CHRIS15-3A

15th CHRIS MEETING
9-13 June 2003, IHB, Monaco

MINUTES OF THE 14TH CHRIS MEETING
(Shanghai, China, 15-17 August 2002)

Notes: 1) The paragraph numbering is the same as in the agenda (Annex D).
2) A list of acronyms used in these Minutes is at Annex A.
3) Contributors are normally referred to in this document by their initials. See Annex C for full details.
4) A list of all actions agreed at CHRIS-14 is at Annex K.

1. OPENING AND ADMINISTRATIVE ARRANGEMENTS

Docs:	*CHRIS-14-1A Rev.8*	*List of Documents (also Annex B)*
	CHRIS-14-1B Rev.4	*List of Participants (also Annex C)*
	CHRIS-14-1C Rev.2	*Membership of CHRIS-related WGs*
	CHRIS-14-1D Rev.2	*CHRIS Membership*

The 14th CHRIS Meeting took place in Shanghai, China, following invitation by the Maritime Safety Administration of China (MSA). Rear Admiral Neil Guy (IHB, retiring Chair of CHRIS) opened the meeting, thanking MSA Shanghai for their hospitality and the excellent facilities made available to the meeting. Mr. Xu Guo-yi (MSA Shanghai) gave a brief welcome address to delegates and wished them a fruitful meeting.

Michel HUET (IHB), Secretary of CHRIS, explained the provision of CHRIS-14 documents (see Annex B), further mentioning that they were also available from the IHO website (www.iho.shom.fr/general/ecdis/ecdisnew1.htm). Dr. Lee Alexander (HGMIO & OEF) was appointed Rapporteur for the meeting.

2. APPROVAL OF AGENDA

Doc: CHRIS-14-2A Rev.8 *Agenda (also Annex D)*

The Agenda was approved without changes.

Election of CHRIS Chairman and Vice-Chairman

According to paragraph 2.4 of the CHRIS Terms of Reference saying that "*The Committee Members will elect the Chairman of the Committee at its first meeting following each International Hydrographic Conference*", further taking into consideration that the post of CHRIS Vice-Chairman was vacant since the resignation of Cdr. Jorge PEREIRA (Chile), nominations for CHRIS Chairman and Vice-Chairman had been sought through CHRIS Letter 4/2002, dated 5 June 2002. As a result, BSHC Member States proposed collectively Mr Ole Berg (Denmark) for the post of CHRIS Chairman, whereas several other MS expressed preference for an IHB Director assuming this responsibility.

IHB (N.G.) explained the situation whereby there were strong voices at the 16th IHC (Monaco, April 2002) that the Chairmen of the various IHO committees came from MS. However, there was some

uncertainty as to whether the new Chairman of CHRIS should be from a MS or one of the IHB Directors. Additionally, none of the new IHB Directors were present at the meeting.

Norway (F.K.) advised that the other IHO Committees were chaired from MS, and it should logically be the same for CHRIS. In his view however, the principal issue was what type of individual (MS or IHB Director) should serve as Chairman.

Member States represented at CHRIS-14 were asked to vote, either for Mr Ole Berg (nominated by Sweden), or for an IHB Director (nominated by USA). Results of the vote were as follows:

- Mr Ole Berg (Denmark): 16 votes (**ELECTED**);
- IHB Director: 2 votes (USA and Chile).

Two nominations were put forth for CHRIS Vice-Chair:

- Parry Oei (Singapore), nominated by Norway;
- Alexis Hadjiantoniou (Greece), nominated by Sweden.

However, both declined. Norway (F.K.) suggested that the Vice-Chairman could be one of the IHB Directors and IHB (N.G.) felt that there was merit to this approach. USA-NOAA (D.E.) suggested, and this was agreed, that the decision on this matter be left to the new IHB Directing Committee. Canada (M.C.) remarked that CHRIS had been without a Vice-Chair for quite a while, and that this matter was therefore not critical to decide at this time.

Action:

- ***IHB Directing Committee** to decide its position on Vice-Chair.*

Mr Ole Berg then took the Chair and explained his style and views on a number of topics:

- He would guide the discussions, but would require the active input from meeting attendees;
- The IHO had many tasks to carry out but, for CHRIS, the main one was the maintenance of standards;
- Standards that were not followed or implemented, were really not standards;
- If a person did not speak, it must be assumed that he/she agreed;
- He preferred that CHRIS papers arrived in time, and be read before the meeting.

3. MATTERS ARISING FROM MINUTES OF 13TH CHRIS MEETING

Docs: *CHRIS-14-3A Minutes of CHRIS-13*
CHRIS-14-3B Status of Actions List from CHRIS-13
CHRIS-14-3C Terms of Reference for CHRIS Committee and related WGs

Minutes of CHRIS-13 (Athens, Greece, 17-19 September 2001) were approved with no further comments or changes. As regards the list of actions, it was noted that some were still ongoing. The IHB agreed to take the necessary measures so that the remaining actions from CHRIS-13 be completed as soon as possible.

Action:

- ***IHB** to take appropriate measures for completion of all remaining actions from CHRIS-13.*

4. MATTERS ARISING FROM THE 16TH IH CONFERENCE

Docs: CHRIS-14-4A PRO 13 - Compilation scales for electronic data bases

USA-NAVO (M.VN) introduced the paper. This Conference proposal, from USA, was referred to CHRIS for further consideration and action. It was proposed that the IHO adopt standard compilation scales to support the zoom in and out feature of electronic chart systems and to eventually provide for seamless databases supportive of digital GIS applications. It was further proposed that these standard compilation scales be contained in a new IHO Technical Resolution. The compilation scales proposed were as follows:

- 1: 1,000 Berthing, harbor maneuvering and large-scale inland charts.
- 1: 10,000 Harbor, large-scale approach and inland charts.
- 1: 100,000 Small-scale approach and coastal charts.
- 1: 250,000 GEBCO plotting sheets, topo-bathymetric charts and military graphics.
- 1: 1,000,000 General coverage and International Bathymetric Charts.
- 1: 10,000,000 GEBCO and small-scale overview charts.

USA-NAVO (M.VN) stressed that the proposed scales were compilation, not product scales. He suggested that this be referred to an appropriate WG of CHRIS. Sweden (G.N.) felt that this was not appropriate due to the negative aspects that were explained in the MS comments, as in CHRIS-14-4A. Germany (M.J.) commented that what was proposed might be difficult to accomplish and could cause problems in existing ECDIS systems. For instance chart scale was often adjusted to radar scale range.

Chair of TSMAD (C.D., UK) explained that fixed scales were part of S-57 Editions 1 and 2, but that navigational purposes were adopted for Edition 3 instead, as agreement on values could not be maintained. Singapore (P.O.) pointed out that ENCs produced from high-density survey data would be constrained by the proposed standard compilation scales. HGMIO (L.A.) further noted that the concept of ENC compilation scale primarily pertained to digitizing existing paper charts, rather than producing ENCs from high-density source data, e.g. multi-beam.

Chairman remarked that there seemed to be little enthusiasm for this proposal.

Canada (M.C.) agreed, in principle, with what was being proposed by USA, and felt that this would need to be done in the long term. He suggested that the US-Canada Hydrographic Commission further investigate the matter and provide a recommendation at some future date. This was agreed.

Action:

- ***Canada*** *to take the proposal to the US-Canada Hydrographic Commission for investigation and provide a recommendation at a future date.*

Docs: CHRIS-14-4B PRO 15 - Enhancement of the use of data at small scales
CHRIS-14-4B Add Proposed Technical Resolution "Mutual Exchange of Small-Scale Products or Data"

USA-NAVO (M.VN.) introduced this paper. It was proposed to implement a centralized multinational agreement, to be held at the IHB, whereby signatories would retain their intellectual property rights for their data and information but agree through the granting of a "free license" to the gratis use of their geo-spatial data at small scales (defined as 1:500,000 scale or smaller). The addendum contained a proposed IHO Technical Resolution detailing the implementation mechanism for this agreement.

USA-NAVO (M.VN.) explained that this would be an optional agreement, alternative to bi-lateral negotiations. Canada (M.C.) supported both the proposal and addendum, while Sweden (G.N.), Italy (M.N.) and Singapore (P.O.) only supported the addendum. Germany (H.H.) and UK (C.D.) had some concern about the proposed "small scale". UK (C.D) and France (JL.BB) could possibly support the proposal but they would need more time to analyze the proposed TR, as in the addendum. Also, UK (C.D.) wondered if copyright was a matter for CHRIS to consider.

Chairman suggested that this matter be taken back by the USA and discussed further with those MS having expressed reservations. The proposal could then be re-submitted to IHB, and forwarded to CHRIS Members/MS for comments and/or approval. This was agreed.

Action:

- ***USA (NIMA)*** *to discuss the matter further with those MS expressing concerns and resubmit an amended proposal. It will then be forwarded, either to CHRIS Members to gain CHRIS support before submission to MS, or directly to MS (USA to indicate desired course of action).*

5. FUTURE WORK PROGRAMME OF CHRIS – MAIN FOCUS AND ACTIVITIES, GOALS

Docs: *CHRIS-14-5A The Future Work of CHRIS*
CHRIS-14-5B MGDI: Information Infrastructure for the Maritime Community

IHB (N.G.) showed a slide (see Annex E) indicating current functional relationships in IHO, and how CHRIS fits in. He noted that there were approximately 54 meetings per year of all IHO working groups, committees, commissions, etc. USA-NOAA (D.E.) asked about the implications of how and when decisions are made. IHB (N.G.) replied that this matter was being addressed by SPWG. The latter may reorganize the IHO, that could affect CHRIS.

Germany (H.H.) gave a presentation on the Future Work of IHO (see Annex F). Current work of CHRIS is essentially related to standard development and maintenance, through specialized WGs, to technical advice to other IHO bodies, e.g. WEND, and to collaborative projects with other organizations, e.g. ISO/TC211 or IEC/TC80. CHRIS is further constrained, by its TOR, "to meet the requirements of mariners", and this may no longer be sufficient. He suggested that better management structure, closer industry participation and better control by MS of collaborative work with other organizations, could improve overall efficiency of CHRIS. He noted that S-57, as the central asset of IHO, was of highest strategic importance and had the potential to lead IHO into the information society. He concluded in saying that:

- CHRIS embodies the most precious asset Hydrographic Offices have to administer and to supply: hydrographic information!

- It is ***our job*** as IHO MS to ensure that the bodies of ***our*** expert organization work efficiently in terms of benefit to MS;
- Review of CHRIS work should also contribute to SPWG for updating the goals and visions of IHO from a technical point of view.

Chairman suggested, as basis for discussion, the following three issues: 1) Scope of what we work with; 2) How do we organize ourselves? And 3) Why do we have IHO?

Canada (M.C.) felt that IHO did need to focus on providing hydrographic data to a much wider scope of users beyond safety of navigation. However it should be an expanded mandate, not necessarily an increased level of activity for HOs with additional resources to be applied. Germany (H.H.) supported this view and gave the examples of marine environmental protection and coastal zone management, as possible applications of hydrographic data. He further felt that widening the use of hydrographic data must also involved greater cooperation with industry. USA-NOAA (S.DB.), while pointing out that IHO primary work is related to safety of navigation, further noting that hydrography is different from bathymetry, agreed that proper work of hydrography results in data that can be used for a number of applications in addition to safety of navigation.

Chair of TSMAD (C.D., UK) explained that, while Edition 3 of S-57 only deals with vector data and was developed primarily to serve safety of navigation, i.e. ENC for ECDIS, Edition 4 will deal more broadly with all data types, e.g. vector, raster and matrix, needed to support a greater number of applications of hydrographic data. Potential users should include both the maritime and GIS communities. Development work for Edition 4 is being be done in consultation with other user groups (OEMs, regulatory authorities, type-approval organisations, shipping companies, etc) and with use of the OEF. It will be based to the greatest extent possible on the work of ISO/TC211. TSMAD will look to create building blocks for Edition 4, rather than considering how the data is to be used. However, Edition 3.1 will remain valid for the ENC Product Specification, even after Edition 4.0 has been published.

Denmark (A.N.) expressed the concern that trying to increase cooperation with other organizations outside the maritime community could lead to false expectations on what type of data HOs produce. UK (C.D.) commented that CHRIS may need to "advertise" to the broader user community what we are doing. IHB (N.G.) remarked on the potential impact of the new SOLAS Regulation 9, i.e. commitment of contracting States to provide hydrographic services, on the IHO community, in that there may be some activities that are now regarded as mandatory by IMO.

USA-NOAA (D.E.) stated that, in the past, CHRIS has been "captured" by ECDIS issues (S-57, S-52, etc.), which was appropriate, and that time has now come to look at more "futuristic issues", e.g. time-varying ENC, high-density survey data and voyage planning. If so, CHRIS should be providing guidance, rather than producing specific standards. He proposed that a new group be established on "Opportunities and Requirements" that looks beyond S-57. It was suggested and agreed that TAWG would explore such issues.

Chairman noted that, looking at the way forward, the options were, either to go back to basics, and focus on safety of navigation, or to broaden CHRIS' outlook, although with finite resources.

Singapore (P.O.) felt that the future of CHRIS was more an issue for SPWG to address. SPWG Chair (F.K., Norway) commented that the role of CHRIS was based on the IHO goals and objectives, and the Terms of Reference that have been adopted. He stressed that IHO already supports the use of hydrographic data for other purposes than navigation and mentioned that SPWG was looking at how IHO should be structured to meet its goals. For instance, are CHRIS and/or WEND really needed and, if so, what should they be working on? He noted that the IMO issue raised by IHB, i.e. SOLAS Reg. 9, makes things more complicated.

