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Working Party on Inland Water Transport

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agenda item 9)

WORKSHOPS ON INLAND NAVIGATION MATTERS

Note by the secretariat

The Working Party on Inland Water Transport, at its forty-sixth session, was informed of the outcome and main findings of the Workshop on Practical Application of Inland ECDIS which was held on the invitation of the delegation of the Russian Federation on board an inland navigation passenger vessel on her way from St. Petersburg to Moscow from 7 to 13 September 2002 and endorsed the Minutes of the Workshop, asking the secretariat to issue them as a formal SC.3 document in all three working languages of UNECE (TRANS/SC.3/158, para. 42).

Reproduced below are the Minutes of the Workshop, as adopted by its participants on 12 September 2002.

MINUTES OF THE WORKSHOP ON PRACTICAL APPLICATION OF INLAND ECDIS ^{1/}

Introduction

1. The Workshop on Practical Application of the Chart Display and Information System for Inland Navigation (Inland ECDIS) was organized by the Ministry of Transport of the Russian Federation in collaboration with the secretariat of the UN Economic Commission for Europe (UNECE) and with the technical and organizational support of the TRANSAS Co., the Moscow River Shipping Co. and the Tourist Co. KMP GROUP. The Workshop took place on board m/v Nikolay Bauman during her voyage from St. Petersburg to Moscow, from 7 to 13 September 2002.
2. Experts from Austria, Croatia, France, Hungary, Lithuania, the Netherlands, Slovakia, Russian Federation, United Kingdom, Ukraine, UNECE, Central Commission for the Navigation of the Rhine (CCNR) and Danube Commission (DC) took part in the Workshop.
3. Mr. Alexej Redkin (Russian Federation) was elected the Chairman of the Workshop.

Purpose of the Workshop

4. The main purpose of the Workshop was to let experts from different countries and international organizations meet in an informal atmosphere and exchange views on the first experience gained in practical application of Inland ECDIS, identify problems encountered and, if deemed necessary, formulate its recommendations with a view to ensuring a common approach to further work on this item and avoiding possible diversions in the standard applied.

Presentations made by the participants

5. *Mr. Konstantin Orlovich-Grudkov (Russian Federation)* informed the Workshop participants of the structure and main characteristics of the Russian inland waterways. He said, in particular, that the length of commercially navigable inland waterways exceeds 100,000 km while the length of the so-called European Unified Deep-Water System (UDWS) linking together five Seas (Baltic, White, Caspian, Azov and Black) is 7,200 km. Through the whole of UDWS a transit draught of 3.6 m is currently ensured. However, it was expected, he said, that the transit draught of 4.0 m would be ensured in the future. At the same time, he drew the attention of the participants to a number of existing problems, which are to be solved in order to make UDWS fully satisfactory. These were, in particular, (i) a need to build a parallel lock at the Kochetovski Hydro Electrical Complex on the Don River; (ii) a low water level at a lower step of the Gorodetski Hydro Electrical Complex on the Volga River at Nizhniy Novgorod and (iii) a need to ensure a stable recommended transit draught at the lower section of the Kama River.

^{1/} The Minutes only reflect the main theses of the presentations. Copies of the full texts of most of the presentations are available at the UNECE secretariat.

6. *Mr. Andrey Vorobiev (TRANSAS Co., Russian Federation)* informed the participants of the Navi Sailor-3000 chart display and information system elaborated in accordance with IHO S-57 standard and successfully promoted by his company for the needs of sea and inland navigation. ECDIS systems of different modifications are successfully promoted by the TRANSAS Co. at the international market of maritime aids to navigation.

The participants were able to watch the work of the Inland ECDIS system elaborated by TRANSAS and used on board m/v Nikolay Bauman with the real-time display being projected on a large screen located at the meeting room.

7. *Captain Anatoliy Gorbadeev (master of the m/v Nikolay Bauman)* welcomed the Workshop at the navigational bridge of his vessel while under way and shared his impressions of the trial of the Inland ECDIS electronic chart and information system installed on board his vessel. He pointed out in particular that he and his colleague navigators found the system extremely useful and believed that Inland ECDIS is indispensable for enhancing both the safety of navigation and the efficiency of transport by inland waterways. He believed that the sooner the Inland ECDIS equipment is available on board each passenger and cargo vessel the better.

