

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 eleftheria.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.

THIS IS AN OVERVIEW FOR GERMANY BASED ON RESPONSES OF THE FEDERAL STATES

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

German Federal Environment Agency (UBA)

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
9069	3336	747	92	5	5	74	5

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)
128053	38726	2019	223	814	814	22844	33

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)]	58
- Protected sites	9
- Protection of historical heritage	6
- other	34
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	328
- Navigation, including port facilities	90
- Recreation	208
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	436
- Storage for drinking water supply	47

- Storage for power generation	358
- Storage for irrigation	30

	Total	Urban land	Agricultural land
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	3204		
- Water regulation	936		
- Flood protection	570		
- Land drainage	1661		
- Mining subsidence (affects surface water bodies)	36		

Note: Figures correspond to ca. 81.15% of the surface of Germany.

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

Definition
e.g.: under Habitats and Birds Directive protected Areas, wetlands, historical heritage landscapes, (archeological) monuments (e.g. water mills), buildings

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
Industry	4
Infrastructure (traffic, roads, rails, canals, ports, airports)	61
Urbanisation, construction works	697
Agriculture, Fisheries, Aquaculture	56
Agriculture (incl. forestry)	1170
Land consumption / obtaining the land cultivatable	38
Gravel extraction (affects ground water bodies)	9
Flood and coastal protection	64

Note: Figures correspond to ca. 81.15% % of the surface of Germany.

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
1207	536	805

Note: Figures correspond to ca. 81.15% of the surface of Germany.

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	yes	yes

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	<p><i>Proportion of river length expected to have irreversible hydromorphological alterations:</i></p> <ul style="list-style-type: none"> - <i>> 30 - 70 % of water body length in structure class > 5 (dependent on region)</i> - <i>water body structure class is worse than estimated type specific mean river structure class above which good status is expected to be worse than good</i> - <i>>= 10% irreversible hydromorphological alterations for HMWB-candidates OR >= 30% irreversible hydromorphological alterations for provisional HMWBs</i> - <i>>70% of river water body length is in structure class 6 or 7 OR is situated in urban areas OR is embanked OR is affected by backwater OR is piped OR is defined as Federal or regional water way with a water depth >= 2 times the natural depth</i> - <i>> 70% der Fließgewässerlänge im WK mit maßgeblichen hydromorphologischen Belastungen</i>
	<p><i>Water level surge with expected significant adverse effects on good status</i></p>
	<p><i>Assessment of transversal in-stream structures</i></p> <ul style="list-style-type: none"> - <i>impeding river continuity or</i> - <i>causing significant backwaters</i> - <i>changing water balance due to extraction</i>
	<p><i>Preliminary (provisional) designation, if a use significantly caused following impacts and if these impacts caused deviations from the good status for the quality elements “Benthic invertebrate fauna” and “Fish fauna”:</i></p> <ul style="list-style-type: none"> - <i>losses of floodplains</i> - <i>demolition of the waterside or the riparian natural cover</i> - <i>riparian sheeting</i> - <i>sheeting of river beds</i> - <i>canalisation of rivers</i> - <i>relocation into deep cuttings, dislocation above area level</i> - <i>alteration of the development of watercourses</i> - <i>straightening of watercourses</i> - <i>deepening of waterprofiles</i> - <i>alteration of the behaviour of erosion and sedimentation</i>

	<ul style="list-style-type: none"> - alteration of the regime of bed loads - alteration of water balances - alteration of the discharge regime - alteration of the latitude to deepness variance - alteration of the hydrological conditions in the floodplain - alteration of the frequency of floodings - diminishment of the natural floodplain - alterations of land uses - impassable watergate or dam - backwater regulation - mortality of fishes due to hydropower turbines
Lake	Water level alterations with expected significant adverse effects on good status
Transitional water	hydromorphological impacts are significant and irreversible because of existing use
	> 70 % of water body length in structure class > 5
Coastal water	significant and irreversible modification of the hydromorphology due to use