Germany (H.H.) felt that CHRIS needed to broaden its Terms of Reference to deal with other matters beyond marine navigation. Also, CHRIS should consider what is the impact of SOLAS Reg. 9, or what would happen if IHO fails to deal with this matter, and adequately respond. This would give more visibility of the importance of IHO to this convention and other organizations.

Chairman stated that hydrographic transfer standards was a CHRIS role, but whether the data should be created was more the role of MS. South Africa (L.R.) reminded that other institutions (scientific and education) recognize that S-57 is the transfer standard. It may be IHO's task to decide what is required, but not how it can be used.

Chairman proposed, and this was agreed, that the meeting break into three task groups as follows:

1. Review Terms of Reference of CHRIS and TSMAD
   - Task: to look at wider scope in addition to safety of navigation; to recommend amendments to TOR of CHRIS; to formulate concrete recommendations to SPWG.
   - Reference documents: CHRIS-14-5A, 5B, 3C, 7.5B, and PP Presentation (see Annex F).
   - Germany to chair. Members: Finland, France, Greece, Indonesia, Korea (Rep. of), Norway, Singapore, Sweden, UK and USA.

2. Cooperation with Industry
   - Task: to provide input to SPWG on what is the best way to co-operate with industry.
   - Reference documents: CHRIS-14-9A, 9B, 9C, and 9D.
   - USA-NOAA to chair. Members: Canada, Italy, USA-USCG, CIRM, HGMIO, IHB, and Primar Stavanger.

3. Communication Practices
   - Task: to suggest communication practices on the works of CHRIS: frequency, responsibility and media to use.
   - Reference documents: None.
   - New Zealand to chair. Members: China (HK), Estonia, Singapore, South Africa, IHB, and OEF.

The meeting reconvened after the three task groups had completed their work and TG Chairs were invited to present the results for their respective groups.

Task Group 1 - Review Terms of Reference of CHRIS and TSMAD

Chair of TG1 (H.H., Germany) reported on the basic issues of CHRIS and the specific changes that were recommended for the CHRIS TOR (see Annex G). It was suggested that CHRIS become the primary "Technical Committee" in IHO, accommodating other technical bodies presently outside CHRIS, e.g. S-44 WG and Tidal Committee. There was also a desire to speed up the decision process within IHO. For instance, there could be benefit if this "Technical Committee" was empowered to make technical decisions. TG1 felt that drastic changes were needed in terms of the future operation of IHO and that minor technical amendments to the TOR would not be enough. Other proposed changes to the TOR included:

- Providing guidance on the work of the technical WGs.
- Making greater reference to the marine geospatial information community.
- No need for hydrographic data to be "digital", following the incorporation of the Chart Standardization Committee (now CSPCWG, see Section 7.5) into CHRIS.
- No need for external expertise being explicitly mentioned in the TOR.

Revised CHRIS TOR proposed by TG1, where changes from the existing TOR have been emphasized, are presented at Annex H for information. It was stressed that these were not draft new TOR, but an indication of how new TOR could look like.

TG1 considered that it was premature to propose changes to the TSMAD TOR at this stage.

There followed a discussion on TG1's proposals. Chairman stated that if there was overall support from the meeting on these proposals, then they would be forwarded to SPWG.

Canada (M.C.) felt that this appeared to be a substantial re-engineering of CHRIS. Also, the consolidation of other IHO committees might be a drastic change. IHB (N.G.) expressed some reservation about the practicality of creating a "Super Committee" within IHO. USA-NOAA (D.E.) expressed some concerns about the proposed changes to the CHRIS TOR and that the matter would need further discussion.

South Africa (L.R.) fully supported TG1's proposals and felt that this was a good indication of what a small task group within CHRIS could accomplish. Singapore (P.O.) was also supportive and expressed optimism about this new Committee in terms of a greater focus. IHB (N.G.) pointed out that the suggested changes to the CHRIS TOR would align IHO on IMO practices where a committee assigns work to various working groups or sub-committees, as opposed to IHO where working groups merely inform CHRIS on what they are doing.

Chairman felt that, although the intention was not to make major changes to the CHRIS TOR at this time, the text proposed by TG1 (see Annex H), was a useful draft TOR for a new committee. The meeting agreed that the outcomes of TG1, as in Annexes G and H, would be conveyed to SPWG. Chair of SPWG (F.K., Norway) felt that this would be regarded by SPWG as a strong signal to consider.

To a query from Canada (M.C.) asking whether the proposed revisions to the CHRIS TOR, if accepted, would require a change in the IHO convention, Chair of SPWG (F.K., Norway) responded that any proposed changes to the convention would be made known in 2003, and decided on in 2005. He further mentioned that changes to the IHO convention require ratification by two-thirds of MS.

Task Group 2 –Cooperation with Industry

Chair of TG2 (D.E., USA-NOAA) briefly presented the conclusions of his group (see Annex I). Six opportunities were identified, including the followings:

- Associate membership of industry in IHO without voting rights.
- Establish working groups under IHO committees chaired by industry gaining equal status with other working groups at CHRIS, e.g. a working group on the standards needs of industry.
- Industry to establish an independent group like CIRM with representative status at IHO committees.
- Use IMO model: Member States bring forward the views of the national industry as well as their official associations, i.e. HO´s represent all their industries, not just mariners and the government.

Chair of TSMAD (C.D., UK) wondered about the differences between establishing a new, independent Industry WG (2nd bullet above) or more effectively including industry participants in existing WGs. He further suggested that it might be too early to know the best way to interface with industry and noted that industry meant more that just OEMs, e.g. shipping industry, mariners or type-approval agencies. Germany (H.H.) felt that the existing CHRIS structure should be used for industry participation.

Chair of SPWG (F.K., Norway) cautioned that having an independent Industry WG might require a change to the IHO Convention.

Chairman summarized, and this was agreed, that:

1. At the technical level, CHRIS believed that cooperation with industry should be better.
2. CHRIS believed that formal recognition of industry organizations by IHO, in some way, would be of assistance.

Task Group 3 – Communication Practices

Chair of TG3 (M.F., New Zealand) briefly explained the outcomes of his group (see Annex J). Improved communications were suggested, in relation to who should be informed, what was to be communicated, and how it should be done. On the latter point, the IHO website was considered as the primary means of communicating CHRIS information to MS and the outside world.

It was agreed that official data from IHO should be both formalized (mechanism) and authoritative (status). There was general support for TG3's proposal to establish a small advisory group under CHRIS to provide concrete recommendations for improving the IHO website. New Zealand (M.F.) kindly accepted to take the lead of this group, which would work by correspondence. Initial membership of the CHRIS 'IHO Website Advisory Group' (IWAG) would include: Canada (M.C.), USA-NOAA (D.E.), Estonia (T.S.), South Africa (L.R.), New Zealand (M.F.), Hong Kong (N.K.C.), Singapore (L.W.K.), OEF (L.A.) and IHB (A.P.).

Actions:

- ***TAWG Chair*** *to set up a new sub-group on "Opportunities and Requirements".*
- ***IHB/Chair of CHRIS*** *to provide SPWG with the outcomes of the three ad hoc sub-goups set up at CHRIS-14 on 'review TOR of CHRIS', 'Co-operation with Industry', and 'Communication Practices'.*
- ***IHB*** *to formalize the setting up of a CHRIS advisory group to provide concrete recommendations on improving the IHO website.*

6. IMO ISSUES – REPORT ON MSC 75 AND NAV 48

Doc: CHRIS-14-6A Report on MSC75 and NAV48

IHB (N.G.) reviewed the above paper and made specific mention about the need to appoint IHO representatives to IEC TC80/WG13 "Displays for the presentation of navigation related information". HGMIO (L.A.) pointed out that Chairmen of C&SMWG and HGMIO both participate in WG13 meetings. Chairman confirmed that Chair of C&SMWG (M.J., Germany) would be the official IHO representative to WG13.

6.1 Chart Carriage Re gulations and ECDIS

Doc: CHRIS-14-6.1A Chart Carriage Regulations and ECDIS in USA

USA-NOAA (D.E.) reviewed the above paper and asked if the OEF could be the location where information on the status of ECDIS regulations and implementation are maintained? Norway (F.K.) felt that this was more a matter for IMO, and not the responsibility of IHO.

After discussion, however, it was agreed that MS would be asked to provide information on the matter and that the results would be placed on the IHO website and, if there is interest from IMO, on the IMO website.

Actions:

- ***IHB** to contact MS to gain information on the status of ECDIS regulations and implementation and post the information on the IHO Website.*
- ***IHB** to contact the IMO secretariat to investigate if the IMO would consider to post this kind of information on the IMO website.*

7. REPORTS BY CHRIS WORKING GROUPS

7.1 Transfer Standard Maintenance and Application Development (TSMAD)

Doc: CHRIS-14-7.1A Report on TSMAD Activities

Chair of TSMAD (C.D., UK) presented briefly the above report. Edition 3.1 of S-57 was frozen since November 2000, with the exception of the following three components "Use of the Object Catalogue for ENC", "Recommended ENC Validation Checks", and "Producing Agency Codes". Further consideration on the matter led to deciding that the former component be also frozen while the second and third components would be removed from S-57 and published as stand-alone documents (S-58 and S-62). Both Edition 3.0 ENCs and 3.1 ENCs are currently valid. However, it might be desirable to propose a date beyond which Edition 3.0 ENCs would no longer be produced or used. A sub-WG of TSMAD had been set up to develop future extensions to S-57, that will result in Edition 4.0. Its achievements will be based, as far as possible, on the ISO TC211 base standards in view of maximizing compatibility with COTS (Commercial Off The Shelf) software. The work on expanding S-57 has been split into a number of work items (see below). USA-NOAA (D.E.) suggested that CHRIS be more actively involved in prioritizing TSMAD matters. Chair of TSMAD agreed that this would be helpful, adding that there was a need for active involvement from others outside TSMAD. The meeting agreed to provide an appreciation on each item, *as indicated in italics.*

- Work Item 2.1. Edition 4.0 Object Catalogue. *Approved.*
- Work Item 2.2. Edition 4.0 ENC Product Specification. *Dormant for the time being.*
- Work Item 2.3. Raster and Matrix data models. *Approved.*
- Work Item 2.4. Time varying and 3-D data. *Approved; required close cooperation with HGMIO.*
- Work Item 2.5. Expansion of meta data contents. *Approved.*
- Work Item 2.6. Review of S-57 base documents. *Approved; rewrite to conform to ISO TC211.*
- Work Item 2.7. Bathymetric Data Product Specification. *Approved; S-44 WG needed to be involved as well.*

- Work Item 2.8. Portrayals (Data Depiction). *Approved; primarily involved investigation of display aspects of non-ENC S-57 data.*

IHB (M.H.) reminded that IHO MS already approved that a Hydrographic/Bathymetric Product Specification should be developed (IHB CL 16/1999 refers). OEF (L.A.) asked if the TSMAD Report to CHRIS 14 could be made available on the OEF? Chair of TSMAD stated that a brief summary was a good idea, but that full details of the Edition 4.0 exercise would be made available on the IHO website. To the Chairman asking which were the highest priority work items, and what was the likely work plan, Chair of TSMAD responded that this information would be forthcoming at a later date.

Chairman stated that the above examination of TSMAD activities was a good example of how CHRIS could and should influence the work of its working groups. He confirmed that a target date of 2004 for completion of Edition 4.0 was reasonable. It was agreed that further comments on TSMAD Work Items should be addressed to the TSMAD Chair, or the Chair of the Edition 4.0 sub-WG.

Action:

- ***CHRIS Members*** *to send their comments on TSMAD Work Items to the TSMAD Chair (Chris.Drinkwater@ukho.gov.uk), or Edition 4.0 sub-WG Chair (VaconD@DFO-MPO.GC.CA).*

7.2 Colour and Symbol Maintenance (C&SMWG)

Doc: CHRIS-14-7.2A Report on C&SMWG Activities

The Chairman of C&SMWG (M.J., Germany) reported on C&S activities and the 13th C&SMWG meeting held in Hamburg, Germany, on 13-15 May 2002. He stressed in particular the following points:

- Revised Editions of S-52, Appendix 2 and the Presentation Library are scheduled for the beginning of 2003;
- Work on guidance for display of AIS information in harmony with the chart background is ongoing;
- Tests for a reduced number of colour tables and their application for flat panels have been be performed and will be continued;
- It is planned to produce a fully paper based description of the presentation library symbols, under supervision by the C&S technical co-ordinator which will supersede the digital version;
- Inconsistencies between IMO and IHO regulations concerning ECDIS have been identified;
- Funding the work of the C&SMWG is a major concern.

Answering a query from USA-NOAA (D.E.) about the use of flat-panel displays (FPDs), C&SMWG Chair explained that tentative calibration procedures for FPDs had been developed and agreed by C&SMWG. Progress on FPD technical development is rapid and adaptation of calibration procedures is an ongoing task. BSH, as a type-approval agency, has tested a number of flat panels especially designed for ECDIS applications, making use of specific calibration procedures. Those FPD almost fully meet the ECDIS colour requirements and BSH has therefore approved some types as legal ECDIS monitors.

The meeting agreed that work on items 1 to 4 above should be continued. Items 5 and 6 are addressed below.

Doc: CHRIS 14-7.2B Draft Letter to IMO

Chair of C&SMWG noted that a conflict in requirements for 'Standard Display' and 'Display Base' exists in the IMO Performance Standards for ECDIS, that affects the implementation and use of IHO Colours and Symbols specifications to be used with ECDIS. This relates to the display of beacons and buoys. He further noted that experience from operation with ECDIS onboard has revealed that ferry routes should appear under 'Standard Display' rather than 'All other Information', as at present. C&SMWG therefore suggested that a proposal for the relevant changes in the IMO PS for ECDIS be addressed to IMO.

