
.....  
.....  
.....  
.....

Date: .....

Signature: .....

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<sup>1</sup> Bangladesh, Belgium, Brazil, Canada, Colombia, DPR Korea, Ecuador, Egypt, Fiji, Guatemala, India, Indonesia, Iran, Jamaica, Malaysia, Monaco, Morocco, Mozambique, Nigeria, Oman, Papua New Guinea, Poland, Russian Federation, Singapore, Slovenia, South Africa, Sri Lanka, Sweden, Syrian Arab Republic, Thailand, Tonga, Trinidad & Tobago, Tunisia, United Arab Emirates, USA, Uruguay.

**IHO REGIONAL HYDROGRAPHIC COMMISSIONS (RHCs)**

**Chairpersons and WEND Task Group Corresponding Members**

Nordic Hydrographic Commission (NHC)

Chair: Mr. Jukka VARONEN (Finland)  
WEND TG Corresponding Member: Mr. Juha KORHONEN (Finland)

North Sea Hydrographic Commission (NSHC)

Chair: Mr. Göran NORDSTRÖM (Sweden)  
WEND TG Corresponding Member: Mr. Horst HECHT (Germany)

East Asia Hydrographic Commission (EAHC)

Chair: Mr. ZHANG Heping (China)  
WEND TG Corresponding Members: Mr. WANG Liangyu (China)  
Mr. Toru KAJIMURA (Japan)

US/Canada Hydrographic Commission (USCHC)

Chair: Capt. R. PARSONS (USA-NOAA) and  
Mr. Denis HAINS (Canada)  
WEND TG Corresponding Member:

Mediterranean and Black Seas Hydrographic Commission (MBSHC)

Chair: IGA Yves DESNÖES (France)  
WEND TG Corresponding Member: Lt.Cdr. Massimiliano NANNINI (Italy) (also MBS  
VRENC)

Baltic Sea Hydrographic Commission (BSHC)

Chair: Adm. KOMARITSYN (Russia)  
WEND TG Corresponding Member: Mr. J. KORHONEN (Finland)

Eastern Atlantic Hydrographic Commission (EAtHC)

Chair: VAdm D. da Silva CARDOSO (Portugal)  
WEND TG Corresponding Member: Lt.Cdr. F.MAIA PIMENTEL (Portugal)

South-East Pacific Hydrographic Commission (SEPHC)

Chair: Capt. F. MINGRAM (Chile)  
WEND TG Corresponding Member: Lt.Cdr. J. CUNEO (Chile)

South-West Pacific Hydrographic Commission (SWPHC)

Chair: Capt. B. KAUFER (Australia)  
WEND TG Corresponding Member: Mr. J. RANDHAWA (Australia)

MESO American and Caribbean Sea Hydrographic Committee (MACHC)

Chair: RAdm T.Q. Donaldson (USA)  
WEND TG Corresponding Member:

Southern Africa and Islands Hydrographic Commission (SAIHC)

Chair: Mr. A. GOVE (Mozambique)  
WEND TG Corresponding Member: Mr. S. OSBORNE (South Africa)

North Indian Ocean Hydrographic Commission (NIOHC)

Chair: RAdm K.R. SRINIVASAN (India)  
WEND TG Corresponding Member:

ROPME Sea Area Hydrographic Commission (RSAHC)

Chair: Dr. M.R. GHADERI (Iran)  
WEND TG Corresponding Member:

IHO Hydrographic Committee on Antarctica (HCA)

Chair: Capt. H. GORZIGLIA (IHB)  
WEND TG Corresponding Member: Capt. F. MINGRAM (Chile)

