Danube Regional Project

Workshop on Identification and Designation of Heavily Modified Water Bodies in the Danube River Basin

9-10 February 2004, Bucharest, Romania

Summary of Workshop

Institute for International and European Environmental Policy
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1 Aims of the workshop

Representatives of the Danube Basin countries including members of the River Basin Management Expert Group (RBM EG) of the International Commission for the Protection of the Danube River (ICPDR), as well as invited international speakers came together for the international workshop on "Identification and Designation of heavily modified water bodies (HMWB) in the Danube River Basin (DRB) on 9-10 February 2004 in Bucharest (the participants' list is available in Annex II).

The main aims of the workshop were to:

- share their experience with the EU Guidance Document on HMWB & AWB\(^1\) and exchange information on national approaches, steps taken and status of the provisional identification of HMWB in the DRB,
- discuss and clarify possible technical criteria for provisionally identifying HMWB and to briefly discuss the designation of HMWB,
- agree on the content of the HMWB chapter of the roof report\(^2\) and on a procedure for data and information delivery to the consultants and the ICPDR Secretariat.

In this context, the international workshop was part of the activities to assist the ICPDR and the thirteen basin countries in applying the EU CIS guidance document on HMWB to the Danube River Basin (DRB). The main focus of the workshop was the provisional identification of HMWB (see steps of this process in Figure 1) in the international DRB as part of the characterisation of the river basin district to be completed at the latest by the end of 2004. The designation of HMWB, which is required after 2004, was only briefly discussed at this workshop.

The identification and designation process of heavily modified and artificial water bodies (HMWB and AWB), which consists of 11 steps, is described in detail in the CIS Guidance Document on HMWB and AWB.\(^3\)

In advance of the workshop, Ecologic prepared and circulated to all participants a background note presenting the aims of the workshop with regard to the steps of the identification and designation process for HMWB in the Danube Basin and with regard to main issues of discussion on the roof report. This background note can be downloaded from the UNDP-GEF website (http://www.icpdr.org/undp-drp/).

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\(^2\) The roof report is part of the 2004/2005 report to on the Danube River Basin to the European Commission. The 2004/5 report to the Danube River Basin consists of two parts: Part A is the roof report with information of basin-wide importance and part B consists of the national reports.

2. Results and discussions of the workshop

The following paragraphs summarise the main discussions and results of the four sessions of the workshop. The agenda of the workshop gives information on the individual presentations and speakers (available in Annex I and also on the UNDP-GEF website (http://www.icpdr.org/undp-drp/)).

2.1 Session 1: Setting the scene

Chair: Ivan Zavadsky

This introductory session served to present the objectives of the workshop as well as the main issues of the identification and designation process of HMWB and AWB according to the EU Guidance Document to the participants of the workshop. Specific attention and explanation was given on two steps of the process:

- **Step 2** which concerns the differentiation of artificial water bodies (AWB) and HMWB. According to the narrow definition of AWB in the CIS Guidance Document, an AWB is defined as a surface water body which has been created in a location where no significant surface water existed before and which has not been created by the direct physical alteration of an existing water body or movement or realignment of an existing water body.
AWB: Examples of AWB include canals constructed for navigation, drainage channels for irrigation, man-made ponds and dug ponds, harbours and docks, constructed dredging pools, gravel pits, surface mining lakes, storage reservoir for peak demand hydropower production or waters that are directed to the reservoir via diversions, and water bodies created by ancient human activities.

Not AWB: A water body that has changed category as a result of physical modifications is not an AWB, it is considered to be a HMWB (e.g. creation of a reservoir due to the damming of a river). Water bodies that have been moved or realigned, for example a realigned river going through a newly developed channel on previously dry land are HMWB and not AWB.

In the relevant discussions in the Danube Basin, it was concluded that the narrow definition of AWB should be applied. However, if countries use other criteria for the definition of AWB, their approaches should be well-grounded and justified in their national reports to ensure transparency.

- **Step 6** which concerns the substantial change in character of water bodies due to physical alterations. According to the EU Guidance Document on HMWB, a “substantial change in character” is the pre-condition for HMWB provisional identification and it should be widespread, permanent and affecting both hydrological and morphological characteristics.