France stated that they had not had sufficient time to study this document and could therefore not support the proposal to remove the reference to beacons and buoys from the 'Display Base'. They would provide their position after further studying the matter. To a statement by Germany (H.H.) wondering if this matter was the responsibility of IMO, IHB (N.G.) responded that this really was a matter for IMO to consider. Referring to Doc. CHRIS-14.10D 'Review of ECDIS Performance Standards', UK (C.D.) noted that there may be also other matters to bring to the attention of IMO and suggested that any action should be coordinated.

Chairman stated his belief that this issue is relevant and should be forwarded to IMO. After discussion, the meeting agreed that the IHB would write a letter to IMO/MSC/NAV as proposed by C&SMWG.

Action:

- ***IHB*** *to finalize the 'C&SMWG Letter to IMO' on amending the IMO Performance Standards for ECDIS, as in CHRIS-14-7.2B, and to send it to the IMO/MSC Sub-Committee on Navigation (NAV).*

Doc: CHRIS-14-7.2C Future development of a unified electronic chart display

Chair of C&SMWG reminded that funding the work of the C&SMWG is a major concern. Although part of the C&S maintenance work is done by member HOs and ECDIS manufacturers participating in C&SMWG, like in any other CHRIS WG, a core of professional experts from outside the IHO is required to provide specialist advice, to check contributions from members, etc. As examples, he mentioned the need for contribution from human factors experts, particularly on colour discrimination, or that for technical advice on data processing, conditional symbology procedures and Presentation Library (PL) structure. This specialist work needs appropriate funding. In the past this 'external' work has been funded by a limited number of HOs (Australia, Canada, Germany and United Kingdom). It appears that those nations are no longer prepared to continue paying for this work. The PL fund set up at the IHB and populated from the sales of the PL, is now used to fund some C&S maintenance contracts. However its level is rapidly diminishing (14 kEuros as of August 2002). Funding requirements for C&S maintenance, as in CHRIS-14-7.2C, are estimated to be above 50 kEuros per year.

As a result, Chair of C&SMWG conveyed the opinion of his WG members that the future work on C&S maintenance can only be done, with the existing arrangements, if the community of Hydrographic Offices firmly declares that:

- The IHO still states that specifying the visual display of hydrographic information is a core competence of IHO;

- The IHO feels that hydrographic and cartographic expertise is essential for the standardisation process of the graphical presentation of hydrographic information;
- The IHO gives a firm commitment to lead this standardisation process as fair partner of the IMO, the IEC and navigation equipment industry; and
- The IHO is willing to feed this standardisation process financially and will seriously encourage their members to contribute appropriately by financial and staff resources.

Germany (H.H.) stated that the issue of whether standardization of ECDIS colours and symbols was a core business of IHO had already been decided positively at the 2000 Extraordinary International Hydrographic Conference. He therefore felt that CHRIS needed to acknowledge that IHO responsibility. He also felt that the needed degree of standardization should be clarified, as well as how much freedom should be left to Industry. He concurred that the amount of money to support the PL development had been substantial (particularly by Canada and Germany).

Answering a query from IHB (N.G.) about the PL in paper format, Chair of C&SMWG confirmed that it is the intention of the C&SMWG to concentrate on the visualization of the chart-related information, defined in a fully paper based description, and to gradually phase-out the digital PL. This means future abstention from the digital issue of the PL. The chart-related information is the "background wall paper" for the display of other types of navigation information. He felt that this could satisfy the requirement for an "exit strategy", as expressed by Canada (M.C.) stating that IHO no longer had to lead in this area, and that an "exit strategy" may be necessary since there are other international bodies that have competence in this area.

IHB (N.G.) expressed the view that the request for C&SMWG funding is a precedent setting issue within IHO. He felt that if CHRIS recommends that some funding be allocated, that this would need to go to MS. Following a query by the Chairman of CHRIS and Norway (F.K.), asking what would happen if the funding request was not met, Chair of C&SMWG explained that this would lead to diversity in chart display, i.e. there would no longer be a harmonized display of chart and navigation information on ECDIS, which should remain as an ultimate goal. Singapore (P.O.) noted the work of Germany on AIS display and its potential impact on C&SMWG work, which will require appropriate funding. The possibility of obtaining EU funding for C&S standards work was mentioned. Chair of SPWG (F.K., Norway) felt that the fundamental questions posed in the paper were more policy, and cannot be answered by CHRIS. This view was supported by Denmark (A.N.) who felt that this issue was actually related to the future work of CHRIS and was really a matter for SPWG to consider.

Doc. CHRIS-14-7.2C also included requirements for staff expenses. IHB (N.G.) felt that the request for funding the C&SMWG Chairman's activities would be difficult for IHO MS to agree to. USA (D.E.) supported use of IHB consultancy budget for technical expert doing work for C&SMWG, including travel, but not for MS representatives including Chairman of any WG. Chairman summarized that there was not support for funding the staff expenses. However, it may be possible to achieve a portion for precisely described time limited R&D contracts under an IHB consultancy budget.

Canada (M.C.) noted that the cost of maintaining the IHO PL has been substantial. Chairman pointed out that if IHO had not developed a Presentation Library, then Industry would have done their own PLs. CIRM (T.S.) commented that, in his view, the IHO PL is always lagging behind what the Industry is doing. Most ECDIS manufacturers maintain their own digital form of PL applying the definitions of the IHO presentations rules contained in S-52. IHO should continue to develop the C&S standard, but how to implement technically them should best be left up to Industry. S-52 should really be a minimum standard; currently it limits further innovation. Canada (M.C.) supported this view and said that IHO should not constrain Industry and should let the control of the PL go.

Neil Guy (IHB) recommended the following alternative wording for the above bullet #3, which was accepted by the Meeting:

- The IHO gives firm commitment to ~~lead this standardization process~~ *determine the requirements for the display of hydrographic information* as a fair partner of the IMO, the IEC and navigation equipment industry

To a query from UK (C.D.), wondering why the request for funding was different from that of other WGs, since there will no longer be a digital IHO PL, Chair of C&SMWG reminded that the C&S maintenance work requires contributions from a core of professional experts outside the IHO and who need to be paid. UK (C.D.) remarked that the ECDIS PS are minimum standards, and felt that C&SMWG might be trying to do too much, i.e. over specifying. Chair of CSMWG explained that part of the IHO PL (Mariners Objects) had already been moved to IEC. Regarding a unified display, UK (C.D.) felt that Industry can be trusted to use common sense, noting that certain ECS have more functions than ECDIS due to manufacturer innovation.

Chair of C&SMWG asked for confirmation from CHRIS about the need for a standardized, unified display, emphasizing that this was no longer related to having to maintain the digital PL but, instead, on setting the standards for graphical presentation of C&S on an ECDIS display. Germany (H.H.) also felt that there was a need for clarification or reaffirmation regarding the issue whether specification of C&S is the core responsibility of IHO.

Chairman Summarized:

- Specifications of ECDIS Colours and Symbols is a core business of IHO;
- There needs to be a unified ECDIS display;
- Hydrographic and cartographic expertise is essential for the standardization process of the graphical representation of hydrographic information;
- There will be a move from digital to analog, i.e. paper description of the PL;
- Full financing of the C&S work, as outlined in CHRIS-14-7.2C, is not approved, but there can be some contract support from IHB consultancy budget. C&SMWG to provide more specifics to support funding request.

Actions:

- ***C&SMWG Chair*** *to provide the IHB with more specifics to support funding request.*
- ***IHB*** *to consider whether the C&SMWG request for funding can be accommodated within the IHB consultancy budget.*

Docs: *CHRIS-14-7.2D* *The Liability of International Organizations for their Standards*
CHRIS-14-7.2E *Potential Liability for IHO Standards – Comments by Australia*

IHB (N.G.) briefly reviewed these two papers. The issue was to clarify whether there was a potential for exposure to legal liability for any shortcomings in the standards and technical regulations published by the IHO, e.g. the IHO Presentation Library. He announced further consideration of the issue by the IHO Legal Advisory Committee (LAC) in order to phrase a general standpoint of IHO regarding this issue. A LAC answer was awaited before end October 2002.

Chair of SPWG (F.K.) felt that this was outside the responsibility of CHRIS, as it was a policy- not technical - matter that should be handled by IHB and brought to the attention of MS. This was agreed.

Action:

- ***IHB** to send Australia's paper (CHRIS-14-7.2E) and position of LAC to MS by CL, for information and consideration.*

7.3 Technology Assessment (TAWG)

Doc: CHRIS-14-7.3A Report on TAWG Activities

Chair of TAWG (M.C., Canada) presented briefly the above report. An assessment of the PRIMAR Security System (PSS) as a universal standard for ENC security had been completed. In this connection, CHS had developed a PSS Java based kernel, which was available to the hydrographic community for evaluation and study. Development of an IHO Data Protection Scheme by transforming the current PSS into an IHO Data Protection Scheme v1, was in progress (see also Section 8). A review of Flat Panel Displays (FPD), as a substitute for CRTs in ECDIS, had been completed. Progress in FPDs will impact the colour standard in S-52 which is now specific to CRTs. A switch to FPDs is seen as progressive and evolutionary by system manufacturers and end-users. Under certain circumstances the FPDs outperform CRTs. Under the leadership of NOAA (D.E.), interest groups were being formed for e-Commerce and Print On Demand (POD).

On request from USA-NOAA (D.E) and Singapore (P.O.), Chair of TAWG explained the process of determining what are the emerging technologies that warrant attention by TAWG. He further indicated that papers on POD and e-Commerce had been published and would be posted on the TAWG area of the OEF.

Action:

- ***TAWG Chair** to arrange posting published papers on POD and E-commerce, on the TAWG area of the OEF.*

7.3.1 Print on Demand

Doc: CHRIS-14-7.3.1A Print on Demand

USA-NOAA (D.E.) reported on the progress made by NOAA in experimenting the Print on Demand (POD) techniques. NOAA has released over 930 of its approximately 1,000 nautical charts in the POD form. The POD charts have been well received by mariners, including recreational boaters who appreciate the waterproof materials. For printing, generic inkjet plotters are used. The POD technology includes an electronic commerce part that provides an Internet-based ordering system for chart agents. NOAA's experience indicates that POD is working very well; is ready for widespread use; and can be used as a substitute printing process.

USA-NOAA (D.E.) asked for guidance from CHRIS as to "what is next?", and he suggested that CHRIS consider the possibility of establishing standards for the exchange of chart files and printing metadata among hydrographic offices to support such an improved service for mariners. He noted that Canada and Australia, at least, were also developing/using POD technology.

Canada (M.C.) remarked about good success of POD in USA and Canada, and felt that POD had a bright future. Germany (H.H.) supported that CHRIS establish standards for: 1) printing process; and 2) digital formats for exchange of POD files between HOs. New Zealand (M.F.) felt that standards for metadata should be established as well. South Africa (L.R.) cautioned that, for some chart agents the investment cost for POD was quite high, and that it would take a long time for them to recover these costs.

Chairman stated that POD was probably something that IHO should further consider, but wondered which CHRIS WG was appropriate to deal with this? Germany (H.H.) noted that those who have established a lead, will often set the standards. USA-NOAA (D.E.) answered that they had concerns about establishing standards on POD that no one would use. He suggested that the current POD interest group under TAWG (see www.openecdis.org) continue its work. Wide dissemination of information about POD successes, opportunities and details would be undertaken by USA and other MS with POD experience. In addition to USA, Canada, and Australia, Germany and New Zealand would participate in the POD interest group. Establishment of metadata and POD file exchange format would be reconsidered at a later date. This was agreed.

Action:

- ***TAWG POD interest group*** *to investigate the possibility of setting IHO Standards on POD printing process and digital formats for exchange of POD files.*

7.3.2 Electronic Commerce

Doc: CHRIS-14-7.3.2 Electronic Commerce for Nautical Charts

USA-NOAA (D.E) reported that NOAA's electronic commerce system (www.NauticalCharts.gov) was being used to distribute lithographic charts and text publications, and to manage the assembly of Print on Demand charts in real-time and distribute those charts. The system had been successfully operating for 2 years and 40% of NOAA's chart agents had now logged into the system. Products from any supplier can be distributed through this system, including those of other hydrographic offices, thus improving the availability of charts and other navigation products.

USA-NOAA (D.E.) suggested that CHRIS consider the potential of greater interconnectedness among hydrographic offices. Should benefits to mariners be identified, CHRIS was then invited to consider establishing standards for the exchange of chart ordering information among hydrographic offices and other selected navigation product suppliers as a means of providing improved availability of official products to mariners. He felt that a similar approach to POD could be followed.

It was agreed that the current e-Commerce interest group under TAWG (see www.openecdis.org) would continue its work and investigate the possibility of setting IHO Standards on eCommerce. Germany (H.H.) indicated that they would participate in this interest group. In this regard, Chairman reminded that participation in e-Commerce and POD interest groups, on the OEF, was open to all.