**GUIDELINES FOR THE ESTABLISHMENT OF ENC PRODUCTION BOUNDARIES**  
**Additional Rules to the WEND Principles**

**Summary of Replies to IHB Circular Letters 58/2002<sup>(4)</sup> and 44/2003<sup>(5)</sup>**

<b>Member State</b>	<b>Question (1)</b>	<b>Question (2)</b>	<b>Question (3)</b>	<b>Comments</b>
<b>TOTAL (47 replies)</b>	<b>44 "Yes"</b>	<b>43 "Yes"</b>	<b>44 "Yes"</b>	
Argentina	Yes	Yes	Yes	The proposal is very good and we believe that it will help to avoid duplication of manpower, increasing cooperation between States in order to facilitate ENC production in areas that have no coverage.
Australia	Yes	Yes	Yes	
Bahrain	Yes	Yes	Yes	
Brazil	Yes	Yes	Yes	
Canada	Yes	Yes	Yes	
Chile	Yes	Yes	Yes	Spanish wording of the CL and its annexes could be improved.
<i>China</i>	Yes	Yes	Yes	
Colombia	Yes	Yes	Yes	The proposal in Annex B is clear and purposeful in that it recognises those country producers of ENC in their juridical waters.
Croatia	Yes	Yes	Yes	
<i>Cuba</i>	Yes	Yes	Yes	
Cyprus	Yes	Yes	Yes	
Denmark	Yes	Yes	Yes	
Ecuador	Yes	Yes	No	We need more details on "Guidance for the Establishment of small-scale ENC production boundaries".

<sup>1</sup> Do you approve the adoption of the "Guidelines for the Establishment of ENC Production Boundaries", as contained in Annex B to IHB CL58/2002?

<sup>2</sup> If yes, do you agree that these Guidelines be made an Appendix of the WEND Principles, now contained in IHO Technical Resolution K2.19 [Decision 17 (a) of IHC-XVI]?

<sup>3</sup> Do you support that the "Guidance for the Establishment of Small-Scale ENC Production Boundaries", as in Annex C to IHB CL58/2002, be conveyed to the Chairs of all IHO Regional Hydrographic Commissions for consideration?

<sup>4</sup> Subsequently corrected with CL 3/2003

<sup>5</sup> *In italics in the table*

<b>Member State</b>	<b>Question (1)</b>	<b>Question (2)</b>	<b>Question (3)</b>	<b>Comments</b>
Estonia	Yes	Yes	Yes	
Finland	Yes	Yes	Yes	
France	Yes	Yes	Yes	
Germany	Yes	Yes	Yes	
Greece	Yes	Yes	Yes	Although we approve the adoption of the guidelines and their inclusion as an appendix to the WEND Principles, we still believe that the whole issue is globally covered by the current WEND Principles.
Iceland	Yes	Yes	Yes	
Italy	Yes	Yes	Yes	
Japan	Yes	Yes	Yes	
Korea, Rep of	Yes	Yes	Yes	
Kuwait	Yes	Yes	Yes	
Monaco	Yes	Yes	Yes	
Mexico	Yes	Yes	Yes	These new Guidelines will be of great assistance to ease ENC production, establishing with clarity those rights and obligations of participating countries.
Morocco	Yes	Yes	Yes	<i>Morocco approves in general the Guidance for the establishment of ENC Production Boundaries in the sense that this proposal will help to avoid the duplication of ENC cells for a given area and will ultimately save time and effort. However, Morocco has some reservations : these guidelines do not favour the development of the capacities of the non-producer countries, if such is the IHO's objective; furthermore, it encourages these countries to "go into hibernation" and to show less willing as regards the development of their charting capacity. This is particularly explicit in clauses 3, 5 and 7 in annex B.</i>
Mozambique	Yes	Yes	Yes	
Netherlands	Yes	Yes	Yes	Revision by CL 3/2003 was taken into account.
New Zealand	Yes	Yes	Yes	
Norway	Yes	Yes	Yes	
Pakistan	Yes	Yes	Yes	
Peru	Yes	Yes	Yes	
Philippines	Yes	Yes	Yes	
Poland	Yes	Yes	Yes	
Portugal	Yes	Yes	Yes	However Portugal does not agree with the proposed guidance, as in Annex C.
Russian Federation	No	-	Yes	Any State has the right to have its national collection of ENCs and use it in its own interest.
Serbia & Montenegro	Yes	Yes	Yes	
South Africa	Yes	Yes	Yes	
Spain	Yes	Yes	Yes	Spain believes that the approval of these Guidelines will lighten the process of establishing ENC production boundaries.
Sweden	Yes	Yes	Yes	