8. *Mr. Vladimir Sekachev (TRANSAS Co., Russian Federation)* made a detailed presentation of the Inland ENC (Inland Electronic Navigational Chart) and Inland ECDIS system elaborated at the request of the River Fleet Service (RFS) of the Ministry of Transport for Russian inland waterways. He pointed out, in particular, that the goal put by RFS was to make the system and internal standards fully compatible with international IHO and IMO Standards.

After a few years of research and trials carried out by TRANSAS specialists, it was finally found that there was no need to modify maritime ECDIS and that it was possible to use standard software and hardware used for ENC production to produce Inland ENC complying with IHO S-57.

The Regulations elaborated by TRANSAS for Inland ENC and Inland ECDIS for Russian waterways were finally adopted by the RFS. In accordance with these Regulations, Temporary Russian River Register Regulations for Inland ECDIS were developed.

It is worth noting that the use of the IHO Object Catalogue for the purposes of Inland ENC resulted in a number of difficulties in displaying specific inland waterway objects. Thus, some of the objects had to be displayed as a general marking sign/beacon whose details may only be consulted from a pop-up pick report window.

In his view, the application of IHO and IMO Standards for Inland ENC and ECDIS provides for a number of important advantages, i.e.:

- the use of IHO and IMO standards for the purpose of safety of navigation on inland waterways;
- the use of official S-57 ENCs issued by national Hydrographical Offices for the purpose of Inland ECDIS (there are large lakes and estuaries of large rivers in the Russian Federation used by sea ships);

- possibility to use Inland ENC by ships equipped with maritime ECDIS;
- possibility to fit sea-river vessels with just one unified maritime/inland ECDIS equipment;
- possibility to certify Inland ENC and Inland ECDIS in accordance with the regulations concerning maritime ENC and ECDIS.

9. *Mr. Albert Bour (Central Commission for the Navigation of the Rhine)* informed the Workshop that the Inland ECDIS standard had been introduced on the Rhine since 2001 and that it is one and the same standard which was also adopted by UNECE and approved by the Danube Commission. The Central Commission had elaborated a Guide on Inland ECDIS which would shortly be available for any user at the official website of CCNR. He touched then upon the work carried out by CCNR together with other intergovernmental organizations concerned, and first of all in cooperation with the Danube Commission, aimed at Pan-European harmonization of technical, safety and legal provisions governing transport by inland waterway. The objective is, he said, to develop a free and integrated truly Pan-European inland navigation market which would make it possible to use to the utmost the benefits intrinsic to this mode of transport, i.e. economic efficiency, safety and friendliness to the environment.

10. *Mr. Alexandre Vdovichenko (Danube Commission)* briefed the participants on the first results of the efforts of the Danube Commission aimed at full restoration and further development of navigation throughout the Danube. In so doing, member States pay special attention to the facilitation of navigation through, in particular, the use on board vessels and ashore of electronic data interchange-telematics. The Inland ECDIS standard was approved by the Danube Commission already in 2000 and was recommended for the use on the Danube. The implementation of this project is carried out through the cooperation with the Working Party "GIS Danube Forum" set up by Austria, Germany, Hungary and Slovakia. On the initiative of the above countries on 30 and 31 October 2002, a Symposium "GIS Danube" is going to be held in Budapest. It is expected to discuss at the Symposium the most timely issues related to the use of information technology in inland navigation and agree on possible follow-up actions. Since, he said, sooner or later inland waterways of the Russian Federation, Ukraine and of other former republics of the USSR would become a part of the unique network of European inland waterways of international importance, it is important that the Inland ECDIS standard used throughout the whole of this network should also be unique and fully compatible with the standard developed and widely used in merchant marine. In his view, the work on harmonization of standards used in EC member countries and in countries of central and eastern Europe could be coordinated by the UN Economic Commission for Europe.

11. *Mr. D. Hintenaus (GIS Forum, Austria)* in his presentation touched upon the following points.

(a) *Via donau*. The goal of turning the Danube waterway into the backbone of the European transport network requires close cooperation between the public and private sectors. To improve this cooperation, the Austrian Ministry for Science and Transport founded in 1999 the Donau Transport und Entwicklungsgesellschaft mbH (Danube Transport Development Agency Limited, called *via donau* for short).

(b) **DoRIS – RIS in Austria.** The Navigational Information and Management System DoRIS will make a considerable contribution to modernizing the Danube waterway. It will enable river traffic to run more securely, efficiently and in an ecologically sound manner. Governmental responsibilities will be met more efficiently. DoRIS follows two aims: (i) Nautical component – to provide an overview of current traffic conditions and thus enable efficient traffic processing; and (ii) Logistics component – the online-availability of a comprehensive information system for all logistical processes of waterway transport.