Action:

- ***TAWG e-com interest group*** *to investigate the possibility of setting IHO Standards on e-Commerce.*

7.4 Standardization of Nautical Publications (SNPWG)

Docs:	*CHRIS-14-7.4A*	*Report on SNPWG Activities*
	CHRIS-14-7.4B	*Comments from Chile on CHRIS-14-7.4A*

The above activity report had been prepared by the retiring Chairman of SNPWG, Robert Ward (Australia) who, regretfully, could not attend this meeting. It was recalled that new TOR for SNPWG were approved at CHRIS-13 (Athens, Greece, September 2001). In particular, the new TOR identified a requirement that SNPWG should "….. *investigate the data format specifications, content and display requirements of digital nautical publications intended for use in ECDIS*". This type of nautical publications was identified as NP-3. Subsequently, membership for the new SNPWG was sought through IHB CL 49/2001 and the following MS confirmed a wish to participate: Argentina, Denmark, Estonia, France, Greece, Italy, Japan, Spain, Sweden, Tunisia, UK, USA (NIMA), USA (NOS). However, although USA-NIMA had indicated a willingness to continue as Vice-Chair/Secretary, there was no volunteers for the chairmanship of SNPWG

Germany (H.H.) offered that Johannes Melles (BSH, Germany) take over the Chairmanship of this WG, which was gratefully accepted by the meeting. He confirmed that BSH was currently working on specifying digital NPs based on extending S-57, i.e. NP-3. Following a query from USA-NOAA (D.E.), he indicated that, whereas SNPWG would initially focus on the approach taken by Germany, the WG would be open to other technical solutions.

France (JL.BB.) suggested that IHB determine what has been done by MS in the way of nautical publications of type NP-2, i.e. digital publications based upon existing paper publications and issued as stand-alone products. This was agreed.

Actions:

- ***IHB*** *to poll MS on the status on the production of NP-2 digital publications.*
- ***IHB*** *to provide Germany (J. Melles) with SNPWG Membership.*
- ***New Chair of SNPWG*** *to initiate WG work according to agreed TOR.*

7.5 Chart Standardization and Paper Chart (CSPCWG)

Docs:	*CHRIS-14-7.5A Rev.1*	*Report on CSPCWG Activities*
	CHRIS-14-7.5B	*Draft Terms of Reference for CSPCWG*
	CHRIS-14-7.5C	*Revised Terms of Reference for CHRIS, as a result of CSC becoming a WG of CHRIS*

Chairman recalled that, by its Decision 17 (f), the 16th IHC (Monaco, April 2002) approved the continuation of the activities of the Chart Standardization Committee (CSC) through the new Chart Standardization and Paper Chart Working Group (CSPCWG) of CHRIS. The above three reference documents had been prepared by the retiring CSC Chair, Peter Cox (UK) who, regretfully, could not attend this meeting.

The meeting took note of the activity report. In the proposed TOR for CSPCWG, the wording in the Membership section was changed from "by request to the Directing Committee …" to "by advising

the Directing Committee …". These TOR were otherwise approved, as well as the revised TOR for CHRIS. The WG name was considered somewhat awkward and suggestions were made to amend it to "Paper Chart Standardization WG" (Chairman) or shorted even further to "Chart Standardization WG" (CSC Vice-Chair, JL.BB., France). However no agreement could be reached on the matter and Chairman decided to leave name as is.

IHB (M.H.) reported that Dr Cox and the CSC Secretary, Ms Elizabeth Dunn (UK), had indicated their intention to discontinue their participation in this group. It was therefore necessary that a new CSPCWG Chair and Vice-Chair be elected. The IHB agreed to organize this election.

Actions:

- ***IHB*** *to conduct by correspondence the election of a CSPCWG Chair and Vice-Chair.*
- ***New Chair of CSPCWG*** *to initiate work of WG according to TOR.*
- ***IHB*** *to advise MS on the minor change made to CHRIS TOR, as a result of CSC becoming a CHRIS WG.*

8. ENC SECURITY SCHEME

Docs: CHRIS-14-8A *Report on Activities of the CHRIS Data Protection Scheme Advisory Group (DPSAG)*

CHRIS-14-8B *DPSAG Terms of Reference*

PRIMAR-Stavanger (R.S.) gave a presentation on the activities of the Data Protection Scheme Advisory Group (DPSAG), which was set up at CHRIS-13 to develop an IHO recommended security scheme (RSS) and to investigate the implications of IHB becoming the security scheme administrator for a RSS and assuming responsibility for the maintenance of a RSS. DPSAG met twice, in May and June 2002, and a Version 1 of an IHO RSS with all necessary supporting documentation had been developed and was ready to be transferred to the IHB giving the IHB the control of the security system on behalf of the Member States. Version 1 is based on the Primar security scheme, which has become a *de facto* standard for ENC protection. DPSAG further assessed that there would be no technical implications to the IHB becoming the security scheme administrator and that the level of effort to administer the scheme would involve approximately two man-weeks per year. Plans to implement Version 1 of the IHO RSS and to further develop a Version 2 were presented

Following a query from USA-USCG (J.R.), it was clarified that both terms "security" and "data protection" had same meaning. Germany (H.H.) asked if IHB had agreed to takeover the responsibility of becoming Security Scheme Administrator? IHB (N.G.) felt that the additional two man-weeks of effort could be accommodated within the resources of the IHB but that it would depend on the opinion of the new IHB Directors. Canada (M.C.) advised that this work may be quite complicated, and that it may be better to contract this out. Answering a query from Germany (M.J.), Primar-Stavanger (R.S.) confirmed that a type-approved ECDIS must have both a protected and unprotected ENC interface. He also indicated, following a query from CIRM (T.S.), that the security scheme software would be made available free of charge to users, whereas who would provide support for this software had still to be defined.

After discussion, Chairman summarized that:

1) It was agreed that the existing Primar Security Scheme would be recommended for adoption as Version 1 of the IHO Data Protection Scheme, with effect targeted to end of 2002. Primar-Stavanger would operate Version 1 on behalf of the IHB, until relevant IHB staff had been appropriately trained (by Primar-Stavanger) so that the IHB could then take over as Scheme Administrator (SA). This training session would take place in March 2003. From there on, the IHB would operate the IHO Scheme, with support from Primar-Stavanger as necessary.

Actions:

- ***IHB*** *to seek MS' endorsement for the adoption of the Primar Security Scheme as Version 1 of the IHO RSS and the transfer of SA role to the IHB.*
- ***Primar-Stavanger*** *to prepare and accompany the taking over by IHB as Scheme Administrator for Version 1 of the IHO Security Scheme, including training of IHB staff.*

2) The Meeting supported the development of Version 2 of the IHO RSS, to be conducted by DPSAG in parallel with the implementation of Version 1, based on a CHS report (CHRIS/13/8F) and operational experiences. Contributions to the development of Version 2 were expected from Primar-Stavanger, IC-ENC and CHS. Version 2 would be ultimately taken over by IHB, with April 2004 as target date, subject to agreement with all involved parties, such as OEMs and type approval bodies. Versions 1 and 2 would then coexist until early 2006.

Action:

- ***TAWG/DPSAG*** *to monitor the development of Version 2 of the IHO Security Scheme, subject to MS' approval.*

Chairman concluded that it was intended that the IHO ENC Data Protection Scheme be as stable as possible.

The Meeting then reviewed the proposed Terms of Reference for DPSAG, as in CHRIS-14-8B. They were approved without modification; including that DPSAG would be a subsidiary of the CHRIS Technology Assessment Working Group (TAWG).

9. LIAISON WITH INDUSTRY

Docs:	*CHRIS-14-9A*	*Report on the June 2002 Marine Industry Workshop*
	CHRIS-14-9B	*ENC Distribution Process – Concern of the Shipping Community*
	CHRIS-14-9C	*IHO - Industry Forum*
	CHRIS-14-9D	*User Interface Group Meeting*

Reference was made to the report made by Cor Mallie (Chartworx Holland BV) on the 2002 IHO-Industry Days that took place at the IHB, Monaco, on 26-28 June 2002. For the third year the IHB organised the annual Marine Industry Workshop in Monaco. Experience has shown that regular and constant interface between the major role players in the world of hydrography is necessary. It is important

for the views of representatives from related industry and the authorities responsible for implementation of charting to be heard, as it is for that of the official producers of the data. The leading thread running through the whole Workshop was unmistakable: the issue of the lack of official Electronic Navigational Charts (ENC), possibly causing the decline in the sales of ECDIS. At the end of the workshop, the IHB suggested the following important improvements:

- The format of the Workshop could be improved and industry should be considered as "stakeholders".
- It was clear that ECDIS was losing to ECS (mainly in the retrofit sphere). This probably was caused by a lack of resources or structure, and complicated requirements to produce ENC. A possible solution could be better IHO programmes in support of production and more involvement of commercial companies.
- A list of action items would be prepared as a result of the workshop and participants were invited to come with proposals of items to be included in this list. Workshop discussions indicate those actions could focus on:

1. Increased cooperation between Industry and IHO Member States to address the lack of ENC coverage.
2. Increased consultation with Industry and users during the development and revision of specifications and standards:
   - to ensure the users' needs and perspectives are addressed;
   - to ensure ECDIS hardware and software compatibility.
3. Defining and formalizing a mechanism whereby industry could effectively liaise with the IHO.

Chair of SPWG (F.K., Norway) felt that there was a consensus that industry partners must organize and identify themselves, in order to establish a formal relationship with IHO. IHB (N.G.) explained what had occurred on that matter since the Industry Workshop:

- After the meeting, a number of attendees met with a view to forming a group to facilitate the nature and content of future interaction between the IHO and IHO-Related Industry. The group has tentatively been named 'IHO-Industry Forum'. Contact person is Hans Van OPSTAL, Caris b.v. (Hans.van.Opstal@caris.nl). See also CHRIS-14-9C.
- IHB had been approached by the International Chamber of Shipping (ICS) in view of forming a 'Shipping Industry Group'. An exploratory meeting on the matter was held in London on the 9th August, with participation of a number of organisations representing international shipping. Contact person is Peter Hinchliffe, ICS (peter.hinchliffe@marisec.org). See also CHRIS-14-9D.

Germany (M.J) commented on the current relationship with Industry via the various WGs. UK (C.D.) remarked that it was important to look for ways where more MS would become comfortable with increased industry involvement. It was agreed that the IHB would follow these issues.

Action:

- ***IHB*** *to monitor/follow the formation of an 'IHO-Industry Forum' and a 'Shipping Industry Group'.*

CIRM (T.S.) deplored mariner confusion over ECDIS-related matters and the lack of objective information from IHO or HOs. Following a comment by USA-NOAA (D.E.) that an effort was needed to

inform the maritime community on SENC Distribution, it was agreed, on suggestion from UK (C.D.), that such info should be placed on the IHO website.

Action:

- ***IHB*** *to put information about SENC delivery, and other matters affecting safety of navigation (e.g. SOLAS V), on the IHO website.*

10. STATUS OF IEC 61174 AND IEC 62288

Doc: CHRIS-14-10A Status of IHO ENC and RNC Test Data Sets

IHB (M.H.) provided a brief highlight of this paper. The IHO test data sets (TDS), to be used with IEC standard 61174 for ECDIS type-approval, should be issued as Appendix 4 to S-52 before end 2002. This will include an ENC TDS and two RNC TDS (HRCF and BSB formats).

There were no comments.

Doc: CHRIS-14-10C IEC TC80/WG13 Contribution to CHRIS-14

Chairman provided a brief overview on this issue. IEC TC80 had established a new WG13 "Displays for the presentation of navigation related information". WG13 was developing a new standard IEC 62288 which would provide general requirements and methods of test for the presentation of navigation related information on the stand-alone navigational displays of ECDIS, shipborne radar and plotting aids and the multifunction navigational displays used in IBS and INS. Meeting took note of document. WG13 was in the process of analyzing all of the display requirements in the existing Performance Standards and identifying those situations where there were inconsistencies.

There were no comments.

Doc: CHRIS-14-10D Review of ECDIS Performance Standards

The above paper had been prepared by Robert Ward (Australia) who, regretfully, could not attend the meeting. Noting that WG13 would soon examine the existing IMO Performance Standard for ECDIS, in view of possibly recommending adjustments to this standard, he suggested that TSMAD and C&SMWG be asked to review the ECDIS PS to harmonize the current understanding and implementation of S-57 and S-52 with the ECDIS PS, and to possibly recommend amendments to the PS.

USA-USCG (G.H.), also member of WG13, explained that WG13 had asked for pro-active participation of IHO in this work, particularly as it relates to portions of the ECDIS PS which, in the light of experience, may warrant change. Since there were no likely inconsistencies between the ECDIS PS and IHO S-57, it was agreed that this would not be referred to TSMAD.

Chair of C&SMWG (M.J.) felt that some portions of S-52 were no longer relevant, e.g. Appendix 1 on updating. He stated that C&SMWG would examine Appendix 2 of S-52 to identify any discrepancies between that document and the ECDIS PS. UK (C.D.) clarified that he was is in favour of reviewing S-57 and S-52, but not of removing S-52 as normative reference, unless the exercise would result in S-52 being withdrawn.

IHB (MH) explained that he had discussed the matter with the author of this paper and that the intention was for IHO to identify possible anomalies/discrepancies in the IMO PS for ECDIS, in the light of experience gained in implementing S-52 and S-57, and NOT to revise the IHO Standards. WG13 plans to make proposals for adjustments to the IMO PS, if necessary, in the frame of harmonizing the presentation of all navigation-related information to the mariner on the bridge. Rather than being faced later with unpleasant changes in the IMO PS, Australia's paper suggested that the IHO contributes to a joint IEC-IHO proposal for adjustments to the IMO PS, which should be submitted anyway by IEC to NAV 49 in July 2003.

Chairman summarized as follows:

A review of S-57 and S-52 based on experience was natural and logical. As such, the initiative by C&SMWG to make a review of S-52 and make suggested revisions to CHRIS was fully supported. As regards the issues referred to in the above paper, he had confidence in the current liaison to WG13 via C&SMWG and HGMIO for their solution. The meeting, therefore, did not support the requested actions, as in Section 11 of CHRIS-14-10D[1], but recommended working within existing arrangements.