Member State	Question (1)	Question (2)	Question (3)	Comments
<i>Thailand</i>	Yes	Yes	Yes	
Tunisia	Yes	Yes	Yes	Tunisia approves the adoption of the Guidelines, as in Annex B, but has comments on two points: - Paragraph 3: We think that the acceptance of this point can reduce cooperation and mutual assistance between HOs in the production of ENC. - Paragraph 7: We think that the determination of an ENC producer nation in waters under national jurisdiction may cause a disclosure of classified information.
Turkey	No	-	No	1) Even though the INT Chart Scheme could provide a good starting point for the establishment of ENC Production Boundaries, it should also be noted that there are still disagreements for the allocation of the production responsibility of some INT charts such as: INT 3706, 3710, 3712, 3716 and 3604. That's why prior to the adoption of INT Chart Scheme for the Establishment of ENC production Boundaries in international waters, these issues must be solved, otherwise there will be no producing country for these areas in the near future.  2) In order to make it more specific, Paragraph 1 of the proposed <b>Guidelines</b> should have the following wording: "ENC duplication should be avoided. A single ENC producing country should exist in any given area <b>for each Scale Band</b> " Subsequently, this will raise the issue of defining the range of scales for Navigational Purposes, at least for the INT Charts (considering that many of the countries have already produced quite a number of ENC cells based on their national definition of Scale Bands)  3) Taking into account that the term "International Waters" (See International Hydrographic Dictionary), might cause confusion, Paragraph 5 of the proposed <b>Guidelines</b> should have the following wording; " <del>In international</del> waters <b>beyond national jurisdiction</b> , the INT chart producer nation shall be assumed to be the producer of the corresponding ENC. Where the offshore limits of waters under national jurisdiction have not yet been established, clause 4 should apply.
Ukraine	Yes	Yes	Yes	Ukraine plans to produce data sets in accordance with WEND Principles.
<i>Uruguay</i>	<i>Abst.</i>	-	<i>Abst.</i>	<i>Electronic Chart is a new theme for Uruguay. Whereas efforts are being made to improve knowledge on EC-related issues, time was too short to fully understand the implications of the propositions in CL 44/2003 and to form an opinion on the matter.</i>

<b>Member State</b>	<b>Question (1)</b>	<b>Question (2)</b>	<b>Question (3)</b>	<b>Comments</b>
UK	Yes	No	Yes	<p>Whilst we support in principle the inclusion of guidelines as an appendix to the WEND principles, we are unable to support the guidelines/guidance as they stand.</p> <p>We need to avoid having both guidelines (Annex B) and guidance (Annex C) particularly when there is inconsistency between them. Annex C states that guidelines (Annex B) do not apply to the small scales described and that the INT producing country is the ENC producer, whereas in reality production responsibilities may need to be delegated as suggested in Annex C paragraph B. The wording used in Annex B paragraph 5 (the INT chart producer nation shall be assumed to be the producer of corresponding ENC) is therefore preferable. There is no indication within Annex B of an exclusion of certain categories (the small scales) from the guidelines.</p> <p>It would be less confusing if the guidelines covered all eventualities including, as necessary, small scales. Therefore an amalgamation of Annexes B and C is required. Once this has been done we can then vote on the inclusion of the expanded guidelines in TR K 2.19.</p>
<i>Venezuela</i>	Yes	Yes	Yes	