To prepare the ground for subsequent discussions on the hydromorphological status of the Danube River, relevant historical and current information and data on the hydromorphology of the Danube were presented.

### 2.2 Session 2: Until 2004: Progress on HMWB identification

**Chairs: Ulrich Irmer, Petru Serban**

**Hydromorphological Conditions**

In this session, the results of recent work completed for the UNDP-GEF Danube Regional Project on hydromorphological drivers, pressures and impacts along the Danube River were presented. This is part of a recently completed report (12/2003) on Activity 1.1.2 “Adapting and implementing common approaches and methodologies for stress and impact analysis with particular attention to hydromorphological conditions”. The stress and impact analysis for hydromorphological conditions is relevant to steps 4 and 5 of the HMWB provisional identification process.

Three countries (A, D, RO) have already defined threshold values for assessing potentially significant pressures and impacts of hydromorphological changes. The three approaches, although different in some aspects, are rather similar. At the workshop, the three approaches as well as an approach developed by the consultants within the specific UNDP-GEF activity were discussed in more detail:

- **A**: criteria for defining significant pressures and criteria for risk assessment (impact) (steps 4 and 5 of the HMWB provisional identification),
- **D**: criteria for selected parameters (step 4 of the HMWB provisional identification),

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4 Sommerhäuser M., Robert S., Birk S., Hering D., Moog O., Stubauer I. and T. Ofenböck (2003), Activity 1.1.2 “Adapting and implementing common approaches and methodologies for stress and impact analysis with particular attention to hydromorphological conditions”, Activity 1.1.6 “Developing the typology of surface waters and defining the relevant reference conditions” and Activity 1.1.7 “Implementing ecological status assessment in line with requirements of EU Water Framework Directive using specific bio-indicators”, UNDP-GEF Regional Danube Project, December 2003. This is a Draft Report, not yet available for download on the UNDP-GEF website.
• RO: criteria for risk assessment (steps 5 of the HMWB provisional identification),
• UNDP-GEF consultants: criteria for risk assessment (steps 4 and 5 of the HMWB provisional identification).

Other issues related to the pressures and impacts assessment and data delivery for the roof report were also discussed. These issues do not serve as a direct input to the HMWB/AWB chapter of the roof report, but they are here presented as important conclusions of the HMWB workshop.

Namely, it was concluded that an agreement is needed on some relevant aspects of the pressures and impacts assessment (linked to hydromorphological changes). According to the discussions at the HMWB workshop, the existing map of hydraulic structures should be checked and reviewed by the countries. Relevant issues from the discussions are the following:

• The plans of the Trans-European networks as well as the range of backwaters could be included in the chapter on the estimation of the risk of failure to reach the objectives.
• It should be discussed whether the criteria used for the hydraulic structures map are appropriate for the needs of the roof report.
• Additional information is needed on rivers of the Danube River Basin District (DRBD) overview map that are not on the map on hydraulic structures of the Danube Pollution Reduction Programme.

National approaches on the identification of HMWB in the Danube Basin

Speakers from the individual Basin countries gave presentations on the experience made with the HMWB provisional identification in the Danube Basin so far. Relevant issues in this session were:

• Progress made with HMWB provisional identification so far in the Danube countries,
• Specific difficulties encountered in the process,
• Experiences made with the use of the EU CIS Guidance on HMWB,
• Use of any specific approaches for the HMWB provisional identification process.

Six main presentations included information on specific case study and pilot areas for the provisional identification of HMWB as presented in the workshop agenda (Germany (2 presentations), Austria, Romania, Slovak Republic and Serbia-Montenegro).

More presentations were given on a round table of the following countries: Croatia, Hungary, Slovenia, Bulgaria, Czech Republic (written message) and Moldova.