11. VECTOR DATA DEVELOPMENTS

11.1 RENCs

Docs: *CHRIS-14-11.1A* *PRIMAR-Stavanger Report to CHRIS*
CHRIS-14-11.1B *IC-ENC Report to CHRIS*

The meeting took note of the above reports from the two European based RENCs. Norway (F.K.) commented that the two current RENCs slightly deviated from the WEND principles in that their scopes went beyond their respective regions.

Doc: *CHRIS-14-11.1C* *MBS Virtual RENC Report to CHRIS*

Italy (M.N.) introduced this paper. Under the VRENC concept, HOs would provide ENC data and updates to a 'virtual' regional database, i.e. established through a digital network of HO's single databases, which could then serve as the basis for distributors to provide data to ships. A pilot project involving Italy, Slovenia and Croatia was in progress. The VRENC project was now backed by the EU funded MEDCHARTNET project. To Sweden (G.N.) asking about cooperation with other RENCs, he responded that the near term task was to establish the VRENC.

[1] Section 11 of CHRIS-14-10D is reproduced thereafter.

"The CHRIS is requested to:

a. (1) **Invite** TSMAD and C&SMWG to review the ECDIS PS to harmonize the current understanding and implementation of S-57 and S-52 with the ECDIS PS.

(2) **Request** that any recommended amendments be submitted to the Chairman of CHRIS by February 2003.

b. **Invite** interested parties to submit proposals to TSMAD, C&SMWG or CHRIS members as appropriate for consideration.

c. **Invite** IEC TC80 WG13 to exchange relevant information on proposed changes to the ECDIS PS with TSMAD and C&SMWG

d. **Collate** submissions then **seek endorsement** of proposals from CHRIS membership.

e. **Liaise** with IEC TC80 (WG13) to **develop** a joint IHO-IEC submission to NAV 49."

11.2 ENC Development

Docs:	*CHRIS-14-11.2A*	*Report on ENC Development (Greece)*
	CHRIS-14-11.2B	*Report on ENC Development (Brazil)*
	CHRIS-14-11.2C	*Report on ENC Development (Australia)*
	CHRIS-14-11.2D	*Report on ENC Development (Italy)*
	CHRIS-14-11.2E	*Report on ENC Development (USA)*
	CHRIS-14-11.2F	*Report on ENC Development (Denmark)*
	CHRIS-14-11.2G	*Report on ENC Development (India)*
	CHRIS-14-11.2H	*Electronic Hydrographic Information - The New Zealand perspective*
	CHRIS-14-11.2I	*Report on ENC Development (Chile)*
	CHRIS-14-11.2J	*Current State of Electronic Chart Production (South Africa)*
	CHRIS-14-11.2K	*Report on ENC Development (France)*

The meeting took note of the above reports. Italy (M.N.) mentioned that full ENC coverage of Italian waters was nearly completed. New Zealand (M.F.) stated that ENCs were only a small portion of the NZ overall effort. He also acknowledged the assistance received from other MS. Estonia (T.S.) additionally reported that they had produced approximately 26 cells, providing coverage of major Estonian ports and approaches.

Sweden (G.N.) commented on a Declaration on the Baltic Sea that makes specific mention about the use of Electronic Charts and also stating that ENC coverage of the Baltic Sea should be accomplished by the end of 2002. Further information was available from www.helcom.fi.

As a general comment, France deplored that it was still difficult to know where ENC coverage existed (see also 11.2.1 below).

11.2.1 Report on "WEND" Study

Docs:	*CHRIS 14-11.2.1A*	*WEND Study – ENC Coverage*
	CHRIS 14-11.2.1A Add	*Addendum to CHRIS-14-11.2.1A*

Michel Huet (IHB) explained the purpose and goal of this effort. IHB CL 31/2001 requested MS to provide information on their ENC production and coverage. The intent was to determine where gaps exist in ENC coverage and where were high-priority areas for further ENC production. Portugal had kindly offered to process the data received from MS. A report had been produced accordingly (CHRIS-14-11.2.1A). Unfortunately, it did not include graphic maps of ENC coverage and main shipping routes. There was therefore a need to complete this study and UK (C.D.) suggested that the UKHO might consider addressing its graphical part. It was suggested that Lloyds Shipping would be an appropriate source to obtain information on the main shipping routes. IHB (N.G.) mentioned that C-Map Russia had offered some assistance on the matter.

Germany (H.H.) expressed disappointment about the progress made during the past year, and stated his concern that the data collected may already be out of date. Norway (F.K.) agreed and commented that it was difficult to determine, not only what had been produced but also what was available on the market. UK (C.D.) said that what was really needed was that this information be on the IHO website and kept up-to-date every month by MS.

Chairman summarized that the meeting gratefully accepted the offer by UK to consider completing the graphical component of the WEND study. If successful, the results would be posted on the IHO website.

Actions:

- ***UKHO** to consider completing the graphical part of the WEND Study carried out by Portugal, by combining information about ENC availability with route graphics from the material available.*
- *If successful, **IHB** to then put the results on the IHO website. Provision to be made for the graphical presentations of ENC coverage on the IHO website, to be kept up to date from MS' inputs.*

11.2.2 Assistance in ENC Production

Doc: CHRIS-14-11.2.2A Discussion on options to provide assistance to, or exchange experience with those HOs who have not yet the capabilities to develop ENCs.

Germany (H.H.) gave a brief presentation of the above paper and explained the need to provide assistance to those MS who do not have the ability to produce ENCs.

Italy (M.N.) commented that, based on its experience in working with other HOs in their region, the main challenge was to obtain funding. South Africa (L.R.) noted that many nations in Africa had limited ability to produce even paper charts and that training in ENC production was therefore not a high priority for them. He felt that many nations need to be taught "how to walk before they can run." USA-NOAA (D.E.) made mention of an initiative in the Caribbean and Gulf of Mexico region (see CHRIS 14.13.B). IHB (M.H.) explained the experiences of IBCWIO (Western Indian Ocean), and how the partnership approach developed for IBCWIO might apply to ENC production. UK (C.D.) mentioned that UKHO provided training on hydrography that included ENC production. USA-NOAA (S.DB.) informed that the USA had a number of exchange programs with other nations.

Germany (H.H.) commented that perhaps it should be for the IHO Regional Hydrographic Commissions to take such initiatives. IHB (N.G.) felt there were two main issues: 1) which MS needed assistance? and 2) what type of assistance was required? Norway (F.K.) further commented that distinction should be made between providing assistance to those MS who have a HO, and institutional build-up for those nations that do not have HOs.

Chairman summarized that IHB would gather information regarding those HOs needing assistance, and those willing to provide assistance.

Germany (H.H.) asked about the idea of a handbook on ENC production. Singapore (P.O.) commented that the SHARED Project already had developed a manual that could be made available. IHB (M.H.) agreed to put the SHARED ENC manual on the IHO website. Germany (H.H.) noted that some HOs potentially interested might not have access to the web. IHB agreed to notify MS of the availability of the ENC manual, and to provide it in paper copy on request.

Actions:

- ***IHB** to gather from MS information regarding those HOs 1) needing assistance in ENC production, and 2) willing to provide assistance.*
- ***All CHRIS Members** to take note of the Guide on ENC Production which is available from the SHARED website (www.ecdisnow.org).*
- ***IHB** to put the SHARED ENC Guide on the IHO website.*
- ***IHB** to notify MS of the availability of the SHARED ENC Guide, and to provide the manual in paper copy on request.*

11.2.3 Production of ENC/S-57 Data for Berthing (Usage Code 6)

Doc: CHRIS-14-11.2.3A Use of ENC Navigational Purpose Codes (relating to S-57 Editions 3.0 and 3.1)

The reference paper was submitted by Robert Ward (Australia) who, regretfully, could not attend the meeting. It was proposed to consider reserving Navigational Purpose code 6 (Berthing) for the use of port authorities and similar organizations to supply ships using ECDIS in their ports with compatible, high definition, up-to-date hydrographic data. The paper further included a proposed IHO Technical Resolution addressing the issue.

Greece (A.H.) stated that, according to Greek law, only the national HO could produce hydrographic data. Norway (F.K.) commented that the proposed TR was also against Norwegian law. Sweden (G.N.) had a similar situation to Norway, although they were in favour of HOs working more closely with port authorities.

UK (C.D.) suggested that, in general, producer could be port authority, HO, or both together. He felt that it was not appropriate for one option to be recommended. Denmark (A.N.) expressed difficulties in understanding the rationale for this proposal, further noting that the fact that usage code 6 was not being used, meant lack of data not lack of desire by the HO to produce such data. Germany (H.H.) felt that this was a national issue to decide and take appropriate action to authorize, and that it was not a matter for IHO to adopt a TR. France (JL.BB.) agreed that it was a national responsibility and, although recognizing the need for large scale data for berthing, could not support the proposal. IHB (N.G.) clarified that this was not a "problem" for Australia, but a suggested solution for IHO to recommend for other MS. Singapore (P.O.) suggested that there should be a WG dealing with this matter.

Chairman summarized that CHRIS considered that a TR on this issue was not needed and that the recommendation from Australia was therefore not supported by the meeting. However, MS did have the possibility to authorize any national authority, e.g. port authorities, to produce official ENCs in accordance with SOLAS V, Regulation 2.2, and the ECDIS Performance Standard. He added that detailed guidance on producing large-scale ENCs might be needed, although UK (C.D.) pointed out that S-57 did not provide detailed guidance on any usage code.

11.3 DNC Development

Doc: CHRIS-14-11.3A Report on DNC Development at US-NIMA

The meeting took note of the above report. There were no comments.

11.4 Inland ECDIS

Doc: CHRIS-14-11.4A Report on Inland ECDIS Development in Europe

The meeting took note of the above report. There were no comments.

12. MARINE INFORMATION OBJECTS (MIO)

Doc: CHRIS-14-12A Report on HGMIO Activities

The meeting took note of the above report. There were no comments.

13. PROJECTS OF INTEREST TO CHRIS

- **SHARED**

Doc: CHRIS-14-13A Report on the SHARED Project in Southeast Asia

The meeting took note of the above report. Indonesia (T.S.) felt that this could be a model for other countries to follow.

- **CGMHC-ECWG**

Doc: CHRIS-14-13B Report on the CGMECIP Project in the Caribbean Area

The meeting took note of the above report. There were no comments.

14. CONFERENCES OF INTEREST TO CHRIS

Doc: CHRIS-14-14A Report on GEOMATICA 2002, Cuba, Feb. 2002

The meeting took note of the above report. There were no comments.

Doc: CHRIS-14-14C Report on MEH Conference, Indonesia, May 2002

The meeting took note of the above report. There were no comments.

Additionally, IHB (N.G.) made note of an arrangement established between IHO and CIRM.

15. OPEN ECDIS FORUM (OEF)

Doc: CHRIS-14-15A Report on OEF Activities

The meeting took note of the above report. Chairman made specific mention of the high value of the OEF to the work of CHRIS and the various WGs.

16. LIAISON WITH OTHER GROUPS

16.1 ISO-TC211 (Geographic Information - Geomatics)

Doc: CHRIS-14-16.1A Report on TC211 Activities in relation to CHRIS

The meeting took note of the above report. This document included a Draft Co-operative agreement between ISO/TC 211 'Geographic Information/Geomatics' and the IHO. The meeting agreed that the draft COA, with a minor amendment, should be communicated to ISO TC211 for consideration. It would then be submitted to MS for approval, before being sent to the ISO Secretariat.

Actions:

- ***IHB** to submit the draft IHO-ISO cooperative agreement, as in CHRIS-14-16.1A, to ISO/TC211for consideration and comments.*
- ***IHB** to then circulate the draft CA to IHO MS for comments/approval.*
- ***IHB** to send the CA to the ISO Secretariat when it has been approved by IHO MS.*

16.2 ICA Commission on Spatial Data Standards

Doc: CHRIS-14-16.2A Report on Activities of ICA Spatial Data Standards Commission

The meeting took note of the above report. There were no comments.

16.3 Other Groups, e.g., IMO, IALA

Doc: CHRIS-14-16.3A Relations with International Organizations

The meeting took note of the above report. IHB (N.G.) made brief mention of the work in the Arctic, Antarctic, and Greenland.

17. ECS DEVELOPMENTS

Docs: CHRIS-14-17A Draft ECS Data Standard – ISO 19379
CHRIS-14-17B Draft ECS Equipment Standard – RTCM

The above two documents on ECS standards, data and equipment, had been received from Mort Rogoff (USA) and Fred Ganjon (USA) who both, regretfully, could not attend the meeting. The ECS data standard was being developed by ISO TC8/SC6/WG7 (Chairman: Mort Rogoff). When completed and adopted by ISO, it would be released as ISO Standard 19379. The ECS equipment standard was being developed by RTCM SC109.

As regards the ECS data standard, USA-NOAA (D.E.) wondered if MS were aware that it was the intent of this group that data conforming to this standard would satisfy SOLAS carriage requirements. IHB (N.G.) confirmed that this was their intention, as stated by Mort Rogoff at the IHO-Industry Days, June 2002. Germany (H.H.) commented that this was not the original intention, and that this was therefore a new development. Norway (F.K.) felt that this would not be possible under the new SOLAS V, in force since 1st July 2002. France (JL.BB.) made mention that this matter of ISO standard for ECS data should be of concern.

Chairman summarized that this potential development should be of interest to all MS, who might wish to contact their national standards organization.

Action:

- ***IHB*** *to draw MS' attention on the ECS standard developments, in particular the ECS data standard and its possible impact on the status of ENC/ECDIS.*

18. RASTER DEVELOPMENT

Doc: CHRIS-14-18A US Raster Navigational Chart Update Service

USA-NOAA (D.E.) gave a brief presentation of the above paper. NOAA's raster charts were produced by a commercial company (Maptech, Inc.) under the authority of NOAA. The resulting RNCs, conforming to IHO standard S-61, were commercialized by Maptech. A RNC weekly update service was provided by means of update patch files. RNCs and weekly updates now existed for the entire USA.