**IHO PUBLICATION M-3  
“RESOLUTIONS OF THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION”**

**TECHNICAL RESOLUTIONS OF THE IHO**

**CHAPTER K - WORK OF THE BUREAU**

**SECTION 2 - COMMISSIONS, WORKING GROUPS, AND STUDIES**

**K 2.19 PRINCIPLES OF THE WORLDWIDE ELECTRONIC NAVIGATIONAL  
CHART DATABASE (WEND)**

**1. Ownership and Responsibility**

1.1 A Member State has responsibility for the preparation and provision of digital data and its subsequent updating for waters of national jurisdiction.

1.2 The Member State responsible for originating the data should validate it.

1.3 A Member State responsible for any subsequent integration of a country's data into a regional, or larger, data base is responsible for validating the results of that integration.

1.4 Responsibilities for providing digital data outside areas of national jurisdiction should be established.

1.5 The INT chart system is a useful basis for areal selection.

1.6 Legal liability must be recognized by participants.

**2. Cooperation and Coordination**

2.1 In the interests of safety at sea and to respond to the increasing demand for ENC, Member States are encouraged to work together in establishing and maintaining a WEND system as soon as possible, to share in common experience and reduce expenditure, and to ensure the greatest possible standardization and reliability.

2.2 Terms of Cooperation Arrangement for the Northern Europe RENC may be useful in arranging transactions between other RENCs and national HOs.

2.3 HOs are strongly recommended to provide data to HO data base organizations (RENCs) pursuing data bases within the WEND concept.

2.4 Member States are encouraged to work together on data capture or management.

2.5 Neighbouring Member States are encouraged to cooperate in boundary areas.

2.6 The Member States should strive for harmonization between RENCs in respect of data standards and service practices in order to ensure the provision of consistent ENC services to users. Wherever appropriate, this should be achieved by adoption of IHO Standards.

2.7 Advantage should be taken and shared of all experience gained.

2.8 Member States planning to incorporate data that must be obtained from another Member State into an integrated data base should inform those countries well in advance.

2.9 The development of overlapping data sets from different sources should be avoided if possible.

### **3. Languages**

The need to have data associated with different languages should be considered.

### **4. Standards and Quality Management**

4.1 A recognized standard of quality management (e.g. ISO 9000) should be employed to ensure a high quality of the ENC services.

4.2 There should be compliance with all relevant IHO and IMO standards and criteria (including IHO S-57, IHO S-52, or their replacements).

### **5. Distribution**

5.1 Distribution of products may be separate from the data base management.

5.2 Methods to be adopted should ensure that data bear a stamp or seal of approval of the issuing HO.

5.3 Member States should work together in safeguarding national copyright in ENC data to protect the mariner from falsified products.

5.4 When an encryption mechanism is employed to protect data, a failure of contractual obligations by the user should not result in a complete termination of the service. This is to assure that the safety of the vessel is not compromised.

### **6. Updating**

6.1 Technically and economically effective solutions for updating should be established.

6.2 National HOs providing source data are responsible for advising the issuing HO of update information in a timely manner.

6.3 The issuing HO is responsible for providing timely updates to the ENC for the mariner.

6.4 Updating information to regional or greater area ENC datasets should be available worldwide.

### **7. Reimbursement and Financial Arrangements**

7.1 HOs should not give commercial companies better conditions than they offer to other HOs.

7.2 Reimbursement, including financial arrangements, payment in kind etc. for providing data, should be a matter for bilateral agreement between the parties involved.

## **8. Assistance and Training**

8.1 Member States' HOs are strongly recommended to provide, upon request, training and advice to HOs which require it to start developing their own national data base.

