ECONOMIC COMMISSION FOR EUROPE
INLAND TRANSPORT COMMITTEE
Working Party on Inland Water Transport
Geneva

INVENTORY OF MOST IMPORTANT BOTTLENECKS AND MISSING LINKS IN THE E WATERWAY NETWORK

Resolution No. 49

As rectified by Corrigendum 1

UNITED NATIONS
NEW YORK AND GENEVA, 2005
INVENTORY OF MOST IMPORTANT BOTTLENECKS AND MISSING LINKS IN THE E WATERWAY NETWORK

Resolution No. 49

(adopted by the Working Party on Inland Water Transport on 24 October 2002)

The Working Party on Inland Water Transport,

Recalling the European Agreement on Main Inland Waterways of International Importance (AGN) and the Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC),

Bearing in mind the overall objective to develop an efficient, balanced and flexible transport system which meets the economic, social, environmental and safety requirements of ECE member Governments,

Being aware at the same time of the present unsatisfactory state of the European inland waterway infrastructure due mainly to the somewhat fragmentary nature of the E waterway network and limited reliability of traffic on some of its sections which represents a major obstacle to further development of this mode of transport on the continent,

Referring to the resolution of the Inland Transport Committee No. 250 on the Promotion of Inland Water Transport (ECE/TRANS/139, annex 2),

Endeavouring to give an impetus to the improvement of the network of inland waterways of international importance, in particular, by drawing the attention of Governments and international institutions concerned to its most important bottlenecks and missing links,

1. Endorses the Inventory of Most Important Bottlenecks and Missing Links in the E Waterway Network as set out in the annex to this resolution,

2. Invites Governments to inform the Executive Secretary of the Economic Commission for Europe of any progress in the elimination of the bottlenecks and completion of missing links relating to their respective inland waterways,

3. Requests the Executive Secretary to place this item periodically on the agenda of the Working Party on Inland Water Transport with a view to monitoring the progress in the elimination of the bottlenecks and completion of missing links in the E waterway network and revising the Inventory whenever necessary.
Annex

THE INVENTORY OF MOST IMPORTANT BOTTLENECKS AND MISSING LINKS IN THE E WATERWAY NETWORK

I. INTRODUCTION

1. The European Agreement on Main Inland Waterways of International Importance (AGN) in its annex III stipulates the requirements for the classification of E waterways. In total 27,711 km of European inland waterways have been earmarked by Governments as E waterways. The above length excludes the double counting of sections on which two or more E waterways overlap. The breakdown by classes of inland waterways of international importance may be summarized in the table below.

<table>
<thead>
<tr>
<th>Classification of E waterways</th>
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<tbody>
<tr>
<td>Missing links</td>
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<td>Length (km)</td>
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<td>%</td>
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2. In accordance with the AGN Agreement only waterways meeting the basic minimum requirements of class IV (minimum dimensions of vessels 80.0 m x 9.5 m) can be considered as E waterways. The Agreement recommends that the new E waterways to be built (for the completion of missing links) should meet at least the requirements of class Vb, while the waterways to be modernized should meet the requirements of at least class Va.

3. In the course of its work on the draft AGN the Working Party on Inland Water Transport endorsed the following definitions of "bottlenecks" and "missing links" in the inland navigation network, elaborated by the ad hoc Group of Experts on Inland Waterway Infrastructure:

"Those sections of the European waterway network of international importance that have parameter values being substantially lower than target requirements are called bottlenecks.

There are two kinds of bottlenecks:
"Basic bottlenecks" are the sections of E waterways whose parameters at the present time are not in conformity with the requirements applicable to inland waterways of international importance in accordance with the new classification of European inland waterways (class IV);

"Strategic bottlenecks" are other sections satisfying the basic requirements of class IV but which, nevertheless, ought to be modernized in order to improve the structure of the network or to increase the economic capacity of inland navigation traffic.

"Missing links" are such parts of the future network of inland waterways of international importance which do not exist at present.

The basic condition for the completion of bottlenecks and elimination of missing links is the positive result of economic evaluation".

II. MOST IMPORTANT BOTTLENECKS AND MISSING LINKS IN THE E WATERWAY NETWORK

**Austria**

**Missing link:**
- Danube-Oder-Elbe Connection (E 20).

**Strategic bottlenecks:**
- Danube (E 80) from 2,038.0 to 2,008.0 km and from 1,921.0 to 1,873.0 km - low fairway depth (in some locations down to 2.20 m).