USA-NOAA (D.E.) described the widespread use of RNCs in the USA, and the 1st anniversary of the weekly RNC update service. He stated that concerns about the use of RNC's might be unfounded, and that the restrictions placed in the use of RCDS and RNCs in the IMO Performance Standard for ECDIS might be removed, i.e. use of RNCs and the RCDS mode of operation permitted only when ENCs are not available; and mandatory carriage of an appropriate folio of up-to-date paper charts as a supplement to RCDS. He made mention that it may be worthwhile to re-visit the use of RNC in ECDIS as meeting carriage requirements.

The meeting took note of the above report. There were no comments.

19. STATUS OF IHO PUBLICATIONS ON ECDIS

Doc: CHRIS-14-19A IHO Publications on ECDIS

The meeting took note of the above report. There were no comments.

20. ANY OTHER BUSINESS

None.

21. DATE AND LOCATION OF NEXT MEETING

Chairman suggested, and this was agreed, that the next, i.e. 15th, CHRIS meeting be held at the IHB, Monaco, on the second week of June, 2003, if possible in conjunction with another meeting at similar level, e.g. SPWG or IHO-Industry Days.

Post-Meeting Note: Dates were subsequently fixed to 10-13 June 2003 and CHRIS-15 will be followed by the 2003 IHO-Industry Days on 16-17 June.

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Annex A

LIST OF ACRONYMS

AIS	Automated Identification System
ARCS	Admiralty Raster Chart Service (UK)
BSB	Raster chart format (USA-Maptech)
BSH	Bundesamt für Seeschiffahrt und Hydrographie (Germany)
CCNR	Central Commission for the Navigation on the Rhine (European Union)
CHO	Co-operating Hydrographic Office (PRIMAR)
CHRIS	Committee on Hydrographic Requirements for Information Systems (IHO)
CIRM	Comité International Radio Maritime
COTS	Commercial Off The Shelf
CSC	Chart Standardisation Committee (IHO)
C&SMWG	Colour and Symbol Maintenance Working Group (IHO)
CD-ROM	Compact Disk - Read Only Memory
DGIWG	Digital Geographic Information Working Group (NATO)
DIGEST	Digital Geographic Information Exchange Standard (DGIWG)
DNC	Digital Nautical Chart (USA-NIMA)
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System
ENC	Electronic Navigational Chart
ESSA	Environmentally Sensitive Sea Area
GIS	Geographic Information System
HCRF	Hydrographic Chart Raster Format (UK)
HGMIO	Harmonizing Group on Marine Information Objects (IHO-IEC)
HNHS	Hellenic Navy Hydographic Service (Greece)
HO	Hydrographic Office

IALA	International Association of Lighthouse Authorities
ICA	International Cartographic Association
ICC	International Cartographic Conference
IEC	International Electrotechnical Commission
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INT	International (Charts) (IHO)
ISO	International Organization for Standardization
MBSHC	Mediterranean and Black Seas Hydrographic Commission (IHO)
MIO	Marine Information Object
MoU	Memorandum of Understanding
MSA	Maritime Safety Agency (China)
MSC	Maritime safety Committee (IMO)
NAV	Sub-committee on Navigation (IMO)
NATO	North Atlantic Treaty Organization
NECSA	Navigational Electronic Chart System Association
NHS	Norwegian Hydrogaphic Service
NIMA	National Imagery and Mapping Agency (USA)
NMGD	Norwegian Maritime Geodata Demonstror
NOAA	National Oceanic and Atmospheric Administration (USA)
NP	Nautical Publication
OGC	Open GIS Consortium
OEF	Open ECDIS Forum
PL	Presentation Library (IHO)
PoD	Print-on-Demand

PSCO	Port State Control Officer
PRIMAR	European ENC Coordinating Centre
PS	Performance Standards for ECDIS (IMO)
RENC	Regional Electronic Navigational Chart Coordinating Centre (IHO)
RNC	Raster Navigational Chart
RTCM	Radio Technical Committee on Maritime Services (USA)
SDI	Spatial Data Infrastructure
SENC	System Electronic Navigational Chart
SHARED	Singapore Hong Kong Admiralty Raster and ENC Demonstration
SHOA	Servicio Hidrográfico y Oceanográfico de la Armada (Chile)
SHOM	Service Hydrographique et Océanographique de la Marine (France)
SNPWG	Standardization of Nautical Publications Working Group (IHO)
SOLAS	Safety of Life at Sea Convention (IMO)
TAWG	Technology Assessment Working Group (IHO)
TC211	Technical Committee 211 (ISO)
ToR	Terms of Reference
TSMAD	Transfer Standard Maintenance and Application Development Working Group (IHO)
UKHO	United Kingdom Hydrographic Office
USCG	United States Coast Guard
VPN	Virtual PRIMAR Network
VRENC	Virtual Regional ENC Co-ordinating Centre
VTS	Vessel Traffic System
WEND	Worldwide Electronic Navigational Chart Data Base (IHO)
WG	Working Group

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Annex B

LIST OF DOCUMENTS

CHRIS-14-1A Rev.8	List of Documents
CHRIS-14-1B Rev.4	List of Participants
CHRIS-14-1C Rev. 2	Membership of CHRIS related WGs
CHRIS-14-1D Rev. 2	CHRIS Membership
CHRIS-14-2A Rev.8	Agenda
CHRIS-14-3A	Minutes of CHRIS-13
CHRIS-14-3B	Status of Actions List from CHRIS-13
CHRIS-14-3C	Terms of Reference for CHRIS Committee and related Working Groups
CHRIS-14-4A	PRO 13 – Compilation scales for electronic data bases
CHRIS-14-4B	PRO 15 – Enhancement of the use of data at small scales
CHRIS-14-4B Add	Proposed Technical Resolution "Mutual Exchange of Small-Scale Products or Data" *(USA)*
CHRIS-14-5A	The future work of CHRIS *(H. Hecht, Germany)*
CHRIS-14-5B	MGDI : Information Infrastructure for the Maritime Community *(M. Poulin & R. Gillespie, Canada)*
CHRIS-14-6A	Report on MSC75 and NAV48 *(N. Guy, IHB)*
CHRIS-14-6.1A	Chart Carriage Regulations and ECDIS in USA *(D. Enabnit, USA)*
CHRIS-14-7.1A	Report on TSMAD Activities *(C. Drinkwater, UK)*
CHRIS-14-7.2A	Report on C&SMWG Activities *(M. Jonas, Germany)*
CHRIS-14-7.2B	Draft letter to IMO (MSC/NAV) *(M. Jonas, Germany)*
CHRIS-14-7.2C	Future development of a unified electronic chart display *(M. Jonas, Germany)*
CHRIS-14-7.2D	The Liability of International organizations for their Standards *(N. Guy, IHB)*
CHRIS-14-7.2E	Potential Liability for IHO Standards – Comments by Australia *(R. Ward)*
CHRIS-14-7.3A	Report on TAWG Activities *(M. Casey, Canada)*
CHRIS-14-7.3.1A	Print on Demand *(D. Enabnit, USA)*
CHRIS-14-7.3.2A	Electronic Commerce for Nautical Charts *(D. Enabnit, USA)*
CHRIS-14-7.4A	Report on SNPWG Activities *(R. Ward, Australia)*
CHRIS-14-7.4B	Comments from Chile on *CHRIS-7.4A*
CHRIS-14-7.5A Rev.1	Report on CSPCWG Activities *(P. Cox, UK)*
CHRIS-14-7.5B	Draft Terms of Reference for CSPCWG *(P. Cox, UK)*
CHRIS-14-7.5C	Revised Terms of Reference for CHRIS, as a result of CSC becoming a WG of CHRIS *(P. Cox, UK)*

CHRIS-14-8A	Report on Activities of the CHRIS Data Protection Scheme Advisory Group (DPSAG) *(R. Sandvik, Primar-Stavanger)*
CHRIS-14-8B	Data Protection Scheme Advisory Group (DPSAG) Terms of Reference *(R. Sandvik, Primar-Stavanger)*
CHRIS-14-9A	Report on the June 2002 Marine Industry Workshop *(C. Mallie, Chartworx, Netherlands)*
CHRIS-14-9B	ENC Distribution Process – Concern of the Shipping Community *(Seatrade, Netherlands)*
CHRIS-14-9C	IHO-Industry Forum *(N. Guy, IHB)*
CHRIS-14-9D	User Interface Group Meeting *(N. Guy, IHB)*
CHRIS-14-10A	Report on IHO ENC and RNC Test Data Sets *(M. Huet, IHB)*
CHRIS-14-10C	IEC-TC80-WG13 Contribution to CHRIS-14 *(L. Alexander, Univ. of NH, USA)*
CHRIS-14-10D	Review of ECDIS Performance Standards *(R. Ward, Australia)*
CHRIS-14-11.1A	PRIMAR-Stavanger Report to CHRIS *(R. Sandvik)*
CHRIS-14-11.1B	IC-ENC Report to CHRIS *(P. Wainwright)*
CHRIS-14-11.1C	MBS Virtual RENC Report to CHRIS *(M. Nannini, Italy)*
CHRIS-14-11.2A	Report on ENC Development *(Greece)*
CHRIS-14-11.2B	Report on ENC Development *(Brazil)*
CHRIS-14-11.2C	Report on ENC Development *(Australia)*
CHRIS-14-11.2D	Report on ENC Development *(Italy)*
CHRIS-14-11.2E	Report on ENC Development *(USA)*
CHRIS-14-11.2F	Report on ENC Development *(Denmark)*
CHRIS-14-11.2G	Report on ENC Development *(India)*
CHRIS-14-11.2H	Electronic Hydrographic Information – The New Zealand Perspective
CHRIS-14-11.2I	Report on ENC Development *(Chile)*
CHRIS-14-11.2J	Current State of Electronic Chart Production *(South Africa)*
CHRIS-14-11.2K	Report on ENC Development *(France)*
CHRIS-14-11.2.1A	Report on the "WEND Study" *(Portugal)*
CHRIS-14-11.2.1A Add	Addendum to CHRIS-14-11.2.1A *(Portugal)*
CHRIS-14-11.2.1B	Availability of Commercial Programmes to Determine ENC Production Priorities *(N. Guy, IHB)*
CHRIS-14-11.2.2A	Discussion on options to provide assistance to, or exchange experience with those HOs who have not yer the capabilities to develop ENCs *(H. Hecht, Germany)*
CHRIS-14-11.2.3A	Use of ENC Navigational Purpose Codes (relating to S-57 Editions 3.0 and 3.1) *(R. Ward, Australia)*
CHRIS-14-11.3A	Report on DNC Development at US-NIMA *(C. Andreasen, USA)*

CHRIS-14-11.4A	Report on Inland ECDIS Development in Europe *(M. Jonas, Germany)*
CHRIS-14-12A	Report on HGMIO Activities *(L. Alexander, Univ. of NH, USA)*
CHRIS-14-13A	Report on the SHARED Project in Southeast Asia *(Singapore)*
CHRIS-14-13B	Report on the CGMECIP Project in the Caribbean Area *(L. Alexander, Univ. of NH, USA)*
CHRIS-14-14A	Report on GEOMATICA 2002, Cuba, Feb. 2002 *(M. Huet, IHB)*
CHRIS-14-14C	Report on MEH Conference, May 2002 *(G. Angrisano, IHB)*
CHRIS-14-15A	Report on OEF Activities *(L. Alexander, Univ. of NH, USA)*
CHRIS-14-16.1A	Report on TC211 Activities in relation to CHRIS *(T. Pharaoh, IHB)*
CHRIS-14-16.2A	Report on Activities of ICA Spatial Data Standards Commission *(M. Huet, IHB)*
CHRIS-14-16.3A	Relations with International Organizations *(N. Guy, IHB)*
CHRIS-14-17A Rev.1	Draft ECS Data Standard – ISO 19379 *(M. Rogoff, NECSA)*
CHRIS-14-17B Rev.1	Draft ECS Equipment Standard – RTCM *(F. Ganjon, RTCM)*
CHRIS-14-18A	Raster navigational Chart Update Service *(D. Enabnit, USA)*
CHRIS-14-19A Rev.1	IHO Publications on ECDIS *(M. Huet, IHB)*

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Annex C

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[2] Comité International radio Maritime
[3] Harmonizing Group on Marine Information Objects
[4] Open ECDIS Forum

Annex D

AGENDA

1. Opening and Administrative Arrangements

Docs:	*CHRIS-14-1A*	*List of Documents*
	CHRIS-14-1B	*List of participants*
	CHRIS-14-1C	*Membership of CHRIS related WGs*
	CHRIS-14-1D	*CHRIS Membership*

2. Approval of Agenda

Doc:	*CHRIS-14-2A*	*Agenda*

Confirmation or Election of CHRIS Chairman

3. Matters arising from Minutes of 13th CHRIS Meeting

Docs:	*CHRIS-14-3A*	*Minutes of CHRIS-13*
	CHRIS-14-3B	*Status of Actions List from CHRIS-13*
	CHRIS-14-3C	*Terms of Reference for CHRIS Committee and related Working Groups*

4. Matters arising from the 16th IH Conference

Docs:	*CHRIS-14-4A*	*PRO 13 - Compilation scales for electronic data bases*
	CHRIS-14-4B	*PRO 15 - Enhancement of the use of data at small scales*
	CHRIS-14-4B Add	*Proposed Technical Resolution "Mutual Exchange of Small-Scale Products or Data"*

5. The Future Work Programme of CHRIS – main focus and activities, goals

Doc:	*CHRIS-14-5A*	*The future work of CHRIS*
Doc:	*CHRIS-14-5B*	*MGDI: Information Infrastructure for the Maritime Community*