## **Appendix A to K2.19**

### **Guidelines for the Establishment of ENC Production Boundaries**

1. ENC duplication should be avoided. A single ENC producing country should exist in any given area.
2. A country is normally the ENC producing country for waters within its national jurisdiction.
3. Responsibility for the production of ENC can be delegated in whole or in part by a country to another country, which then becomes the producing country in the considered area.
4. When the limits of waters of national jurisdiction between two neighbouring countries are not established, or it is more convenient to establish boundaries other than established national boundaries, producing countries should define the boundaries for ENC production within a technical arrangement. These limits would be for cartographic convenience only and shall not be construed as having any significance or status regarding political or other jurisdictional boundaries.
5. In international waters, the INT chart producer nation shall be assumed to be the producer of the corresponding ENC. Where the offshore limits of waters under national jurisdiction have not yet been established, clause 4 should apply.
6. In areas where the paper INT charts overlap, neighbouring producer nations should agree a common limit of ENC production in the overlapping areas. Cartographic boundaries should be as simple as possible. for example: a succession of straight segments and turning points corresponding to such things as meridians, parallels, or chart limits.
7. In areas of national jurisdiction for which there is no recognised ENC producer nation, the Regional Hydrographic Commission (or similar body) should determine the ENC producer nation. ENC's produced under such arrangements should be offered for transfer to the Coastal State in the event that the Coastal State subsequently develops the capacity to maintain the ENC's. Such transfer should respect the moral rights of the Coastal State and the commercial rights of the producer nation.
8. When the production limits are the official limits for national jurisdiction waters, commercial rights shall belong to the ENC producing country.
9. When the production limits are cartographic boundaries as opposed to national boundaries, the commercial rights shall normally belong to the ENC producing country but may possibly be encumbered by the payment of royalties to the relevant country through a technical arrangement (see clause 4).

**GUIDANCE FOR THE ESTABLISHMENT OF SMALL-SCALE ENC PRODUCTION  
BOUNDARIES**

**For consideration by Regional Hydrographic Commissions**

1. At small scale, typically less than 1:2 000 000 (but see also note b), the INT paper chart producer nation is also the ENC producer nation.
2. Because there can be no overlap in ENC coverage, neighbouring producer nations of INT paper charts should agree a common limit of ENC production in any overlapping areas depicted on adjacent INT paper charts.

*Notes:*

- a- It is generally recommended that the commercial rights for small-scale ENCs produced under this rule belong to the ENC producer nation (no royalties payable to other HOs).*
  - b- The scale limit (1:2 000 000) for this rule may be relaxed in the case when, for a given area and at a particular compilation scale, the extent of a country's national jurisdiction waters are so small as to make it more practical for an adjacent country to produce the ENC coverage of both countries. However, this must be agreed by all of the countries involved.*
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## ASSISTANCE IN ENC PRODUCTION

Summary of Replies to IHB Circular Letter 54/2002 (Annex H)  
as updated with replies to CL 47/2003 <sup>(3)</sup>

Member State	Question ( <sup>1</sup> )	Question ( <sup>1.1</sup> )	Comments	Question ( <sup>2</sup> )	Comments
Algeria	Yes	Yes	-	No	-
Argentina	Yes	Yes	We need to share experiences with other MS who are more advanced than ourselves in the ENC area. It would be important to maintain easy communications on problems that could arise now and then.	Yes	We are willing to share the experience of other States who are less advanced or who have just started on ENC production. We believe that on a technical level we could be of some advice to them. At the moment due to economical restrictions we are limited in the ENC production area, however it is a subject that we are interested in and that we will keep to one side.
Australia	No	-	-	Yes	Visits secondment welcome. No financial assistance is available for visitors.
Bahrain	Yes	Yes	The IC-ENC (UKHO) has offered assistance in finalising ENC-Cells created. Presently 3 cells are nearly ready.	Yes	When production has been properly established.
Brazil	Yes	Yes	The Technical assistance should not implicate financial charge since our budget for the next two years does not include this activity.	No	-
Canada	No	-	-	Yes	We are willing to provide technical assistance on a case-by-case basis depending upon workload at the time.
Chile	No	-	-	Yes	Mainly to Latin American countries.
<i>China</i>	<i>No</i>		-	<i>Yes</i>	-
Croatia	Yes	Yes	-	No	-
<i>Cuba</i>	<i>No</i>	-	-	<i>Yes</i>	<i>Our resources are fully devoted to ENC production. Later we could consider providing assistance to other Member States, preferably Spanish-speaking countries.</i>

<sup>1</sup> Do you need technical assistance in the production of ENCs?