**Belarus**

**Strategic bottlenecks:**
- Mukhovets (E 40) from Brest to Kobrin - low maximum draught (1.6 m).
- Dneprovsko-Bugskiy Canal (E 40) from Kobrin to Pererub - low maximum draught (1.6 m).
- Pina (E 40) from Pererub to Pinsk - low maximum draught (1.6 m).
- Pripyat (E 40) from Stakhovo to Pkhov - low maximum draught (1.3 m).
- Pripyat (E 40) from Pkhov to Belarus/Ukrainian State boarder - low maximum draught (1.5 m).
Belgium

Missing links:
- Meuse-Rhine link.\(^1\)
- Maldegem - Zeebrugge (E 07).

Basic bottlenecks:
- Kanaal Bocholt - Herentals (E 01-01), Bocholt - Dessel section.
- Zuid - Willemsvaart (E 01-01), section Bocholt - Belgium/Netherlands border.
- Gent - Oostende Canal (E 02), Brugge - Beernem section.
- Harelbeka-Halluin lock (E 02) - upgrading from class II to class IV.\(^2\)
- Charleroi - Bruxelles Canal (E 04), Lembeek - Bruxelles section (upgrading the height under bridges and improvement of the waterway is required).
- Bossuit - Kortrijk Canal (E 05-01), Zwevegem - Kortrijk section.
- Dender (E 05-04), Aalst - Dendermonde section.\(^3\)
- Canal de Lanaye (E 01) building of a class VIb lock.\(^4\)

Strategic bottlenecks
- Meuse (E 01) from Pont d’Ougrée to Liège - upgrading from class Vb to class VIb is envisaged.
- Lys Mitoyenne-Lys (Menin-Deinze section) and Lys Derivation Canal up to Schipdonk (E 02) - upgrading from class IV to class Vb is envisaged within the Seine-Escaut Link project.
- Bruxelles - Schelde (E 04) - upgrading from class V to class VIb envisaged.
- Albertkanaal (E 05), Wijnegem passage and section Kanne-Liège - upgrading from class Vb to class VIb is envisaged.

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\(^1\) For the time being this link is not mentioned in the AGN Agreement and its inclusion into this Inventory has been suggested by the Government of Belgium.
\(^2\) Project is under way.
\(^3\) The Government of Belgium informed the secretariat that according to the Flemish Region E 05-04 should be limited to the Bovenzeeschelde - Aalst section and should not include the rest of the Dender and the Blaton - Ath Canal as provided for in the AGN Agreement.
\(^4\) The project is under study.
Bulgaria

Strategic bottlenecks:

- Danube from 845.5 to 375 km – low fairway depth at dry seasons (below 2.50 m - value recommended by the Danube Commission) at several critical sections i.e.
  from 845.5 to 610 km, with fairway depth limited to 2.10-2.20 m for 10-15 days a year;
  from 610 to 375 km with fairway depth limited to 1.80-2.00 m for 20-40 days a year.

Croatia

Missing link:

- Danube - Sava Canal (E 80-10) from Vucovar to Samac.

Basic bottlenecks:

- Sava (E 80-12) from Yugoslav/Croatian State border to Sisak - upgrading from class III to class Vb is required.

Czech Republic

Missing link:

- Danube - Oder - Elbe Connection (E 20 and E 30).

Strategic bottlenecks:

- Elbe (E 20) from State border to Usti nad Labem - low fairway depth at dry seasons (0.9-2.0 m), from Usti nad Labem to Melnik - narrow width of lock gates (11 m), from Melnik to Pardubice – construction of one lock is needed, low height under bridges (3.7 m).

France

Missing links:

- Rhône - Rhine Canal (E 10).
- Seine - Moselle Link (E 80).
- Seine - Escaut Link (E 05).
- Saône - Moselle Link (E 10-02).

\[5\] The secretariat has been informed by the Government of France that the project had been abandoned.
Basic bottlenecks

- Meuse (E 01-02) between Givet and the Belgian border - upgrading to class IV.

Strategic bottlenecks:

- Rhine (E 10) from Iffezheim to Niffer - length of convoys is limited by 183 m, upgrading to class VIb (186.5 m).\(^6\)

- Oise (E 80) from Conflans to Creil - low height under bridges (5.18 m), from Creil to Compiègne low draught and height under bridges (2.50 m and 5.76 m, respectively).

- Moselle (E 80) from Toul to Apach - upgrading of maximum draught from 2.50 m to 2.80 m.\(^2\)

- Moselle (E 80) - lifting of bridges between Metz and Apach enabling 3-layer container transport.

- Network Nord Pas-de-Calais (E 02 and E 05) - lifting of bridges and upgrading of links with Belgium to class Va.

- Oise (E 80) increasing the water draught up to 3.5m between Creil and Conflans - Sainte-Honorine.