6. IMO Issues - Report on MSC 75 and NAV 48

Doc:	*CHRIS-14-6A*	*Report on MSC75 and NAV48*

6.1 Chart Carriage Regulations and ECDIS

Doc:	*CHRIS-14-6.1A*	*Chart Carriage Regulations and ECDIS in USA*

7. Reports by CHRIS Working Groups

7.1 Transfer Standard Maintenance and Application Development (TSMAD)

Doc:	*CHRIS-14-7.1A*	*Report on TSMAD Activities*

7.2 Colour and Symbol Maintenance (C&SMWG)

Doc:	*CHRIS-14-7.2A*	*Report on C&SMWG Activities*
	CHRIS-14-7.2B	*Draft Letter to IMO (MSC/NAV)*
	CHRIS-14-7.2C	*Future development of a unified electronic chart display*
	CHRIS-14-7.2D	*The Liability of International Organizations for their Standards*
	CHRIS-14-7.2E	*Potential Liability for IHO Standards – Comments by Australia*

7.3 Technology Assessment (TAWG)
Doc: *CHRIS-14-7.3A* *Report on TAWG Activities*

7.3.1 Print on Demand
Doc: *CHRIS-14-7.3.1A* *Print on Demand*

7.3.2 Electronic Commerce
Doc: *CHRIS-14-7.3.2A* *Electronic Commerce for Nautical Charts*

7.4 Standardization of Nautical Publications (SNPWG)
Docs: *CHRIS-14-7.4A* *Report on SNPWG Activities*
CHRIS-14-7.4B *Comments from Chile on CHRIS-14-7.4A*

7.5 Chart Standardization and Paper Chart (CSPCWG)
Docs: *CHRIS-14-7.5A* *Report on CSPCWG Activities*
CHRIS-14-7.5B *Draft Terms of Reference for CSPCWG*
CHRIS-14-7.5C *Revised Terms of Reference for CHRIS, as a result of CSC becoming a WG of CHRIS*

8. ENC Security Scheme
Docs: *CHRIS-14-8A* *Report on Activities of the CHRIS Data Protection Scheme Advisory Group (DPSAG)*
CHRIS-14-8B *DPSAG Terms of Reference*

9. Liaison with Industry
Doc: *CHRIS-14-9A* *Report on the June 2002 Marine Industry Workshop*
CHRIS-14-9B *ENC Distribution Process – Concern of the Shipping Community*
CHRIS-14-9C *IHO - Industry Forum*
CHRIS-14-9D *User Interface Group Meeting*

10. Status of IEC 61174 and IEC 62288
Docs: *CHRIS-14-10A* *Status of IHO ENC and RNC Test Data Sets*
CHRIS-14-10C *IEC-TC80-WG13 Contribution to CHRIS-14*
CHRIS-14-10D *Review of ECDIS Performance Standards*

11. Vector Data Development
11.1 RENCs
Docs: *CHRIS-14-11.1A* *PRIMAR-Stavanger Report to CHRIS*
CHRIS-14-11.1B *IC-ENC Report to CHRIS*
CHRIS-14-11.1C *MBS Virtual RENC Report to CHRIS*

11.2 ENC Development
Docs: *CHRIS-14-11.2A* *Report on ENC Development (Greece)*
CHRIS-14-11.2B *Report on ENC Development (Brazil)*
CHRIS-14-11.2C *Report on ENC Development (Australia)*
CHRIS-14-11.2D *Report on ENC Development (Italy)*
CHRIS-14-11.2E *Report on ENC Development (USA)*
CHRIS-14-11.2F *Report on ENC Development (Denmark)*
CHRIS-14-11.2G *Report on ENC Development (India)*
CHRIS-14-11.2H *Electronic Hydrographic Information - The New Zealand perspective*

CHRIS-14-11.2I *Report on ENC Development (Chile)*
CHRIS-14-11.2J *Current State of Electronic Chart Production (South Africa)*
CHRIS-14-11.2K *Report on ENC Development (France)*

11.2.1 Report on the "WEND" Study
Docs: *CHRIS-14-11.2.1A* *Report on the "WEND Study"*
CHRIS-14-11.2.1A Add *Addendum to CHRIS-14-11.2.1A*
CHRIS-14-11.2.1B *Availability of Commercial Programmes to Determine ENC Production Priorities*

11.2.2 Assistance in ENC Production
Doc: *CHRIS-14-11.2.2A* *Discussion on options to provide assistance to, or exchange experience with those HOs who have not yet the capabilities to develop ENCs.*

11.2.3 Production of ENC/S-57 Data for Berthing (Usage Code 6)
Doc: *CHRIS-14-11.2.3A* *Use of ENC Navigational Purpose Codes (relating to S-57 Editions 3.0 and 3.1)*

11.3 DNC Development
Doc: *CHRIS-14-11.3A* *Report on DNC Development at US-NIMA*

11.4 Inland ECDIS
Docs: *CHRIS-14-11.4A* *Report on Inland ECDIS Development in Europe*

12. Marine Information Objects (MIO)
Docs: *CHRIS-14-12A* *Report on HGMIO Activities*

13. Projects of interest to CHRIS (e.g. SHARED or CGMECIP)
Docs: *CHRIS-14-13A* *Report on the SHARED Project in Southeast Asia*
CHRIS-14-13B *Report on the CGMECIP Project in the Caribbean Area*

14. Conferences of interest to CHRIS
Docs: *CHRIS-14-14A* *Report on GEOMATICA 2002, Cuba, Feb. 2002*
CHRIS-14-14C *Report on MEH Conference, Indonesia, May 2002*

15. Open ECDIS Forum
Doc: *CHRIS-14-15A* *Report on OEF Activities*

16. Liaison with other Groups
16.1 ISO-TC211 (Geographic Information-Geomatics)
Doc: *CHRIS-14-16.1A* *Report on TC211 Activities in relation to CHRIS*

16.2 ICA Commission on Spatial Data Standards
Doc: *CHRIS-14-16.2A* *Report on Activities of ICA Spatial Data Standards Commission*

16.3 Other groups, e.g. IMO, IALA
Doc: *CHRIS-14-16.3A* *Relations with International Organizations*

17. ECS Developments
Docs: *CHRIS-14-17A* *Draft ECS Data Standard – ISO 19379*
CHRIS-14-17B *Draft ECS Equipment Standard – RTCM*

18. Raster Data Development
Doc: *CHRIS-14-18A* *US Raster Navigational Chart Update Service*

19. Status of IHO Publications on ECDIS
Doc: *CHRIS-14-19A* *IHO Publications on ECDIS*

20. Any Other Business

21. Date and Location of Next Meeting.

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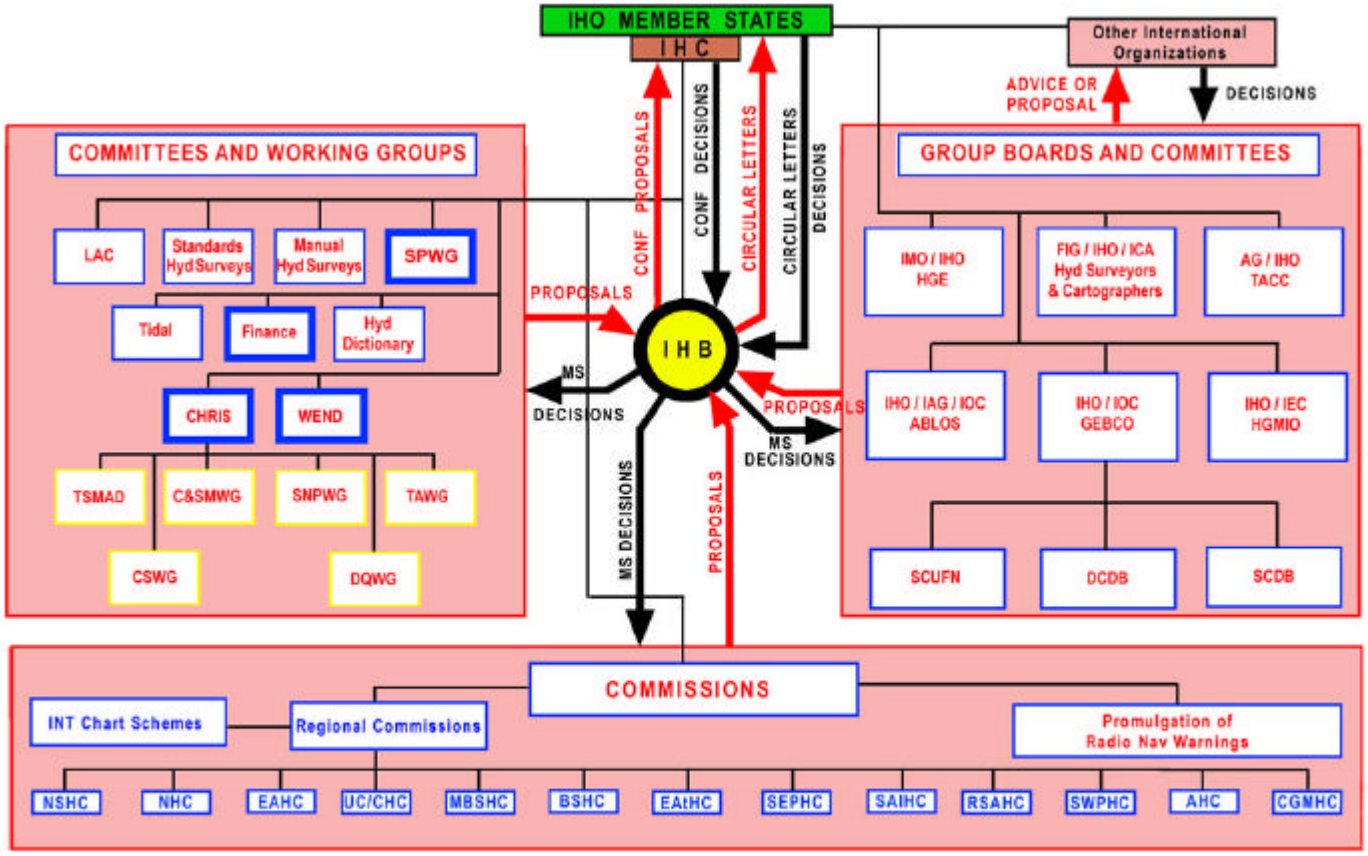
Annex E

FUNCTIONAL RELATIONSHIPS IN IHO



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THE FUTURE WORK OF CHRIS

(Horst Hecht, Germany)

1. Current Work of CHRIS

- Standard development and maintenance
  - TSMADWG (S-57: ENC, Metadata, other applications)
  - C&SMWG (ECDIS PresLib)
  - SNPWG (Nautical Publications)
  - TAWG (Encryption, Print-on-demand, e-commerce)
  - CSC (Paper Charts)
- Technical advice to other IHO bodies, e.g. WEND
- Collaborative projects with other organizations
  - ISO: GIS standards
  - DGIWG: ENC/DNC harmonization
  - IEC: ECDIS Presentation, MIOs

2. Current Work of CHRIS (cont)

- A continuation of work started under the former COE and CEDD, with scope widened beyond ECDIS
- Constrained "to meet the requirements of mariners" (TOR),
- Concrete focus on products (ENCs, Charts, Pubs)
- Look-ahead in a specific WG (TAWG)
- Collaborative work partly only through IHB representation

3. Some questions to be raised about CHRIS

- Is the scope of CHRIS, to meet the requirements of the mariner, still sufficient?
- If not, what are the other working fields related to hydrogryphic information relevant to IHO M/S?
- Does CHRIS have the appropriate management structure to perform efficiently?
- How about industry participation?
- Is collaboration with other organizations on CHRIS-relevant matters (ISO, IEC; DGIWG) effective and sufficiently controlled by IHO M/S?

4. Some thesis on S-57

- S-57 is the heart of CHRIS work, and as the central asset of IHO of highest strategic importance
- S-57 is not only used for ECDIS, but is going to be used also for paper chart production, and can be extended to all sorts of hydrographic data
- S-57 is the platform for hydrographic information products and services
- S-57 has the potential to lead IHO into the information society
- As a goal, all GIS software should offer interfaces for S-57 by default - that would be of great benefit to all M/S, and would boost hydrographic GIS applications

5. Some general considerations

- As an international committee, CHRIS has to address matters that may benefit many M/S (not necessarily all)
- Benefit from international cooperation can accrue from:
  - standards facilitating work of HOs
  - making experiences and methods developed by some HOs available to a larger community
  - jointly operating networked services
  - liaising with other organizations relevant to own responsibilities
- Spatial data will sooner or later integrate specialized networks towards a Global Spatial Data Infrastructure - this will cover hydrography including and beyond navigation

6. Conclusion

- CHRIS embodies the most precious asset Hydrographic Offices have to administer and to supply: hydrographic information!
- It is ***our job*** as IHO M/S to ensure that the bodies of ***our*** expert organization work efficiently in terms of benefit to M/S
- Review should also contribute to SPWG for updating goals and visions of IHO from a technical point of view

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TASK GROUP 1 - REVIEW TERMS OF REFERENCE OF CHRIS AND TSMAD

Participants: Finland, France, Germany, Greece, Indonesia, Korea (Rep. of), Norway, Singapore, Sweden and USA (NIMA). *(Underlined = Chair)*

Basic issues

The TG agreed that the review of the TOR should be carried out in relation to the basic objective of the Organization, as stated in the SPWG IHO vision/objective ie. *"create the global environment in which all States gather and exchange high quality hydrographic and oceanographic data and information and so ensure the widest possible use particularly for marine navigation and marine environment protection."*

The TG noted that the vision should be aligned to the new amendment to Regulation 9 of the SOLAS Convention. The TG agreed that any changes to the CHRIS TOR should support the draft vision of hydrography proposed by the SPWG.