It is envisaged to set up a test system on the Danube river between the locks Freudenu and Greifenstein and install a technical control centre at via donau. A trial operation will commence in September 2002. After a trial phase of nine months, a decision will be made as to whether the system selected for the trial section should be installed along the entire Austrian Danube waterway.

(c) **Inland ECDIS in Austria.** The goal of the project "ECDIS Austria" is the development of a homogeneous digital map of the Austrian Danube according to the Inland-ECDIS standard. Up to now, the ENC's cover the whole Austrian Danube in a "Display base" version. It is downloadable for free at www.via-donau.org under "Services". In the further run, additional objects will be integrated until the end of the year 2003. As a result, Austria will provide Inland ENC's in a "Display standard" version.

(d) **D4D – A project of the GIS Forum.** The GIS Forum, consisting of Austria, Croatia, Germany, Hungary, Slovakia and Yugoslavia, have defined the fulfilment of the basic RIS demands as a major goal of the common works and the so-called project D4D (Data warehouse for Danube waterway). In order to achieve these goals, the following objectives have been defined:

- Development and implementation of a common transnational data warehouse for waterway related data;
- Direct conversion of Inland ENC's according to the Inland ECDIS standard out of the data warehouse;
- Installation of IALA beacons along the Danube.

The project partners have now applied for funding by the European Commission within the appropriate programmes of the EU.

12. *Mr. W. Stuckart (Federal Ministry of Transport, Innovation and Technology, Austria)* presented state-of-the-art practical satellite navigation in Austria which, in his view, is a helpful tool to make full use of electronic navigation charts.

He pointed out in particular that, although the GPS position accuracy has recently improved to better than 10 m, which appears to be a reasonable value for river information services, the positions can only be considered as indicative, because there is no possibility of realtime evaluation of the position quality if there is no integrity monitoring in place. The use of the differential correction data (DGPS) in

combination with an integrity monitoring system provides not only for a higher position accuracy (usually better than one meter) but also for the data on the position reliability.

The speaker informed the participants of the project which is under way in Austria, concerning the use of the so-called non-directional radio beacons (NDBs) operated by the Austrian air traffic control agency for transmission of DGPS data. The project is based on the concept developed by the International Association of Lighthouse Authorities (IALA) providing for the transmission of DGPS data via the existing maritime radio beacons designed for radio direction finding applications.

13. *Mr. Michael Kelly (Project Manager of EurEauWeb™, United Kingdom)* said that the EurEauWeb™ is a 3.5 year, European Commission supported project which is to provide users of Europe's inland waterways with precise and up-to-date tourist and leisure related information, at home, in the office and on or beside the water. The product is being designed to run on both PCs and hand-held devices such as PDAs (Personal Digital Assistants) using state-of-the-art mobile communications, satellite positioning, digital mapping and challenging internet databases. Information will be delivered according to pre-defined user profiles and requirements, for users such as boat owners, boat hirers, hire boat companies, anglers, ramblers and cyclists. The project (which started in March 2002) has participants from France, Germany, Italy, Ireland, the Netherlands, Portugal, Spain, and the United Kingdom. The speaker stated that the project was unaware of the systems and standards for inland waterway navigation and information provision presented at the Workshop, but which the project should now seriously take into account. He stressed that the seminar had provided information that would be very useful in the future development of the project, and that the project looks forward to maintaining contact with the people, ideas, systems and standards encountered at the Workshop. He further said that anyone requiring further information should contact him by E-mail at eeew@consultancym.com.

14. *Mr. Vasiliy Mardasov (Ukrainian Danube Shipping Co., Ukraine)* spoke in favour of the earliest possible development and use on the Danube of electronic navigational charts with a view to ensuring the safety of navigation for both inland navigation vessels and sea ships coming to the Danube from the Black Sea. Speaking of the common Romanian-Moldavian-Ukrainian section of the lower Danube, the speaker said that close cooperation between relevant agencies of all the riparian States concerned was needed for the proper preparation and production of electronic charts covering this important section of the international river. In his view, this task cannot be achieved without State support.