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

Note: criteria are examples, which were used regionally

Pressure	Description of pressure-related criteria (e.g. volume of water stored; height of dam)?
- Rivers	>= 50 % of river length with agricultural use or development directly along the river)
	hydromorphological pressures are significant and unavoidable because there is no alternative to current use (step 8 CIS-scheme)
	Relevant for all water categories: Expert judgement - Mit den jeweiligen Wassernutzern vor Ort deskriptiv in drei Intensitätsstufen (gering bis sehr bedeutend) durchgeführt, keine genau definierten und verbindlich festgelegten Kriterien
- Lakes	significant and irreversible modification of the hydromorphology due to use
	Die Einzugsgebietsgröße, die Verweilzeit, die natürliche saisonale Abflussdynamik und die natürliche Wasserstandsdynamik wurden durch die Einbindung des Sees in eine Bundeswasserstraße so weit verändert, dass der OWK heute einem anderen als dem ursprünglichen (anthropogen unbeeinflussten) Gewässertyp zuzuordnen ist.
	hydromorphological pressures are significant and unavoidable because there is no alternative to current use (step 8 CIS-scheme)
- Transitional waters	hydromorphological pressures are significant and unavoidable because there is no alternative to current use (step 8 CIS-scheme)
- Coastal waters	hydromorphological pressures are significant and unavoidable because there is no alternative to current use (step 8 CIS-scheme)

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)]	<i>Preliminary (provisional) designation if loosing or compromising a historical use in terms of historical buildings (together with these the infratructural integration into the citysites can disappear) if these historical buildings significantly cause deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna".</i>
	<i>Preliminary (provisional) designation if urbanisation significantly leads to morphological alterations and if these alterations cause deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna".</i>
	<i>Naturschutz, Archäologische Fundstätten und Denkmalschutz</i>
	Expert judgement: <i>Mit den jeweiligen Wassernutzern vor Ort deskriptiv in drei Intensitätsstufen (gering bis sehr bedeutend) durchgeführt, keine genau definierten und verbindlich festgelegten Kriterien</i>
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	<i>Use regarded for impact-related 10%-/30%-criterion</i>
	<i>identified as Federal Waterway</i>
	<i>>70% der Länge des OWK ist als Landes- oder Bundeswasserstraße einer Klasse gewidmet, deren Tauchtiefe die natürliche Tiefe um mindestens den Faktor 2 übersteigt</i>
	<i>bestehende und künftige Schifffahrt und Häfen</i>
- Recreation	<i>Preliminary (provisional) designation if backwaters and other recreational facilities has benn produced in favour of recreational uses (bathing waters, boat tourism, Watersports) and if these alterations cause deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna"</i>
	<i>bestehende Sporthäfen, Anlagen für Kanuten und Sportschifffahrt</i>
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	<i>Use regarded for impact-related 10%-/30%-criterion</i>
	<i>Preliminary (provisional) designation if backwater has been realised in favour of drinking water supply and if this alteration causes deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna"</i>
- Storage for power generation	<i>Use regarded for impact-related 10%-/30%-criterion</i>
	<i>Preliminary (provisional) designation if water power plants do have impacts for the waters which can not be diminished without significant limitations of the use and if this alteration causes deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna"</i>
	<i>Relevant, wenn dadurch folgende hydromorphologische Belastungen verursacht werden:</i> <i>signifikanter Rückstau, signifikante Beeinträchtigung der Durchgängigkeit, signifikante Ausleitungsstrecke</i>
	<i>Staurechte, soweit sie nicht abgelöst werden können</i>
- Storage for irrigation	<i>Preliminary (provisional) designation if backwater has been realised in favour of irrigation and if this alteration causes deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna"</i>
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water	<i>Preliminary (provisional) designation if uses in the hinterland (urbanisation, industrial or agricultural production) do have significant impacts and if this</i>

