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Future development of a unified electronic chart display**Draft Resolution of Colours & Symbols Maintenance Working Group of IHO**
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Since the beginnings of hydrography the information collected has been presented as charts using specific symbols and signs accompanied by explaining texts. Many efforts have been spent in the last century to unify the graphical presentation of paper charts issued by the different national Hydrographic Offices worldwide. The advantages of this unification for the public and the issuing authorities are obvious.

At the beginning of the nineties the approach of a unified visualisation of hydrographic information was consequently transferred to the upcoming field of electronic charts. But compared to the paper chart the situation here is quite different: The collectors of the hydrographic information are no longer the producers of their graphical presentation. Instead, the information can be fully absorbed by a presentation free data base. The standardised format "S-57" of this data base is well accepted and supported by an increasing number of national Hydrographic Offices. The unified standard S-52 of graphical presentation of the data base was defined in adaptation of the principles of paper chart visualisation and conducted by Cartographers together with new partners – manufacturers of navigational equipment. The reasons are clear: deviating from paper charts, the graphical presentation of hydrographic information is technically no longer in the hands of the collectors of the information – it is in the hands of the navigation equipment industry.

The revision of IMO SOLAS, Chapter V, which entered into force on 1 July, 2002, has firmly established the Electronic Chart Display and Information System (ECDIS) as part of the international maritime safety system. Its possible recognition as a paper chart equivalent confirms the considerable safety benefits provided by two core components: Legal ENC data and the unified display of any ECDIS no matter who manufactured it.

The IHO often committed herself that she feels in charge of co-ordinating the work of the Hydrographic Offices contributing to the expansion of ENC coverage and their distribution. The members of the Colours & Symbols Maintenance Working Group do miss such a firm commitment of IHO for the continuation of the work on the unified standard for graphical presentation of ENC data. The issue is of essence because many new technologies like AIS are about to enter the ECDIS display and have to be harmonised with the chart appearance behind. Moreover a new expanded Edition 4.0 of the S-57 standard is announced and will definitely lead to new modes of display of the contained hydrographic information. In the opinion of the Colours&Symbols Maintenance Working Group members this future work 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 personal resources.

The last point, of course, is a crucial one. The following estimation of annual cost reflects the financial contributions which were spent by the nations who were involved in the development of IHO standards for ECDIS at most, namely Australia, Canada and Germany and United Kingdom.

Technical contracts

Some work will be done by member HOs and ECDIS manufacturers, but a core of professional workers will be needed to provide specialist advice, to check contributions from members, etc.

Human factors contributions, particularly on colour discrimination, from experts and specialised institutes in this field (not every year).	0 - 10k EURO
Technical advice on data processing, conditional symbology procedures, PresLib structure etc.	10k EURO
Checking and testing of modified and new PresLib definitions.	10k EURO

Staff expenses

Experiences of the last years have shown that the chairman of the C&S Maintenance Working group can only handle the work with the assistance of a Technical Co-ordinator. Considerable travel is involved, both for sea-testing and to attend meetings of CHRIS, TSMAD, IEC TC80/WGs 7 & 13, etc.

Annual cost of Technical Co-ordinator	25k EURO
Travel for chairman (3 local trips, 2 overseas)	10k EURO
Travel for Technical Co-ordinator (4 local trips)	5k EURO

TOTAL	60 - 70k EURO
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The Colours&Symbols Working Group needs fair ground to work on. The working group members herewith appeal to IHO to consider the above request and to reply officially in a definite and unambiguous manner.