15. *Mr. Alexandre Shevliaguin (Volgo-Baltic State Basin Department of Inland Waterways and Navigation, Russian Federation)* said that the Volgo-Baltic State Basin Department (SBD) is one of the 16 SBDs responsible for the management of the whole inland navigation network of the Russian Federation. He informed the participants, in particular, that for some time the Volgo-Baltic SBD has been responsible for the elaboration of atlases for all the inland waterways of the Russian Federation. Altogether 200 atlases of inland waterways have been developed. Currently, the Volgo-Baltic SBD is busy with the digitalizing of existing paper charts for Russian inland waterways in cooperation with private firms. The speaker pointed out that, in his opinion, the electronic chart should first of all be as informative as possible, i.e. the data available on the paper chart should, in principle, be fully available

also electronically. In this connection, he found it very desirable that all the specific river signalization and marking objects should finally be officially introduced into the IHO standard S-52.

Main findings

16. The Workshop took note that the latest version of Inland ECDIS as adopted by CCNR and UNECE (resolution No.48, document TRANS/SC.3/156), and approved by the Danube Commission, is based on IMO/IHO/IEC standards at their latest 1996 version with some additions and supplements warranted by the specific needs of inland waterway navigation. These additional provisions are reflected in appendixes to Sections 2, 3 and 4 of the Inland ECDIS system.

17. It was noted also that the inland waterway-related provisions supplementing standards set up in IHO special publications S-52 and S-57 have been made known to IHO, although they have not been introduced into the standards and, therefore, cannot be identified by ECDIS products installed on board sea ships and built in full compliance with 1996 IHO standards.

18. It was felt that particular problems might, therefore, be equally encountered by sea-river vessels that are able to operate in both coastal sea and inland waterways. The problem is complicated by the fact that so far, waterway signs and markings used on inland waterways of different member countries of UNECE (especially those used on inland waterways of ex-USSR) still differ to some extent from the signs and markings recommended in the European Code for Inland Waterways (CEVNI), and their coding, in accordance with the CCNR/UNECE Inland ECDIS, may represent an additional problem.

19. It was equally felt that cartographic activities, including the production of electronic charts, should be monitored and supervised by relevant State competent authorities in order to avoid possible incompatibility of standards agreed internationally and ensure safety of navigation.

20. Given the ever increasing role of inland waterway transport and, in particular, transport by short sea and sea-river vessels for the sustainable development of the whole European transport system, emphasized in particular by the Pan-European Conference on Inland Water Transport (Rotterdam, 5-6 September 2001) and by the European Conference of Ministers of Transport (Bucharest, May 2002), the Workshop believed that the Inland ECDIS Standard used throughout the European continent should be as unified as possible. It was felt, therefore, that any unilateral actions and/or actions taken within narrow groups of experts with restricted participation might lead to diversification of the agreed Inland ECDIS Standard and should, therefore, be avoided with a view to facilitating transport by inland waterways through the use of one and the same standard rather than raising new obstacles to it. In this connection, the participants welcomed the statement by the CCNR representative, Mr. A. Bour, that all CCNR meetings dealing with consideration and updating of Inland ECDIS standard would be open for attendance by experts of all interested UNECE member countries.

21. The Workshop called upon its participants, if possible, to take an active part in the forthcoming meetings, i.e. (i) CCNR Meeting of Experts on RIS Services (Strasbourg, 9 and 10 October 2002) and (ii) Danube Commission GIS Forum due to be held in Budapest on 30 and 31 October 2002.

22. In case where, as a result of further work on the Inland ECDIS system, it is found within UNECE that the standard should be updated or supplemented with new provisions additional to the existing IMO/IHO/IEC standards, any internationally agreed proposals on amendments to those standards should be sought to be officially included into such standards before being approved for application. Nevertheless, the development of additional services for inland navigation within the framework of the River Information Services (RIS) shall proceed freely and without formal or procedural restrictions.

23. Questions relating to the use of the Automatic Identification System (AIS), in conjunction with the Inland ECDIS, were also touched upon and it was found desirable that the AIS standards should be unified as early as possible on the basis of the IMO resolution.

Concluding remarks

24. Participants from Austria, the Netherlands and the Russian Federation (TRANSAS), agreed to exchange via E-Mail sample S-57 data of Austrian, Dutch and Russian inland waterways in order to test the present status of compatibility of the existing systems.

25. The Workshop participants expressed their profound gratitude to the River Fleet Service of the Russian Federation, to the Moscow River Shipping Co., to the Tourist Co. KMP GROUP and to the Captain and the crew of the m/v Nikolay Bauman for their hospitality and perfect organization of the meeting.

26. It was agreed to transmit these Minutes to the UNECE Working Party on Inland Water Transport, to the autumn plenary session of the CCNR and to the Danube Commission for information and possible follow-up action.