regulation	<i>uses cause deviations from the good status for the quality elements “Benthic invertebrate fauna” and “Fish fauna”</i>
	<i>>70% der Länge des OWK ist durch Rückstau zum Zwecke der Schwerkraftbewässerung bzw. Einstaubewässerung argarisch genutzter Landflächen beeinflusst</i>
	<i>landwirtschaftliche Nutzung, soweit sie nicht aufgegeben werden kann</i>
	<i>„Urbanisierung“ ist im WK relevant, wenn dadurch folgende hydromorpho–logische Belastungen verursacht werden: Beidseitige Bebauung bzw. Verrohrung des Gewässers.</i>
	<i>„Landwirtschaft“ ist relevant, wenn die verursachten Änderungen des hydromorphologischen Zustands des Wasserkörpers von der fachlich sachverständige und zuständige Flussgebietsbehörde als relevant beurteilt werden.</i>
- Flood protection	<i>Use regarded for impact-related 10%-/30%-criterion</i>
	<i>Preliminary (provisional) designation if technical flood protection measures do have significant impacts and if this measures cause deviations from the good status for the quality elements “Benthic invertebrate fauna” and “Fish fauna”. These measures has been checked regarding their necessity.</i>
	<i>Die Einzugsgebietsgröße, die Verweilzeit, die natürliche saisonale Abflussdynamik und die natürliche Wasserstandsdynamik wurden durch Wasserüberleitungen zum Zwecke der Verbesserung des Hochwasserschutzes so weit verändert, dass der OWK heute einem anderen als dem ursprünglichen (anthropogen unbeeinflussten) Gewässertyp zuzuordnen ist.</i>
	<i>Hochwasserschutzanlagen, soweit sie nicht aufgegeben oder alternativ gestaltet werden kann</i>
	<i>Relevant, wenn dadurch folgende hydromorpho–logische Belastungen verursacht werden: Doppeltrapezprofil/Uferdeiche/Dämme, Aus-uferung stark vermindert infolge notwendiger Hochwasserschutzmaßnahmen</i>
- Land drainage	<i>Use regarded for impact-related 10%-/30%-criterion, as far as of regional importance</i>
	<i>Preliminary (provisional) designation if land improvement for agricultural use has significant impacts and if these impacts cause deviations from the good status for the quality elements “Benthic invertebrate fauna” and “Fish fauna”. These measures has been checked regarding their necessity. The situation of the uses has been estimated in the framework of a widespread survey. This has been underlined by knowledge about the consequences of an absence of land drainage, from which the former land improvement for agricultural use has been derivated.</i>
	<i>>70% der Länge des OWK weist Strukturgüteklasse 6 oder 7 in Verbindung mit starker künstlicher Eintiefung über den Faktor 2 der natürlichen Tiefe auf, wegen Landentwässerungsfunktion</i>
	<i>landwirtschaftliche, urbane oder infrastrukturelle Nutzung, soweit sie nicht aufgegeben oder alternativ gestaltet werden kann</i>
- Mining subsidence	<i>Preliminary (provisional) designation if subsidence caused by mining leads to significant impacts due to relocation, construction, dyking and massive alterations of the height of the waters and if these impacts cause deviations from the good status for the quality elements “Benthic invertebrate fauna” and “Fish fauna”. Such alterations normally are irreversible.</i>

Equally important sustainable human development activity' [Art.4(3)(a)(v)]	<i>Urbanisation, industry,</i>
	<i>Preliminary (provisional) designation if for reasons of land consumption respectively for reasons of obtaining the land cultivatable in conjunction with land improvement for agricultural use significant hydromorphological alterations has occurred and if these alterations cause deviations from the good status for the quality elements "Benthic invertebrate fauna" and "Fish fauna". The situation of the uses has been estimated in the framework of a widespread survey. Landlosses for farming are very high in the federal state using this criterion. According to that availability of land is very small.</i>

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
<ul style="list-style-type: none"> - <i>The decisive criteria for HMWB designation is the result of the biological assessment of structure-indicating bio-components (fish & benthic invertebrates), see annex 1</i> - <i>Umsetzbarkeit von Maßnahmen (zeitlich, rechtlich)</i> - <i>Talsperren, die einen eigenen Wasserkörper bilden, wurden als HMWB bzw. „möglicherweise HMWB“ eingestuft, aufgrund ihres Charakters als "gestautes Fließgewässer".</i> - <i>ein Gewässertyp: alle Marschengewässer, die ihre Quelle in der Geest haben</i> - <i>Gewässer, die aufgrund von Ausbauplänen verändert wurden</i>

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>
<i>Some federal states</i>	<i>Some federal states</i>

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)
<i>yes</i>	<i>yes¹</i>	<i>yes</i>	<i>yes</i>

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 use²
------------------	---

¹A federal state (North Rhine-Westphalia) has developed a so-called "stepping-stone-approach", which includes measure-specific-criteria. For detailed information see annex 4.

