

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 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.

Sweden

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

Johan Kling

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
1710	128	793	40	2	1	110	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 ²)	Area to be designated (Km ²)	Total area of water bodies (including non-HMWBs) (Km ²)	Area to be designated (Km ²)	Total area of water bodies (including non-HMWBs) (Km ²)	Area to be designated (Km ²)
	1088				23	0	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)] *	
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	1
- Navigation, including port facilities	1
- Recreation	
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	
- Storage for power generation	40
- Storage for irrigation	

	Total	Urban land	Agricultural land
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]			
- Water regulation	134		
- Flood protection			
- Land drainage			

* Please specify your definition of “wider environment”: ...

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
Modified shores in cities	1

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
173	1	

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

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)	Did you use <u>pressure-related criteria</u> (e.g. volume of water stored; height of dam)? (yes/no)	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)	Did you use <u>other types of criteria</u> ? (yes/no)
Yes	Yes	No	No

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

Water category	Description of impact-related criteria (e.g. length or area expected to be worse than good status)
River	Status worse than good or good at risk, lack of minimum flow from dams, occurrence of dry channel due to diversion of water, reduced natural average minimum flow by 20 %, reduced natural average peak flow by 20 %, more than 70 % of the length of the water body has an altered morphology due to dredging, channelization, straightening or altered stream banks
Lake	Status worse than good, changed water category from river to lake, amplitude of level regulation (≥ 3 meter).
Transitional water	More than 70 % of the surface area of the water body has a modified morphology due to constructions or dredging of sea bottoms. More than 70 % of the shore are modified due to altered banks, dredging, constructions or erosion by sea traffic.
Coastal water	

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

Pressure	Description of pressure-related criteria (e.g. volume of water stored; height of dam)?
Impoundment	
Other hydromorphological alterations	
- Rivers	The effect on stream water level slope, and therefore stream velocity, is reduced in 70 % of the water body length due to the fact that 80 % of the natural stream slope is captured by the dam height.
- Lakes	
- Transitional waters	
- Coastal waters	Status worse than good, area of modified bottoms ($\geq 70\%$), length of modified shores, ($\geq 70\%$).

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)]	
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)]	

If you used **other criteria**, please complete the following Table

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

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

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

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 > 50 %)? (yes/no)	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)	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)	Have you identified <u>other types of criteria</u> to help decide what constitutes a significant adverse effect on use? (yes/no)

Water use	Examples of the principal criteria you used to decide if a measure or combination of measures would have a significant adverse effect on use
Wider environment [Art.4(3)(a)(i)]	Considered but not used yet: Hydropower production is replaced by other production, such as fossil fuels and therefore has a significant effect on CO2 emissions.
Navigation, including port facilities, or	

recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	Considered but not used yet: Decreased sea transportation due to restoration measures is replaced by road transportation which according to LCA have a significantly higher CO2 emission/ton
- Recreation	
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	
- Storage for power generation	Considered but not used yet: Decreased regulating possibility decreases the option to add effect to the grid by hydro power which has to be replaced by other regulating power production facilities, such as condense gas fired facilities with very high CO2 emissions.
- Storage for irrigation	
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	Mitigation measures should not exceed 20 % of the production value (upper limit according to national water legislation)
- Flood protection	Increased amount of large woody debris and restoration of boulder cleared streams might locally increase flood risk. Removal of flood protection banks for restoring horizontal continuity between stream and flood plain might increase flood risk
- 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

Water use	Other environmental options considered
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)]	

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)
Partly Yes			

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

No, but a project has been initiated

Have you developed specific biological assessment methods for classifying HMWBs?

No

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	No	
Lakes	No	

Transitional waters	No	
Coastal waters	No	

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)

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		Yes	No	No
Flood protection				
Land drainage				
Equally important sustainable human development activity'				

If you have developed generic checklists of measures, please describe these
No
Please specify if you have a special methodology for the definition of Maximum Ecological Potential (MEP), which differs from your GEP methodology
No

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?

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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>
<u>Yes, most identified potential HMWB needs to be investigated with regard to mitigation measures and GEP and MEP.</u>	

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

<u>yes</u>	<u>No</u>
	<u>No</u>

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

(free text)

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?

Principals for determining if restoration measures in MEP and GEP has a large impact on wider environment especially with reference to energy production How to determine if restoration measures have a significant adverse effect. What is an harmonized European level for hydro power? What is included?

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.