The discussions following the national presentations showed that:

• The Basin countries have made different progress with the steps of the HMWB provisional identification mainly concerning water body identification and scaling, risk assessment and decision on HMWB provisional identification.
• Problems were relevant to data (especially biological) and financial resources.
• Some countries are following the EU Guidance Document approach.
• There are differences in the approaches used by the Basin countries. Differences exist even between Austria and Germany (e.g. Austria already uses biological assessment), and between the two federal states of Germany in the Danube Basin (Bavaria and Baden-Württemberg).
Lessons from other European river basins on the identification of HMWB

Two cases for HMWB provisional identification were presented from other European river basins: one from the Rhine Basin and one from the Ruhr Basin. The presentation on the Rhine Basin also included the results of a workshop on HMWB in the Rhine Basin (3 April 2003, Bonn/Germany), which led to an agreement of the Rhine Basin countries on some main issues of the HMWB provisional identification. The presentation on the Ruhr Basin focused on issues related to water supply and urbanisation.

Discussion on criteria for HMWB provisional identification in the context of the Roof Report

It was again made explicit that given the international character of the Danube River Basin, the 2004/2005 report to the European Commission consists of two parts:

- Part A consists of a roof report with information of basin-wide importance. The roof report and the DRB overview map will include rivers with catchments > 4,000 km², lakes with an area >100 km² as well as the main canals.
- Part B of the 2004/2005 report consists of the national reports.

The initial discussions on specific criteria for provisional identification of HMWB showed that Basin countries (even federal States in Germany) that already use specific approaches, e.g. for risk assessment like Austria, Germany and Romania, will not change them for the purpose of the roof report. However, it was concluded that Basin countries, which have not developed their own approaches yet, could consider to apply approaches of other countries which seem pragmatic for their own situation (e.g. the approach of Romania) or the UNDP-GEF consultants approach on “assessment of significant hydromorphological changes”. Such elaborate approaches and methodologies should be applied and explained in the national reports (part B of the 2004/5 report) but they are not relevant for the roof report.

Due to the differences in national approaches and the tight time-schedule for data delivery on HMWB for the roof report, it was concluded that a pragmatic approach on choosing HMWB to be included in the roof report is needed. The discussions of this session led to the proposed criteria to select HMWB and AWB for the roof report. These criteria were also discussed and agreed on in the final session of the workshop (see session 4).

2.3 Session 3: Beyond 2004: Designation of HMWB

Chair: Wenke Hansen

This session dealt with issues of the designation of HMWB and AWB which follows the provisional identification, and therefore is required after 2004. The designation tests were reviewed and some practical examples for designation decisions were presented drawing examples from selected uses (urban areas, navigation, flood protection). Additionally, it was clarified in which stages of the HMWB designation process economics are relevant. It was mainly emphasised that the designation procedure and the economic assessment methods must be proportionate to the circumstances and pragmatic. Economic assessment methods for HMWB should also be considered in combination with the set of measures for the river basin management plans to avoid duplication of work. Therefore, it is important to start considering HMWB designation and the related issues, which are required by the end of 2008, as soon as possible after 2004.

2.4 Session 4: Conclusions on HMWB in the Roof Report

Chair: Friedrich Barth
2.4.1 CHOOSING HMWB AND AWB FOR THE ROOF REPORT

The roof report deals with the following surface water bodies (see also the Danube River Basin District (DRBD) overview map):

- the Danube River,
- all rivers with a catchment size of at least 4 000 km²,
- all lakes with an area of at least 100 km²,
- the main canals (which have already been selected).

The AWB to be included in the roof report have already been selected and these are the:

- Danube-Tisza-Danube Canal System,
- Danube-Black Sea Canal,
- Rhine-Main-Danube Canal.

Four (4) criteria were selected for choosing HMWB for the roof report. The selection of the four criteria were based on the technical discussions during the workshop on the individual steps of the HMWB provisional identification process. The four criteria allow all DRB countries to deliver information on their most important HMWBs, even though they have not finalised their HMWB provisional identification process or identified their water bodies.

The four criteria are the following:

1. Size of water stretches should be > 50 km (a minimum of 70% of the stretch should show significant physical alterations and hydromorphological impacts, i.e. it should be HMWB), and

2. One or more of the following main uses should be present: hydropower, navigation, flood protection, urbanisation, and

3. One or more of the following significant physical alterations (pressures) should be present: dams/weirs, channelisation/straightening, bank reinforcement/fixation, and

4. By expert judgement, it must have been concluded that the stretch is at risk of failing to achieve the Good Ecological Status (GES). For the expert judgement, the following criteria should be utilised:
   - Not passable obstacles (weirs/dams) for migratory species,
   - change of water category (e.g. change of river to dammed reservoir),
   - impoundment with significant reduction of water flow,
   - disruption of lateral connectivity,
   - and others (needs to be specified).

