

# HMWB Workshop, 12-13 March 2009, Brussels

## Member State Questionnaire

### 1. Context

A workshop on Heavily Modified Water Bodies (HMWB) will be organised on 12-13 March 2009 in Brussels by Germany, UK and the European Commission in cooperation with the WFD CIS-ECOSTAT-group and the CIS-HYMO-activity.

The workshop aims to allow information exchange on the following topics:

- **Designation of HMWB:**  
Exchange of experiences on practical application of HMWB designation processes in Member States.
- **Establishing good ecological potential (GEP):**  
Exchange information on the practical application of both methods for deriving GEP (HMWB Guidance No 4 approach based on biological quality elements and the “Prague” approach based on mitigation measures – *see Annex*) and collect examples of results.  
Compare results of methods and discuss, if they are comparable and what are reasons of differences.
- **Objective setting and measures:**  
Collect and discuss experiences of Member States on objective setting for HMWB (including related issues like application of exemptions) and exchange information about planned mitigation measures.

A discussion document will be prepared for the workshop. In order to collect background information for the workshop discussion document, Member States are kindly asked to fill in the present questionnaire on water uses and parameters included in HMWB designation, methods for classification of HMWB and ways of objective setting for HMWB in Member States.

Please fill in one questionnaire per Member State and return to [elftheria.kampa@ecologic.eu](mailto:elftheria.kampa@ecologic.eu) at the latest by **16 January 2009**. Please do not hesitate to answer, even if you can only provide information on national RBD level.

### 2. General information

**Q2.1:** Name of Member State.

Flanders (Belgium)

**Q2.2:** Name and contact details of person to be contacted if any clarifications on the reply to this questionnaire are needed.

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### 3. HMWB designation

*Note: For each answer below rounded figures would be appropriate.*

**Q3.1: Please tell us about the proportion of each water category you have identified for designation as heavily modified by completing the two Tables below**

#### Number of HMWB

River		Lake		Transitional water		Coastal water	
Total number of water bodies (including non-HMWBs)	Number to be designated	Total number of water bodies (including non-HMWBs)	Number to be designated	Total number of water bodies (including non-HMWBs)	Number to be designated	Total number of water bodies (including non-HMWBs)	Number to be designated
177	natural:47 hmwb:96 artificial:34	18	natural:0 hmwb:1 artificial:17	6	natural:0 hmwb:3 artificial:3	1	natural:1 hmwb:0 artificial:0

#### Length and area of HMWB

River		Lake		Transitional water		Coastal water	
Total length of water bodies (including non-HMWBs) (Km)	Length of to be designated (Km)	Total area of water bodies (including non-HMWBs) (Km <sup>2</sup> )	Area to be designated (Km <sup>2</sup> )	Total area of water bodies (including non-HMWBs) (Km <sup>2</sup> )	Area to be designated (Km <sup>2</sup> )	Total area of water bodies (including non-HMWBs) (Km <sup>2</sup> )	Area to be designated (Km <sup>2</sup> )
2480	natural:494 hmwb:1141 artificial:846	40	natural:0 hmwb:1 artificial:39	41	natural:0 hmwb:34 artificial:7	1	natural:1 hmwb:0 artificial:0

**Q3.2: Please tell us about the water uses for which you have identified water bodies as heavily modified by completing the three Tables below**

*Note. If a water body has been designated for more than one use, please count each use.*

Water use [Art.4(3)(a)]	Number of water bodies
Wider environment [Art.4(3)(a)(i)] *	0
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	25 (all port facilities were designated as artificial; waterways providing access to the port facilities have been designated for navigation)

- Recreation	0**
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	3
- Storage for power generation	2
- Storage for irrigation	0**

	Total	Urban land	Agricultural land
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]			
- Water regulation	0**	0**	
- Flood protection	92	92	
- Land drainage	0**	0**	

\* Please specify your definition of “**wider environment**”: This criterium was not used for designation.