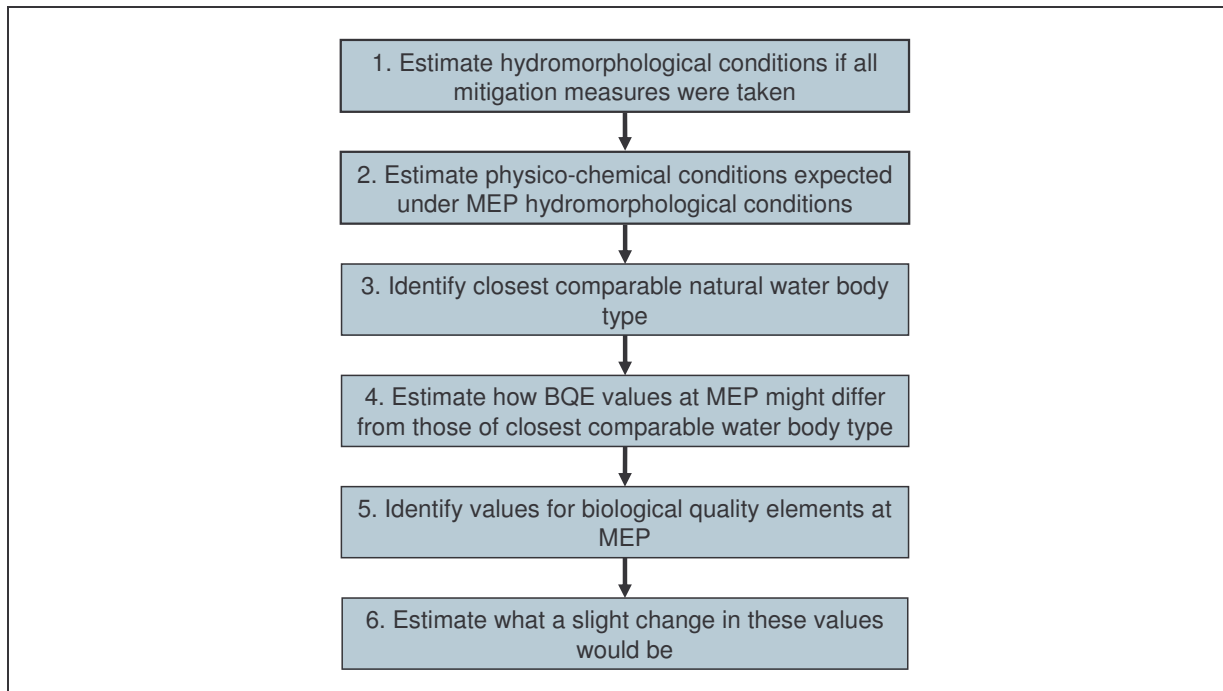


Figure 1: Steps in defining GEP as described in the CIS Guidance Document No. 4.

- ✓ 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).

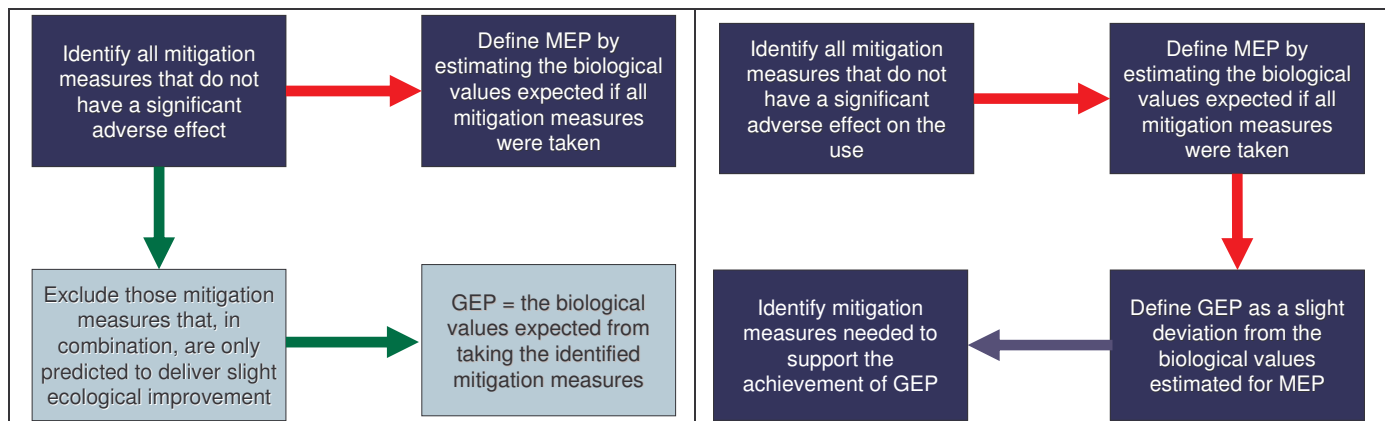


Figure 2: Steps involved in defining GEP using alternative approach (left side) compared to the relevant steps in the approach described in CIS Guidance Document No. 4 (right side); red arrows: steps following CIS method, green arrows: modifications of CIS method.

- ✓ 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.