Germany

Missing links:

- Link between the Mittellandkanal and the Elbe - Havel - Kanal ("Magdeburg Waterways Crossroads") (E 70).\(^3\)

Basic bottlenecks:

- Mittellandkanal (E 70) - sections which have not yet been modernized are to be upgraded to class Vb.\(^9\)

- Elbe - Havel - Kanal (E 70) - upgrading to class Vb.\(^10\)

- Untere - Havel - Wasserstraße (E 70) from Plaue to Spree - upgrading to class Vb.\(^11\)

- Berlin region waterways (various sections) upgrading to class IV and higher classes.\(^12\)

\(^6\) Project is under way.
\(^2\) Project is under way.
\(^3\) Project is under way.
\(^9\) Project is under way.
\(^10\) Project is under way.
\(^11\) Project is under way.
\(^12\) Project is under way.
- Havel - Oder - Wasserstraße (E 70) - upgrading to class Va.\textsuperscript{13/}

**Strategic bottlenecks:**

- Rhine (E 10) - low fairway depth at dry seasons: downstream from Duisburg - 2.50 m and from St. Goar to Mainz - 1.90 m.
- Elbe (E 20) - low fairway depth at dry seasons (1.40 m) upstream from Lauenburg to the German-Czech border.
- Mosel (E 80) – construction of second lock chambers.\textsuperscript{14/}
- Main (E 80) upstream from Lengfurt - low fairway depth (2.5 m).
- Danube (E 80) from Straubing to Vilshofen - low fairway depth (1.55 m).

**Hungary**

**Strategic bottlenecks:**

- Danube (E 80) joint Slovak - Hungarian section from Sap (1,810.0 km) to 1,708.2 km - low maximum draught at dry seasons (1.70 m) and height under bridges: road bridge Medved’ov (1,806.35 km) – 8.85 m; railway bridge Komarno (1,770.4 km) – 8.10-8.15 m; road bridge Komarno (1,767.8 km) – 7.75 m. Upgrading to 2.50 m and 9.10 m, respectively is required.
- Danube (E 80), the section from 1,708.2 km to Budapest (1,652.0 km) - low maximum draught (1.50 - 1.70 m) and height under the railway bridge Ujpest (1,654.5 km) – 7.66m. Upgrading to 2.50 m and 9.10 m, respectively is required.

**Netherlands**

**Basic bottlenecks:**

- Zuid-Willemsvaart up to Veghel (E 70-03) - upgrading to class IV.\textsuperscript{15/}

**Strategic bottlenecks:**

- IJssel (E 70) from Arnhem to Zutphen - upgrading to class Va is envisaged.
- Upgrading of the Zwartsluis at Meppel-Ramspol (E 12-02).\textsuperscript{16/}

\textsuperscript{12/} Project is under way.
\textsuperscript{13/} Project is under way.
\textsuperscript{14/} Project is under way.
\textsuperscript{15/} Project is under study and is expected to be carried out after 2006.
\textsuperscript{16/} Project is under study.
Annex

- Upgrading the Lemmer-Delfzijl section (E 15) to class Va enabling at least 3-layer container transport.\(^{17}\)
- Twente Canal (E 70) - upgrading to class Vа\(^{18}\) and increasing the capacity of the Eefde Lock.\(^{19}\)
- Lekkanaal\(^{20}\) - upgrading of the Beatrix Lock.
- Maas (E 01) - upgrading to class Vb enabling 4-layer container transport.\(^{21}\)
- E 06 waterway - increasing the capacity of the Kreekrak Locks.\(^{22}\)
- E 03 waterway - increasing the capacity of the Volkerak Locks \(^{23}\) and Terneuzen Locks \(^{24}\).

Poland

Missing links:

- Danube - Oder - Elbe Connection (E 30).

Basic bottlenecks:

- Oder (E 30) from Widuchova to Kozle - upgrading from classes II and III to class Vb is required.
- Glivice Canal (E 30-01) - upgrading from class III to class Vb is required.
- Wisla (E 40) from Biala Gora to Wloclawek and from Plock to Warszawa - upgrading from classes I and II to class Vb is required.
- Zeran Canal (E 40) from Zeran to Zegrze Lake - upgrading from class III to class Vb is required.
- Bug (E 40) from Zegrze Lake to Brest - upgrading to class Vb is required.
- Warta - Notec - Bydgoski Canal (E 70) from Kostrzyn to Bydgoszcz - upgrading from class II to class Vb is required.