(\*\*): According to the Flemish Decree on Integrated Water Policy (the implementation of the Water Framework Directive in Flemish legislation), waterbodies are considered as heavily modified when: (1) changes to the hydromorphological characteristics of the waterbody which would be necessary for achieving good ecological status would have a significant adverse effect on (a) the environment; (b) activities of high public importance related to navigation, port facilities, public services for water for human consumption or sustainable power generation; (c) flood protection of houses licensed or supposed to be licensed and company buildings located outside inundation zones; (2) the objective served by the artificial or modified character of the surface waterbody, can not be achieved by other means which are a significantly better environmental option, because it is technically unfeasible or would entail disproportionately high costs.

The water uses “recreation”, “irrigation”, “water regulation”, “land drainage” and “equally important sustainable human development activity” are not explicitly mentioned in the Flemish Decree on Integrated Water Policy and these criteria were not taken into account for the first river basin management plans.

Description of each 'equally important sustainable human development activity' for which HMWB are to be designated [Art.4(3)(a)(v)]	Number of water bodies
No such criteria were used for designation (see remark on previous table)	

#### Multiple water uses of HMWB

Number of water bodies designated for one use	Number of water bodies designated for two uses	Number of water bodies designated for three or more uses
78	22	0

**Q3.3: Please tell us about the criteria you used to decide if a water body was substantially changed in character for it to be considered for designation as heavily modified by completing the applicable Tables below**

<p><b>Did you use <u>impact-related criteria</u> (e.g. length or area expected to be worse than good status or substantially changed in hydromorphology)? (yes/no)</b></p>	<p><b>Did you use <u>pressure-related criteria</u> (e.g. volume of water stored; height of dam)? (yes/no)</b></p>	<p><b>Did you use <u>use-related criteria</u> (e.g. number of people provided with drinking water; protection against particular flood return period; daily number of vessels)? (yes/no)</b></p>	<p><b>Did you use <u>other types of criteria</u>? (yes/no)</b></p>
<p>yes (criterium “power generation”)</p>	<p>no</p>	<p>yes (all other criteria)</p>	<p>no</p>

If you used **impact-related criteria**, please complete the following Table only applicable for the criterium “power generation”

Water category	Description of impact-related criteria (e.g. length or area expected to be worse than good status)
River	For the criterium “power generation”, maximum treshold values are used for the change in discharge fluctuations. These treshold values are waterbody-specific and are equal to the rise in discharge fluctuations that would characterise the natural discharge pattern of the waterbody.
Lake	Not applicable
Transitional water	Not applicable
Coastal water	Not applicable

If you used **pressure-related criteria**, please complete the following Table *not applicable*

Pressure	Description of pressure-related criteria (e.g. volume of water stored; height of dam)?
Impoundment	
Other hydromorphological alterations	
- Rivers	
- Lakes	
- Transitional waters	
- Coastal waters	

If you used **use-related criteria**, please complete the following Table

Water use	Description of use-related criteria (e.g. number of people provided with drinking water; protection against particular flood return period; daily number of vessels)
Wider environment [Art.4(3)(a)(i)]	Not used
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	All waterways designated for navigation class I, II, III, IV, Va, Vb, VIb or VII according to CEMT are designated as heavily modified according to this criterium (while all port facilities were designated as artificial)
- Recreation	Not taken into account
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	All waterways that were modified for the purpose of supplying water to reservoirs for drinking water production, were designated based on expert judgement and discussion with the drinking water companies
- Storage for power generation	See under “impact related criteria”

- Storage for irrigation	Not taken into account
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	Not taken into account
- Flood protection	For rivers and transitional waters, the waterbodies were designated when at least 10 % of the surface of their natural inundation zone is urbanised. this criterium is in a small number of cases overruled by expert judgement. For lakes, the only non-artificial waterbody in this category in Flanders, was designated as heavily modified based on expert judgement because its water level is artificially managed in order to protect a farmhouse located near the bank from flooding.
- Land drainage	Not taken into account
Equally important sustainable human development activity' [Art.4(3)(a)(v)]	Not taken into account