<sup>1.1</sup> If YES, would you be interested in receiving technical assistance on the matter from other IHO Member State(s)?

<sup>2</sup> Would you be prepared to provide technical assistance to other IHO Member State(s) in the production of ENCs?

<sup>3</sup> *In italics in the table*



Member State	Question (1)	Question (1.1)	Comments	Question (2)	Comments
Cyprus	Yes	Yes	-	No	We have no capability for such.
Denmark	No	-	-	No	-
Ecuador	Yes	Yes	Ecuador has established a primary production line and a secondary for ENC's and has acquired the equipment and basic programs for completion of our objectives but it is always necessary to gain technical assistance, capacity and experience of others member states that have a major capacity to produce ENC's.	Yes	Our level of experience is limited and restricts the support we could provide but as we acquire greater experience we are willing to collaborate.
<i>Egypt</i>	<i>Yes</i>	<i>Yes</i>	<i>Our HO needs support in all stages of ENC Production; we are looking forward any assistance on the matter (Hardware – software – Training, etc.)</i>	<i>No</i>	<i>We have not started Producing ENC yet.</i>
Estonia	No	-	-	Yes	In case, when some financial support from outside is available.
Finland	No	-	-	Yes	For the next few years our relevant capacity is fully occupied by our own ENC production. Assistance to other IHO Member States might be considered after that.
France	No	-	-	Yes	Normally according to bilateral agreements between States.
Germany	No	-	-	Yes	BSH is prepared to host members of other HOs for on-the-job training in ENC production and updating (travel costs must be borne by the sending HO).
Greece	No	-	-	Yes	Since the circulation of CL54/2002, we would like to inform you that HNHS is now in a position to provide limited assistance in ENC production and updating, especially to MS that have signed bilateral arrangements or MOU.
Iceland	Yes	Yes	-	No	-
India	No	-	India has carried out in-house training for this purpose.	Yes	-
Iran	Yes	Yes	As a pilot project, Iran in cooperation with a Canadian company (CARIS) has produced an ENC chart for part of the Persian Gulf Area. Therefore, we wish to be able to cover all the Northern Part of the Persian Gulf and Sea of Oman through our close partnership with the above-mentioned country.	-	
Italy	No	-	-	Yes	The Italian HO is ready to provide technical assistance to other MS as already done with Croatia and Slovenia within the North Adriatic Pilot project.