It was noted that the name of the Committee may have to be changed accordingly.

The TG then discussed whether CHRIS was the right Committee to take on the proposed widened scope. The TG noted that presently 3 Committees covered technical issues. Taking into consideration the mechanism and need for coordination, the TG agreed that *all technical issues* should come under *a single Committee*, similar to finance, etc.

The TG agreed that the new Committee should be *empowered* to make appropriate *decisions* in order to increase the efficiency of the decision processes in IHO.

ADDRESSING THE TERMS OF REFERENCE (TOR)

The TG agreed that the **objectives** of the Technical Committee should take on a holistic approach to promote and coordinate the technical issues in relation to the implementation of the vision / objective of the IHO SPWG.

Principles of the TOR:

The TG agreed that the TOR should adopt the following principle:

a. *To guide and coordinate the work of the technical working groups*;

Following paragraph 1.1, the TG agreed that a new paragraph should be added to address the need of new users other than mariners such as fishery, marine environment protection, etc.

> "1.2 new. *To monitor the requirements of the marine geospatial information community (coastal zone management, environmental protection, ocean research, marine engineering, marine habitats, renewable resources, etc.) that may require data provided by national hydrographic offices, and identify the matters that may affect the activities and products of these offices."*

The TG agreed to delete the word "digital" in paragraph 1.2 (old) and should also include some reference to 'industry". The TG also agreed that no amendment to paragraph 1.3 would be required and that paragraph 1.4 should be deleted as it would be inappropriate for TORs.

The TG agreed that it would not be appropriate to review the rules of procedures and the TOR for TSMAD at this time.

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Annex H

COMMITTEE ON HYDROGRAPHIC REQUIREMENTS FOR INFORMATION SYSTEMS (CHRIS)

Revised Terms of Reference

(As proposed by Task Group 1 set up at CHRIS-14, Shanghai, China, 15-17 August 2002)

~~Considering the need to promote and coordinate the development of official digital products and services to meet the requirements of mariners, the International Hydrographic Organization establishes a Committee on Hydrographic Requirements for Information Systems (CHRIS) with the following Terms of Reference and Rules of Procedure:~~

Objective:
To address the technical requirements resulting from implementating the IHO vision and mission.

1. Terms of Reference

1.1 To guide and coordinate the work of the technical working groups.

~~1.1~~1.2 To monitor the requirements of mariners associated with development and use of paper hydrographic products and electronic information systems that may require data provided by national hydrographic offices, and identify the matters that may affect the activities and products of these offices.

1.3 To monitor the requirements of the marine geospatial information community (coastal zone management, environmental protection, ocean research, marine engineering, marine habitats, renewable resources, etc.) that may require data provided by national hydrographic offices, and identify the matters that may affect the activities and products of these offices.

~~1.2~~1.4 To study and propose methods and minimum standards for the development and provision of official ~~digital~~ hydrographic data, nautical products and other related services.

1.5 To prepare and maintain publications to describe and promote the Committee's recommended methods and standards adopted by the International Hydrographic Organization, and advise national hydrographic offices about implementation procedures as required by those offices.

~~1.4 To consider alternative procedures for the timely production of standards, for example using external expertise when necessary.~~

~~1.5~~ 1.6 To establish and maintain contact with other relevant IHO bodies, such as the Committee on WEND, the Legal Advisory Committee, the IHO WG on Copyright, etc.

~~1.6~~ 1.7 To liaise with other relevant international organizations.

2. Rules of Procedure

2.1 The Committee is composed of Representatives of Member States and a representative of the International Hydrographic Bureau.

2.2 Member State Representatives, or the Committee as a whole, may invite Observers to Committee Meetings.

2.3 Meetings shall be held at least once a year. The venue and date will be announced at least three months in advance.

2.4 The Committee Members will elect the Chairman of the Committee at its first meeting following each International Hydrographic Conference.

2.5 The Committee will progress its work primarily through Working Groups, each of which will address specific tasks. Working Groups will operate by correspondence to the maximum extent practicable.

2.6 Recommendations of the Committee will be submitted to the IHO Member States for adoption through the Directing Committee.

Annex I

TASK GROUP 2 - CO-OPERATION WITH INDUSTRY

Participants: Canada, Italy, USA (NOAA), USA (USCG), CIRM, HGMIO, IHB and Primar-Stavanger. *(Underlined = Chair)*

Task: Provide input to SPWG on what is the best way to co-operate with industry.

Who is industry and what is the current state of co-operation?

Industry means:
- Data gatherers, i.e. ENC makers, surveying companies,
- System manufacturers,
- Chart agents/distributors,
- Users.

Issues:
- Technical working groups co-operate with industry level more or less satisfactory.
- Industry complains that they are not involved in the strategic decision process of IHO.
- Industry cannot initiate work within IHO or committees.
- IHO cannot deal individually with all industry members. IHO needs a counterpart(s) who collects and coordinates the view of the individual industry members.
- IHO does not always follow through or honour its decisions.
- Industry did not get a response or reaction or a course of action based on their recommendations.
- Inclusion of Industry in IHO decision is in disfavour with some IHO members in spite of industry contributions.
- Industry cannot submit proposal to CHRIS.

IHB co-operation with Industry:
- IHB introduced "Industry Day" for co-operation with Industry.
- Industry Day was not a real interface between Industry and IHO: overwhelmingly industry attendees and only a few Member States sent representatives.
- It is not clear how much industry gained from the forums, but IHB did however obtain industry views on certain CHRIS issues.
- Individual industry members cannot attend at CHRIS.
- CIRM has got observer status at CHRIS but does represent only a part of the industry interests.

There are three options to co-operate at present:
- IHO Industry Days as a forum for the industry to present his views/complaints,
- Direct contribution to technical working groups,
- Attendance of industry organisations at CHRIS as observers.

New options (some options may require changes to IHO rules):
- Go to industry and ask them how they want to consult with us.
- Associate membership of industry in IHO without voting rights.
- Establish working groups under IHO committees chaired by industry gaining equal status with other working groups at CHRIS, e.g. a working group on the standards needs of industry.
- Industry to establish an independent group like CIRM with representative status at IHO committees.
- Use IMO model: Member States bring forward the view of the national industry as well as their official associations, i.e. HO´s represent all their industries, not just mariners and the government.

- Expand on the use of industry forums, e.g. an industry day for shippers done jointly with ICS, provide specific topics to discuss, and make industry days more workable. Submit a formal paper to CHRIS.

Types of industry participation:
- Industry needs, e.g. specific standards,
- Industry guidance on technology,
- Industry guidance on direction.

SUB-WG 3: COMMUNICATION PRACTICES

Participants: China (Hong Kong), Estonia, New Zealand, Singapore, South Africa, IHB and OEF. *(Underlined = Chair)*

1. **Who** should be informed:
   a. Member States
      1) participating,
      2) not currently participating [Highest Priority].
   b. Other IHO Committees / WGs
      WEND,
      SPWG,
      etc.
   c. Chairmen of IHO Regional Hydrographic Commissions
   d. Stakeholders [2nd Highest Priority]
      Non-Member States,
      Maritime Safety Administrations,
      Type-approval agencies,
      Equipment and Software Manufacturers,
      Data Producers,
      Shipping Companies,
      University/academia.

2. **What** to be communicated:
   a. Minutes of CHRIS meetings (official and approved).
   b. Official info – IHO Website.
      - Separate section on "new" items.
   c. Non-official – OEF, other.

3. **How** it should be done:
   a. Primarily to be done via IHO website.
      - website needs to be reviewed and re-designed,
      - it needs to be more user-friendly,
      - establish a small advisory group under CHRIS to provide concrete recommendations.
   b. Initially inform all MS by CL that CHRIS-related info exists on IHO website.
      - IHO Industry Days,
      - frequency:
        push – CL, OEF link to IHO website,
        pull – IHO website.
   c. MS need to further distribute within own country.

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Annex K

ACTION LIST FROM CHRIS-14

ITEM	SUBJECT	ACTION(S)
2.	CHRIS Vice-Chair	• ***IHB Directing Committee*** *to decide its position on Vice-Chair.*
3.	CHRIS-13 Action List	• ***IHB*** *to take appropriate measures for completion of all remaining actions from CHRIS-13.*
4.	Compilation Scales for Electronic Chart data bases	• ***Canada*** *to take the proposal to the US-Canada Hydrographic Commission for investigation and provide a recommendation at a future date.*
4.	Enhancement of the use of data at small scales	• ***USA (NIMA)*** *to discuss the matter further with those MS expressing concerns and resubmit an amended proposal. It will then be forwarded, either to CHRIS Members to gain CHRIS support before submission to MS, or directly to MS (USA to indicate desired course of action).*
5.	Future Work Programme of CHRIS	• ***TAWG Chair*** *to set up a new sub-group on "Opportunities and Requirements".* • ***IHB/Chair of CHRIS*** *to provide SPWG with the outcomes of the three ad hoc sub-goups set up at CHRIS-14 on 'review TOR of CHRIS', 'Co-operation with Industry', and 'Communication Practices'.* • ***IHB*** *to formalize the setting up of a CHRIS advisory group to provide concrete recommendations on improving the IHO website.*
6.	Chart Carriage Regulations and ECDIS	• ***IHB*** *to contact MS to gain information on the status of ECDIS regulations and implementation, and post the information on the IHO Website.* • ***IHB*** *to contact the IMO secretariat to investigate if the IMO would consider to post this kind of information on the IMO website.*
7.1	TSMAD Work Items	• ***CHRIS Members*** *to send their comments on TSMAD Work Items to the Chair of TSMAD (Chris.Drinkwater@ukho.gov.uk).*
7.2	Revision of the IMO PS for ECDIS	• ***IHB*** *to finalize the 'C&SMWG Letter to IMO' on amending the IMO Performance Standards for ECDIS, as in CHRIS-14-7.2B, and to send it to the IMO/MSC Sub-Committee on Navigation (NAV).*
7.2	Funding of C&SMWG Work	• ***C&SMWG Chair*** *to provide the IHB with more specifics to support funding request.* • ***IHB*** *to consider whether the C&SMWG request for funding can be accommodated within the IHB consultancy budget.*
7.2	Liability for IHO Standards	• ***IHB*** *to send Australia's paper (CHRIS-14-7.2E) and position of LAC to MS by CL, for information and consideration.*

ITEM	SUBJECT	ACTION(S)
7.3	Print on Demand & E-commerce	• ***TAWG Chair*** *to arrange posting published papers on POD and E-commerce, on the TAWG area of the OEF.* • ***TAWG POD interest group*** *to investigate the possibility of setting IHO Standards on POD printing process and digital formats for exchange of POD files.* • ***TAWG e-com interest group*** *to investigate the possibility of setting IHO Standards on E-Commerce.*
7.4	SNPWG	• ***IHB*** *to poll MS on the status on the production of NP-2 digital publications.* • ***IHB*** *to provide Germany (J. Melles) with SNPWG Membership.* • ***New Chair of SNPWG*** *to initiate WG work according to agreed TOR.*
7.5	CSPCWG	• ***IHB*** *to conduct by correspondence the election of a CSPCWG Chair and Vice-Chair.* • ***New Chair of CSPCWG*** *to initiate work of WG according to TOR.* • ***IHB*** *to advise MS on the minor change made to CHRIS TOR, as a result of CSC becoming a CHRIS WG.*
8.	IHO Security Scheme	• ***IHB*** *to seek MS' endorsement for the adoption of the Primar Security Scheme as Version 1 of the IHO RSS and the transfer of SA role to the IHB.* • ***Primar-Stavanger*** *to prepare and accompany the taking over by IHB as Scheme Administrator for Version 1 of the IHO Security Scheme, including training of IHB staff.* • ***TAWG/DPSAG*** *to monitor the development of Version 2 of the IHO Security Scheme, subject to MS' approval.*
9.	Liaison with Industry	• ***IHB*** *to monitor/follow the formation of an 'IHO-Industry Forum' and a 'Shipping Industry Group'.*
9.	SENC Delivery	• ***IHB*** *to put information about SENC delivery, and other matters affecting safety of navigation (e.g. SOLAS V), on the IHO website.*
11.2.1	WEND Study (ENC Coverage)	• ***UKHO*** *to consider completing the graphical part of the WEND Study carried out by Portugal, by combining information about ENC availability with route graphics from the material available.* • *If successful,* ***IHB*** *to then put the results on the IHO website. Provision to be made for the graphical presentations of ENC coverage on the IHO website, to be kept up to date from MS' inputs.*
11.2.2	Assistance in ENC Production	• ***IHB*** *to gather from MS information regarding those HOs 1) needing assistance in ENC production, and 2) willing to provide assistance.* • ***All CHRIS Members*** *to take note of the Guide on ENC Production which is available from the SHARED website (www.ecdisnow.org).* • ***IHB*** *to put the SHARED ENC Guide on the IHO website.* • ***IHB*** *to notify MS of the availability of the SHARED ENC Guide, and to provide the manual in paper copy on request.*

ITEM	SUBJECT	ACTION(S)
16.1	IHO-ISO Cooperative Agreement	• ***IHB** to submit the draft IHO-ISO cooperative agreement, as in CHRIS-14-16.1A, to ISO/TC211for consideration and comments.* • ***IHB** to then circulate the draft CA to IHO MS for comments/approval.* • ***IHB** to send the CA to the ISO Secretariat when it has been approved by IHO MS.*
17	ECS Standards	• ***IHB** to draw MS' attention on the ECS standard developments, in particular the ECS data standard and its possible impact on the status of ENC/ECDIS.*

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