If you used **other criteria**, please complete the following Table not applicable

<b>Description of other criteria used to decide if water bodies are substantially changed in character to consider designation</b>

**Q3.4: Please tell us about the criteria you used to decide if implementing a measure (e.g. a restoration measure to achieve good status or a mitigation measure aimed at improving the ecological potential of a water body) would have a significant adverse effect on use by completing the two Tables below**

<b>Have you developed specific criteria on significant adverse effects on use to help prepare the draft river basin management plans?</b>	
<u>yes</u>	<u>no</u>
	no

<b>Have you identified <u>pressure-specific criteria</u> to help screen out measures which would have a significant adverse effect on use (e.g. reducing abstraction by &gt; 50 %)? (yes/no)</b>	<b>Have you identified <u>measure-specific criteria</u> to help screen out measures which would have a significant adverse effect on use (e.g. dismantling major dams)? (yes/no)</b>	<b>Have you identified <u>use-specific numeric criteria</u> (e.g. % loss of energy generation) to help screen out measures which would have a significant adverse effect on use? (yes/no)</b>	<b>Have you identified <u>other types of criteria</u> to help decide what constitutes a significant adverse effect on use? (yes/no)</b>
no	no	no	no

<b>Water use</b>	<b>Examples of the principal criteria you used to</b>
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	<b>decide if a measure or combination of measures would have a significant adverse effect on use</b>
Wider environment [Art.4(3)(a)(i)]	
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	
- Recreation	
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	
- Storage for power generation	
- Storage for irrigation	
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	
- Flood protection	
- Land drainage	
Equally important sustainable human development activity' [Art.4(3)(a)(v)]	

**Q3.5: Please tell us about the other environmental options you considered to decide if the benefits of the use could be provided by a significantly better environmental option [Art. 4(3)(b)] by completing the Table below**

For the criteria that were taken into account, it was implicitly assumed that for those criteria no better environmental option is available.

<b>Water use</b>	<b>Other environmental options considered</b>
Wider environment [Art.4(3)(a)(i)]	Not applicable (this criterium was not used)
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	No other options were considered
- Recreation	Not applicable (this criterium was not used)
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	No other options were considered
- Storage for power generation	No other options were considered
- Storage for irrigation	Not applicable (this criterium was not used)
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	Not applicable (this criterium was not used)
- Flood protection	No other options were considered
- Land drainage	Not applicable (this criterium was not used)
Equally important sustainable human	Not applicable (this criterium was not used)

development activity' [Art.4(3)(a)(v)]

#### 4. Establishing Good Ecological Potential (GEP)

**Q4.1: Please tell us about the method you used to classify the ecological potential of heavily modified water bodies by completing the applicable Tables below**

Are you satisfied that your draft classification results reflect the effect of hydromorphological alterations on ecological potential ? (yes/no)	Have you classified the effect of hydromorphological alterations on ecological potential using <u>biological assessment methods</u> (according to CIS Guidance No. 4 – See Annex)? (yes/no)	Have you classified the effect of hydromorphological alterations on ecological potential by assessing whether <u>all practicable mitigation measures</u> have been taken (according to the Prague approach - See Annex)? (yes/no)	Have you developed <u>another method</u> of classifying the effect of hydromorphological alterations on ecological potential? (yes/no)
Yes, but we intend to refine the classification method by the next RBMP if necessary	yes	no	no

**Have you adapted your existing biological assessment methods for application to heavily modified water bodies?**

For rivers and lakes, we used the existing assessment methods and adapted the classification method, either by reducing the class boundaries or by modifying the metric calculation method (depending on BQE). These adaptations are waterbody-specific.

**Have you developed specific biological assessment methods for classifying HMWBs?**

For transitional waters, all waterbodies were heavily modified (or artificial), therefore no assessment method for natural transitional waterbodies has initially been developed. For those waterbodies, a waterbody-specific assessment scheme was developed instead.