Member State	Question (1)	Question (1.1)	Comments	Question (2)	Comments
Japan	No	-	-	Yes	Japan has been dispatching experts and accepting interns from Philippines, Malaysia and Indonesia, which are all IHO MS. We have also held seminars / workshops for ENC production, and are willing to continue these types of technical aids in future.
Korea (Rep of)	No	-	-	No	However, we can provide some information on ENCs production of Korea in writing.
Kuwait	Yes	Yes	We are in the process of procuring a system for producing ENCs very soon, (beginning 2004).	No	-
Malaysia	Yes	Yes	We are producing ENC but with very limited capacity. More training programmes for our staff will increase our capability and capacity.	-	
Mexico	No	-	-	No	At the moment our staff are concentrating on accomplishing other matters. However once we have finished and we have more time and experience we will be in a position to give our advice to other HOs.
Morocco	Yes	Yes	Morocco benefits from technical assistance financed through the European Union (MedChartNet). That said Morocco still needs additional assistance from other countries in ENC production and particularly suffers from a lack of "know-how".	No	Morocco is not a producer country of ENCs, but hopes to become a producer country in the not too distant future and would then be happy to provide technical assistance.
Mozambique	Yes	Yes	-	No	-
Netherlands	No	-	Especially close coordination between IC-ENC and Primar Technical Working Groups facilitates more conformity of ENCs in European waters.	No	Lack of resources.
New Zealand	Yes	Yes	We are currently receiving help from US/NOAA and the Australian HO. We had approached all IHO MS earlier about their ENC programmes, when planning our ENC folio.	Yes	Limited assistance – due to our current level of experience.
Norway	No	-	-	Yes	Any request will be considered. Primarily NHS will prioritise bilateral projects through Norwegian Foreign Aid Programmes.
<i>Pakistan</i>	<i>Yes</i>	<i>Yes</i>	<i>Technical assistance is not needed at this stage. Need for assistance will be intimated later.</i>	<i>Yes</i>	<i>After development of expertise in ENC this office will be pleased to render assistance to other IHO Member States.</i>
<i>Peru</i>	<i>No</i>	<i>-</i>	<i>-</i>	<i>Yes</i>	<i>Preference to Spanish-speaking countries.</i>
Philippines	Yes	Yes	Presently we are receiving assistance from Japan HO through JICA	No	
Portugal	No	-	-	Yes	To Member States of EAHC and SAIHC, preferably those with Portuguese as official language.

Member State	Question (1)	Question (1.1)	Comments	Question (2)	Comments
<i>Serbia &amp; Montenegro</i>	Yes	Yes	<i>We are especially interested in participating in the following regional projects: North Adriatic VRENC Pilot project and MEDChartNet project.</i>	No	<i>We are not able to provide this kind of technical assistance.</i>
Singapore	No	No		Yes	We conduct training on the production and quality assurance of ENCs. The training is conducted annually. However no financial assistance is available.
South Africa	No	-	-	No	-
Spain	No	-	Spain has established a production line for ENC and does not require technical assistance. Nevertheless, Spain is maintaining contacts with neighbouring countries to clear up technical issues related to production.	-	Due to staff limitations, Spain is in principle unable to offer technical assistance in the wide sense. Nevertheless, it could be considered for certain cases.
Sri Lanka	Yes	Yes	Preferably from UKHO (covering technical assistance and training)	No	Not applicable.
<i>Thailand</i>	Yes	Yes	<i>We need only theoretical ENC training course or on the job training for ENC production and updating services.</i>	No	<i>We need Member States' experience in ENC production in form of report, guideline and suggestion.</i>
Tunisia	Yes	Yes	The THOS is very interested in ENC production and is looking forward any assistance on the matter (hardware, software, training, etc.).	No	-
Turkey	No	-	-	Yes	CARIS software is being used for the production of ENCs in Turkey. Technical assistance could be provided to HOs that use the same software; otherwise only theoretical ENC training could be provided.
Ukraine	No	-		Yes	We are ready to provide assistance on production ENCs in S-57 standard depending upon workload and in case when some financial support is available.
UK	No	-	-	Yes	The UKHO offers a 5-week course (at Taunton) which covers ENC production, maintenance and distribution. Bursaries are available to many countries, to cover costs associated with the course. The UKHO is in a position to produce ENCs for, and on behalf of, other HOs, upon request.

<b>Member State</b>	<b>Question (<sup>1</sup>)</b>	<b>Question (<sup>1.1</sup>)</b>	<b>Comments</b>	<b>Question (<sup>2</sup>)</b>	<b>Comments</b>
USA (NOS)	No	-	-	Yes	Limited technical assistance by the Naval Oceanographic Office is provided to MS which are engaged in conducting cooperative survey operations through the auspices of international bilateral agreements. This responsibility falls under the purview of the International Division within the Naval Oceanographic Office.
Venezuela	Yes	Yes	-	No	