These expert judgements allow to choose the very obvious provisional HMWB stretches.

Ad 1) Regarding the first criterion on size, it is noted that such a stretch may also include more than one physical alteration with a significant impact on hydromorphology. For example, a chain of consequent hydropower plants or weirs over a stretch of more than 50 km may also come into question.

Ad 3) Regarding the third criterion, it will be up to the individual countries to assess if these physical alterations are significant or not, based on their national approaches and as reported in their national reports (part B of the 2004/5 report).

If all the above four criteria (1-4) are met, then the chosen stretches are:

- provisionally identified HMWBs,
• “of basin wide importance”, and therefore
• relevant for the HMWB/AWB chapter of the roof report.

The discussions at the workshop showed that using this pragmatic approach (criteria 1-4), the most important HMWB stretches in the Danube Basin would be included in the roof report.

2.4.2 CONTENT OF THE HMWB/AWB CHAPTER OF THE ROOF REPORT AND INFORMATION DELIVERY

The HMWB/AWB chapter of the roof report will have a length of 5-10 pages. The participants of the workshop agreed that the content of HMWB/AWB in the roof report (Part A of the 2004/5 report) should consist of the following elements:

1. A map showing the position of the selected HMWB stretches (which meet the four criteria, see above), and the AWB (main canals of the DRBD overview map),
2. An overview table with information on the HMWB (which meet the four criteria, see above) and AWB, and
3. Some selected examples for which more information will be provided (1/2 - 1 page per case).

Ecologic will prepare two templates for data delivery. The first template will request information for the map and the overview table (elements 1 & 2). The second template will request information on the selected examples (element 3).

Template 1

Ad 1) For the preparation of the map and table on HMWB, the following geographical information is needed (the AWB of basin-wide importance have already been selected and are in the DRBD overview map):

• co-ordinates (start point - end point) - GIS data,
• river km (start point - end point),
• name of river (Danube or main tributary),
• description of location (e.g. close settlements),
• OR other maps in digital format (incl. state borders and main rivers).

Ad 2) For the preparation of the overview table on HMWB of the roof report, additionally to the data needed for preparing the map, the following information is needed (for each HMWB reported):

• Size (river length/area of lakes),
• Main uses: hydropower, navigation, flood protection, urbanisation,
• Significant physical alterations: dams/weirs, channelisation/straightening, bank reinforcement/fixation,
• Reasons for water at risk to reach GES (and some lines of description on expert judgement):
  • Not passable obstacles (weirs/dams) for migratory species,
  • change of water category (e.g. change of river to dammed reservoir),
  • impoundment with significant reduction of water flow,
disruption of lateral connectivity,
and others (needs to be specified).

For the preparation of the overview table on AWB of the roof report, the following information is needed (for each AWB reported):

- Size (river length/area of lakes),
- Main uses: hydropower, navigation, flood protection, urbanisation.

Template 2

Ad 3) Regarding the selected examples of HMWB and AWB, which will be described in the roof report, the workshop participants agreed that they should be the following:

- Iron Gate I and II (RO, CS),
- Gabčíkovo hydropower plant (SK, HU),
- upper Danube river stretch (D, A),
- Danube-Tisza-Danube Canal System (CS), which is an AWB,
- Rhine-Main-Danube Canal (D), which is an AWB,
- Danube-Black Sea Canal (RO), which is an AWB.

First suggestions for the information needed on these six selected examples are the following:

- Description of area and uses (geography, socio-economic conditions) (for both HMWB and AWB),
- Characteristics of the physical alterations and the significant hydromorphological changes (for HMWB) / Description of location before AWB was created, history of the creation and information on the construction of hydraulic structures (for AWB),
- Impacts of the significant physical alterations (e.g. long-range effects, effects on important migratory species) (for HMWB) / Impacts on biological, physico-chemical, hydromorphological status (with indication of the evaluation against the environmental objective/Good Ecological Potential, if already defined) (for AWB).