Please complete the Table below if you have classified the effect on ecological potential of hydromorphological alterations using biological assessment methods (according to CIS Guidance No. 4 – See Annex)

Water category	Were you able to derive biological references for maximum ecological potential? (yes/no)	What biological quality element (or elements) have you used to make these assessments?
Rivers	Yes	All (but for fytoplankton and fytoenthos, the assessment method for natural waterbodies is used without modifications for heavily modified waterbodies)

Lakes	Yes	All (but for phytoplankton and phyto-benthos, the assessment method for natural waterbodies is used without modifications for most heavily modified waterbodies)
Transitional waters	Yes	All (but no method for natural waterbodies exists; the assessment methods are waterbody-specific)
Coastal waters	Not applicable (no heavily modified waterbodies in this category)	Not applicable (no heavily modified waterbodies in this category)

Please complete the Table below if you have classified the effect on ecological potential of hydromorphological alterations using the **mitigation measures approach** (according to the Prague approach - See Annex) **not applicable**

Water use	Did you develop use-specific generic checklists of mitigation measures? (yes/no)	Did you identify water body-specific mitigation measures rather than generic checklists? (yes/no)	If applicable, did you modify the generic list to take account of the specific characteristics and use of each HMWB? (yes/no)	Did you involve the water users in applying the method? (yes/no)
Navigation, including port facilities				
Storage for drinking water supply				
Storage for power generation				
Storage for irrigation				
Water regulation				
Flood protection				
Land drainage				
Equally important sustainable human development activity'				

<b>If you have developed generic checklists of measures, please describe these</b>
Not applicable
<b>Please specify if you have a special methodology for the definition of Maximum Ecological Potential (MEP), which differs from your GEP methodology</b>
Not applicable

For Member States that have used both approaches of GEP establishment (Guidance No. 4 approach & “Prague” approach):

**Q4.3:** How do the results of using the two approaches compare? Are the mitigation measures needed to achieve good ecological potential comparable? Are there any examples to combine both methods?

not applicable

## 5. Exemptions for HMWB

**Q5.1:** Do you intend to apply Art. 4(4) exemptions (time derogation) to HMWB?

<u>yes</u>	<u>no</u>
Yes (all waterbodies)	

Do you intend to apply Art. 4(5) exemptions (less stringent objectives) to HMWB?

<u>yes</u>	<u>No</u>
	No (at least not in the current RBMP)

How did you combine this with HMWB designation according to Art. 4 (3) and CIS guidance No 4?

A physical-chemical water quality model was applied to estimate the water quality that can be attained by 2015. Based on this exercise, it was decided that it is unfeasible for all waterbodies in Flanders to attain good ecological status/potential by 2015. Therefore, a time derogation is required for all waterbodies. There is no direct link between this modelling approach and the designation of waterbodies as heavily modified because this designation was strictly based on the water use criteria (but the results of the modelling exercise were assessed with the specific criteria for the heavily modified waterbody wherever applicable).