\(^{17}\) Project is under study.
\(^{18}\) Project is under way.
\(^{19}\) Project is expected to be carried out after 2010.
\(^{20}\) For the time being this waterway is not mentioned in the AGN Agreement. Pending possible amendment of the AGN, the project is added provisionally to the list.
\(^{21}\) The project is under study and is expected to be carried out in 2005-2019.
\(^{22}\) Realization of the project is conditional upon agreement between the Governments of the Netherlands and Belgium.
\(^{23}\) The project is expected to be carried out after 2010.
\(^{24}\) Realization of the project is conditional upon agreement between the Governments of the Netherlands and Belgium.
- Wisla (E 70) from Bydgoszcz to Biala Gora - upgrading from class II to class Vb is required.
- Szkarpawa (E 70) from Gdanska Glova to Elblag - upgrading from class III to class Vb is required.

**Strategic bottlenecks:**
- Oder (E 30) from Szczecin to Widuchova - upgrading from class IV to class Vb is expected.

**Republic of Moldova**

**Basic bottlenecks:**
- Prut (E 80-07) from the mouth to Branest - upgrading to class Va is required.
- Nistru (E 90-03) from Ukraine/Moldova State border to Bender - upgrading from class III to class Va is required.

**Romania**

**Missing links:**
- Danube - Bucuresti Canal (E 80-05).
- Olt up to Slatina (E 80-03).

**Basic bottlenecks:**
- Prut (E 80-07) from the mouth to Ungheni.
- Canal Bega (E 80-01-02) up to Timisoara.

**Strategic bottlenecks:**
- Danube (E 80) from 863 to 175 km – low fairway depth at dry seasons (below 2.50 m - value recommended by the Danube Commission) at several critical sections, i.e.
  - from 863 to 845.5 km, with fairway depth limited to 2.20-2.30 m for 7-15 days a year;
  - from 845.5 to 610 km, with fairway depth limited to 2.10-2.20 m for 10-15 days a year;
  - from 610 to 375 km, with fairway depth limited to 1.80-2.00 m for 20-40 days a year;
  - from 375 to 300 km, with fairway depth limited to 1.60-2.20 m for 30-70 days a year;
  - from 300 to 175 km, with fairway depth limited to 1.90-2.10 m for 15-30 days a year;
Danube (E 80) from 170 km to the Black Sea - low fairway depth at dry seasons (below 7.30 m - value recommended by the Danube Commission) at several critical points, i.e. at 73, 57, 47, 41 and 37 nautical miles and on the Sulina arm at the mouth of the Sulina Canal where it meets the Black Sea, where the fairway depth is limited to 6.90-7.00 m for 10-20 days a year.

**Russian Federation**

**Strategic bottlenecks:**

- Don (E 90) from Kalach to Azov - low water depth (3.40 m) at sill of the Kochetov Lock (162.0 km). The construction of a second parallel lock is envisaged with a depth at sill of 4.00 m.

- Volga (E 50) low water depth at sill of the Gorodetski Lock (850.0 km). Due to the lowering during recent years of the level of the lower pond of the Gorodetski Lock by 90 cm the water depth at sill of 3.50 m can only be ensured for 2-3 hours a day. Study is currently under way aimed at step-by-step improvement of navigational conditions on the lower pond.

**Serbia and Montenegro**

**Strategic bottlenecks:**

- Danube (E 80) from 863 to 845.5 km – low fairway depth at dry seasons (below 2.50 m - value recommended by the Danube Commission) with fairway depth limited to 2.20-2.30 m for 7-15 days a year.

**Slovakia**

**Missing links:**

- Danube - Oder - Elbe Connection (E 20 and E 30).

- Vah - Oder Link (E 81).

**Basic bottlenecks:**

- Vah (E 81) from Sered'/Hlohovec (75.0 km) to ilina (250.0 km) – insufficient fairway depth. Canalization of the river and its upgrading from class III to class VIa in conjunction with the construction of new locks, and reconstruction of existing locks, are required.

**Strategic bottlenecks:**

- Danube (E 80) from Devin (1,880.26 km) to Bratislava (1,867.0 km - upgrading from class VIIb to class VIIc when going downstream.
- Danube (E 80) from Devin (1,880.26 km) to Děvinská Nová Ves (Morava (E 30), 6.0 km) - upgrading to class Vb.

- Danube (E 80) – insufficient height under bridges: at Bratislava (1,868.14 km) - 7.59 m, at locks of the Gabcikovo Hydro Electrical Complex (1,826.55 km and 1,819.3 km) - 8.90 m. Upgrading is required up to 9.10 m.

- Danube (E 80) from Sap (1,810.0 km) to the mouth of the Ipel River (1,708.2 km) - insufficient depth of the fairway at low water level and insufficient height under bridges.

Ukraine

Basic bottlenecks:

- Dnestr (E 90-03) from Belgorod Dnestrovsky to Ukraine/Moldova border - upgrading from class III to class Vb is required.