Typology and reference conditions for HMWB/AWB

It should be discussed whether and to what extent information and data on the typology and reference conditions should be additionally collected for the HMWB/AWB chapter of the roof report. Typology is not an issue specific to HMWB/AWB and relevant information will be collected in the context of the chapter on surface water body identification of the roof report. With regard to reference conditions, according to the EU Guidance on HMWB, provisional HMWB are assessed against Good Ecological Status (GES) for the 2004 requirements. Therefore relevant information will be collected in the context of the chapter on reference conditions for surface water bodies of the roof report. However, for AWB it should be assessed whether they risk achieving Good Ecological Potential (GEP) or not by 2004. However, as pointed out in the EU Guidance on HMWB the definition of GEP and Maximum Ecological Potential (MEP) by 2004 entails many difficulties. Therefore, the feasibility of delivering information on the reference condition for MEP for AWB by 31 March 2004 should be considered.
Transboundary cases

Regarding transboundary cases which are chosen for inclusion in the roof report, it is the responsibility of the countries sharing the respective stretches to start bi- or multilateral harmonisation straight away. There should not be inconsistent information delivered in the templates by different countries or between the roof report and the national reports. For the roof report, agreed information should be delivered in both templates (template 1 for overview table & map and template 2 for the selected examples).

Timetable

The timetable for preparing the HMWB/AWB chapter for the roof report in 2004 is as follows:

- Workshop to agree on the content of the roof report 9/10 February
- Workshop results presented to and decided upon by the RBM EG 26 February
- Circulation of 2 templates for data collection 27 February
- Delivery of (bilaterally harmonised) data by countries 31 March
- HMWB/AWB chapter by Ecologic 7 May
- ICPDR Standing WG meeting 16/17 September
- ICPDR Ordinary Meeting and Ministerial meeting 13/14 December
Annex I: Agenda
## Identification and designation of heavily modified water bodies (HMWB) in the Danube River Basin

**9-10 February 2004**  
Parc Hotel, 3-5 Poligrafiei Ave., 1st District, Bucharest, Romania

### Agenda

#### 9 February 2004

<table>
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<tr>
<th>Time</th>
<th>Session/Activity</th>
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<tr>
<td>8:45</td>
<td>Registration and Coffee</td>
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| 9:00  | **Welcome**  
*Florin Stadiu*, State Secretary in Ministry of Agriculture, Forests, Waters and the Environment |
| 9:10  | **Opening**  
*Ivan Zavadsky*, UNDP-GEF Danube Regional Project |
| 9:20  | **Session 1: Setting the scene**  
Chair: *Ivan Zavadsky* |
| 9:35  | **Objectives of the workshop**  
*Wenke Hansen*, Ecologic |
| 9:55  | **The EU CIS Guidance on HMWB**  
*Ulrich Irmer*, Federal Environment Agency, Germany |
| 10:10 | **The Danube River: Europe’s largest ‘near natural’ or ‘heavily modified’ river?**  
*Ilse Stubauer*, University of Natural Resources and Applied Life Sciences, Vienna |
| 10:10 | **Coffee Break** |
| 10:35 | **Session 2: Until 2004: Progress on HMWB identification**  
Chair: *Ulrich Irmer* |
| 10:35 | **HYDROMORPHOLOGICAL CONDITIONS**  
First ‘Im-Pressions’: Hydromorphological Drivers, Pressures and Impacts along the River Danube  
*Otto Moog and Ilse Stubauer*, University of Natural Resources and Applied Life Sciences, Vienna |
| 10:55 | **NATIONAL APPROACHES ON THE IDENTIFICATION OF HMWB IN THE DANUBE BASIN**  
Germany: cases from Bavaria/Altmühl-Paar and Baden-Württemberg  
*Joachim Schütter*, Bavarian Ministry of the Environment and *Klaus Kern*, River Consult |
| 11:15 | **Austria: Danube between Greifenstein and Vienna**  
*Robert Konecny*, Federal Environment Agency |
| 11:30 | **Romania: Iron Gate and other cases**  
*Petru Serban*, National Administration Romanian Waters |
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<th>Time</th>
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| 11:45 | Slovak Republic: Gabcikovo hydropower plant and the Morava River  
Pavel Hucko, Water Research Institute |
| 12:00 | Serbia and Montenegro: Iron Gate  
Marina Babic-Mladenovic, Jaroslav Cerni Institute for the Development of Water Resources |
| 12:15 | Round table: Short reports (5-10min) on the status of HMWB identification in the Danube Basin: Croatia, Hungary, Czech Republic, Slovenia, Bulgaria, Moldova, Ukraine, Bosnia-Herzegovina |
| 13:15 | Lunch |