## 6. Suggestions for the workshop

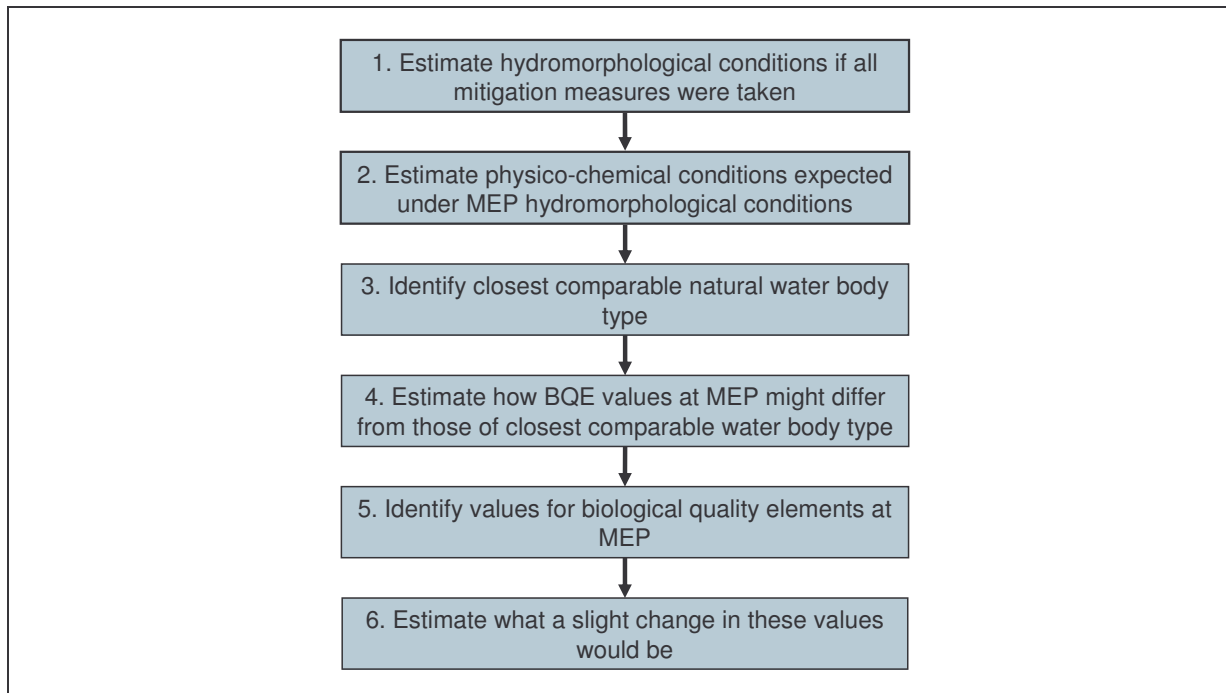
**Q6.1:** Do you have any suggestions for the upcoming workshop on Heavily Modified Water Bodies (12-13 March 2009, Brussels)? E.g.

- Any questions proposed for discussion?
- Public participation ideas concerning HMWB?
- Any pilot projects, methods for presentations at the workshop?

no suggestions

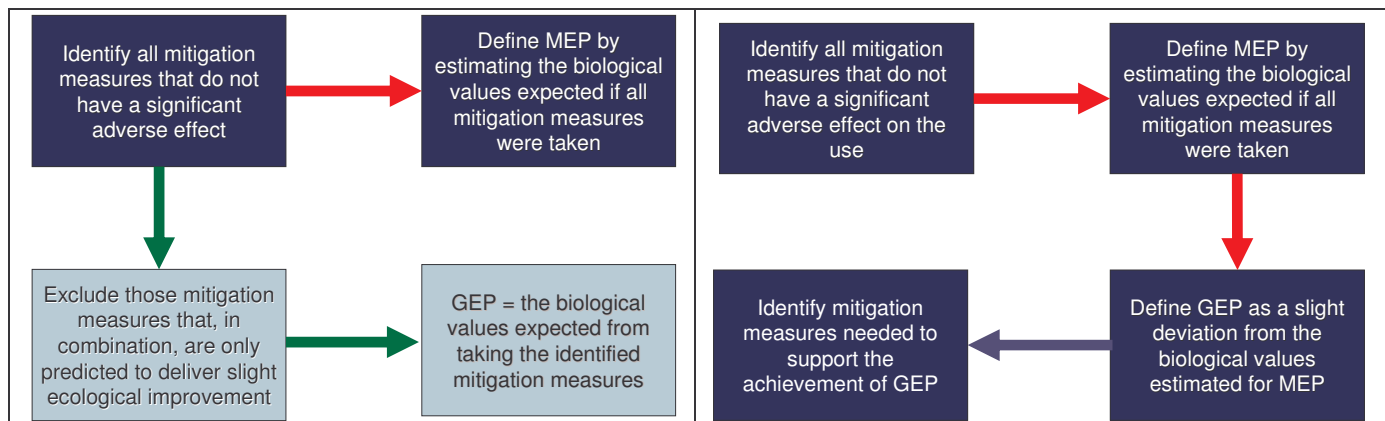
## **Annex: Additional background information on the establishment of Good Ecological Potential (GEP)**