**Chair: Petru Serban**

**LESSONS FROM OTHER EUROPEAN RIVER BASINS ON THE IDENTIFICATION OF HMWB**

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<th>Time</th>
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| 14:30 | Experience from the Rhine  
Jochen Fischer, Regional Council Gießen, Germany |
| 14:45 | Experience from the Ruhr basin  
Petra Podraza, University of Essen, Germany |
| 15:00 | Questions - Discussion |
| 15:10 | Coffee Break |

**Chairs: Petru Serban and Ulrich Irmer**

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<tr>
<td>15:40</td>
<td>Two parallel discussion groups on criteria for HMWB identification with a focus on transboundary issues</td>
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<td>17:10</td>
<td>Reports from the discussion groups and closing discussion</td>
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<td>18:00</td>
<td>End of the 1st workshop day</td>
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**10 February 2004**

**Session 3: Beyond 2004: Designation of HMWB**  
Chair: Wenke Hansen

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<th>Time</th>
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| 9:00  | Short summary from previous day  
Wenke Hansen, Ecologic |
| 9:10  | Criteria for designating HMWB  
Klaus Kern, River Consult |
| 9:30  | Economic perspective of HMWB designation  
Eduard Interwies, Ecologic |
<p>| 9:50  | Discussion / first ideas on the issues at stake for designating HMWB in the Danube Basin |
| 10:20 | Coffee break |</p>
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<td>10:50</td>
<td>Closing discussion on: Content and main issues for the roof report</td>
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<td>Common further procedure for the input of the basin countries to the roof report</td>
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<td>13:00</td>
<td>Lunch</td>
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<td>14:15</td>
<td>End of the workshop</td>
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Annex II: List of participants
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<th>No.</th>
<th>Name</th>
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<tr>
<td>1</td>
<td>Klaus KERN</td>
<td>Germany</td>
<td>River Consult&lt;br&gt;Am Rennbuckel 17&lt;br&gt;D – 76185 Karlsruhe</td>
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<td>2</td>
<td>Robert KONECNY</td>
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<td>3</td>
<td>Ilse STUBAUER</td>
<td>Austria</td>
<td>University of Natural Resources and Applied Life Sciences, Inn Hydrobiology and Aquatic Ecosystem Management&lt;br&gt;Max – Emanuel Str. 7, 1180 Wien</td>
<td>Tel: + 43 1 47654 - 5219&lt;br&gt;Fax: + 43 1 47654 - 5217&lt;br&gt;e-mail: <a href="mailto:ilse.stubauer@boku.ac.at">ilse.stubauer@boku.ac.at</a>&lt;br&gt;web: <a href="http://www.boku.ac.at/hfa">www.boku.ac.at/hfa</a></td>
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<td>4</td>
<td>Pavel HUCKO</td>
<td>Slovak Republic</td>
<td>Nabr. arm. gen. L. Svobodu 5&lt;br&gt;812 49 Bratislava 1&lt;br&gt;Slovak Republic</td>
<td>Tel: + 421 2 593 43 424&lt;br&gt;+ 421 2 593 43 474&lt;br&gt;Fax: +421 2 544 11 941&lt;br&gt;e-mail: <a href="mailto:Pavel_Hucko@vuvh.sk">Pavel_Hucko@vuvh.sk</a></td>
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<td>Boris MINARIK</td>
<td>Slovakia</td>
<td>Slovak Water Management Enterprise&lt;br&gt;Vrakunska 29&lt;br&gt;825 63 Bratislava 211</td>
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<td>6</td>
<td>Alan CIBILIC</td>
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<td>Croatian Water</td>
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<td>Neven KUSPILIC</td>
<td>Croatia</td>
<td>Faculty of Civil Eng.</td>
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