- ✓ Good ecological potential is defined in the Annex V 1.2.5 to the Water Framework Directive as an ecological state in which “*there are slight changes in the values of the relevant biological quality elements as compared to the values found at maximum ecological potential*”.
- ✓ The values for the biological quality elements at MEP should reflect, “*as far as possible, those associated with the closest comparable surface water body type, given the physical conditions which result from the artificial or heavily modified characteristics of the water body*”. The definition recognises that the MEP biological values (a) depend on the MEP hydromorphological conditions and (b) may be different from those of the any natural surface water body type because no such natural type is completely comparable.
- ✓ The Directive defines the MEP hydromorphological conditions as those “*consistent with the only impacts on the surface water body being those resulting from the artificial or heavily modified characteristics of the water body once all mitigation measures have been taken to ensure the best approximation to ecological continuum, in particular with respect to migration of fauna and appropriate spawning and breeding grounds*”.
- ✓ The mitigation measures referred to in the definition of MEP hydromorphological conditions are limited to those that would not have a significant adverse effect on (a) the wider environment or (b) the use or uses that are dependent on the modified characteristics. The purpose of designation of a water body as a HMWB or AWB would be defeated if mitigation measures that would have such adverse effects were included.
- ✓ This also means that GEP cannot represent a state that could only be achieved using measures that would have a significant adverse effect on the wider environment or on the use or uses justifying designation in accordance with Article 4.3.
- ✓ GEP therefore represents a state in which the ecological potential of a water body is falling only slightly short of the maximum it could achieve without significant adverse effects on the wider environment or on the relevant water use or uses. An assessment of disproportionate costs of the mitigation measures should not be considered.
- ✓ In contrast, the definition of good ecological status is independent of any consideration of impact of the measures that may be needed to achieve it. Costs of these measures are also not considered.
- ✓ The generic steps relevant to defining GEP and described in the CIS Guidance Document No.4 can be summarised as in Figure 1 below.



**Figure 1:** Steps in defining GEP as described in the CIS Guidance Document No. 4.

- ✓ Technically the approach is complicated and highly reliant on good predictive modelling or expert judgement. Any errors in the estimates made in each of the steps will tend to sum. This compounding of errors could result in a definition of GEP that cannot be achieved without significant adverse effects on a relevant water use or that fails to reflect the level of ambition intended by the Directive.
- ✓ The alternative method described below defines GEP relevant to those biological quality elements and physico-chemical quality elements that are so affected by the heavily modified characteristics that they cannot achieve their GES values without measures being taken that would have a significant adverse effect on the wider environment or on a use of the water body that is reliant on the modifications. For other quality elements, their values at GEP are expected to be the same as their GES values prior to the hydromorphological modifications.
- ✓ Figure 2 summarises the main steps involved in the alternative approach to defining GEP (left side of Figure) and compares this with the main steps in the approach set out in CIS Guidance Document No. 4 (right side of Figure).



**Figure 2:** Steps involved in defining GEP using alternative approach (left side) compared to the relevant steps in the approach described in CIS Guidance Document No. 4 (right side); red arrows: steps following CIS method, green arrows: modifications of CIS method.

- ✓ Under both approaches the gap between MEP and GEP in ecological quality terms will be slight. Ecologically, GEP will represent the same level of ambition whichever of the two approaches is used.
- ✓ Nevertheless both approaches are still somewhat theoretical. Their advantages and disadvantages are yet to be demonstrated. Practical experience of defining GEP is currently very limited, the definition of GEP seems to be very complex. In the course of implementation, knowledge and understanding will increase enabling the further development and improvement of the approaches. Member States may also identify other alternative approaches.