Wider environment [Art.4(3)(a)(i)]	<i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i>
	<i><u>Conflicts with targets for areas listed in annex IV of WFD (FFH, bird protection...) such as pressure-related-criteria: : the pressure „backwater“ is necessary because a) FFH- or Birds Directive are claiming the protection of human-developed habitats which depend on human fosterage or b) heightening of remaining waters have impacts on birds which breed on gravel;</u></i> <i>measure-related-criteria: losses of land of types of habitats</i> <i>Weiteres Beispiel: Die Vogelschutzziele (Wiesenvögel) wären durch notwendige Entwicklungsmaßnahmen am Gewässer (Gehölzentwicklung zur Beschattung) signifikant beeinträchtigt worden.</i>
	<i><u>Ground monuments can be endangered by measures which lead to a relocation of waters or to an enlargement of floodplains.</u></i> <i><u>Historical culture landscapes and and worth preserving elements of landscapes should be obtained.</u></i> <i><u>Urbanisation: distance from canalisation endangers infrastructure (streets)</u></i>
	<i>Ein <u>denkmalgeschütztes Kraftwerksgebäude und der Aufstau des Fließgewässers oberhalb konnte nicht beseitigt werden, weil dies mit dem Denkmalschutz nicht vereinbar war.</u></i>
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port facilities	<i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i>
	<i>The navigation on the Rhine, in particular through the extension, the straightening and maintaining the navigation channel changes can not be achieved in other ways. International agreements required for the flood control and navigation procedures has been to prevent "other possibilities."</i>
	<i>Realising Measures could have following significant negative impacts:</i> - Navigation needs well-defined shipping passage - siltation of harbours - depth and width of shipping passages regulated by law - economical damage due to less deep shipping passages - Wave-Protection of the waterside - recreational navigation cannot be relocated - international agreements regarding transport maybe cannot be complied. - Environmental pressures due to relocation of commodities onto other types of transport
	<i>Regionaltypische und typspezifische Festlegung der natürlichen Gewässertiefen:</i> <i>< 100 km²: 5 – 20 cm</i> <i>100 ... 1000 km²: 20 - 50 cm</i> <i>1000 ... 10 000 km²: 50 – 80 cm</i> <i>> 10 000 km²: 80 – 120 cm</i> <i>Wenn die wegen bestehender Schifffahrtsnutzung gegebene Ausbautiefe des</i>

² General comment: If the examples which are given in this table lead to the conclusion, that the beneficial objectives served by the artificial or modified characteristics of the water body cannot, for reasons of technical feasibility or disproportionate costs, reasonably be achieved by other means, which are a significantly better environmental option, a preliminary as heavily modified designated water body is definitively designated as HMWB.

	<p><i>Gewässers um mehr als den Faktor 2 über den regionaltypischen, typspezifischen Gewässertiefen liegt, wurde angenommen, dass die Renaturierung des Gewässers eine signifikante Einschränkung der bestehenden Nutzung nach sich ziehen würde</i></p> <p><i>Der Wellenschlag der Schifffahrt auf der Stör erfordert massive Deckwerke an den Ufern, so dass der gute ökologische Zustand des Wasserkörpers nicht erreicht werden kann.</i></p> <p><i>Wirtschaftliche Bedeutung des Wasserkörpers</i></p>
- Recreation	<p><i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i></p> <p><i>If the dam would be removed and again produced riverine, the recreational use no longer exists.</i></p> <p><i>a) Conflicts with targets for areas listed in annex IV of WFD (bathing waters) pressure-related criteria: the pressure „backwater“ is necessary because without backwater the use cannot be kept.</i></p> <p><i>b) if realising measures means that recreational uses cannot take place as yet.</i></p> <p><i>erhebliche Auswirkungen auf bestehende Freizeitnutzungen, z. B. Kanufahren, Sportfischerei, Ausflugsschifffahrt</i></p> <p><i>Verlust an Attraktivität der Region</i></p>
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- Storage for drinking water supply	<p><i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i></p> <p><i>Measures with impacts on dams or other water storages for drinking water supply lead to significantly negative impacts on drinking water supply. The use can only be kept by sustaining the building.</i></p>
- Storage for power generation	<p><i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i></p> <p><i>Significant impacts on the possibilities to produce regenerative energies, for example: using waterpower to produce energy is not possible anymore.</i></p>
- Storage for processing Water	<i>Measures with impacts on dams have significantly negative impacts on supply of processing water. Purpose of usage can only be fulfilled by keeping the building.</i>
- Storage for irrigation	<p><i>Designation, if irrigation furthermore is necessary for agriculture</i></p> <p><i>Respectively significant impacts on the supply of water for irrigation..</i></p>
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	<p><i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i></p> <p><i>Measures with impacts on dams have significantly negative impacts on water regulation. Purpose of usage can only be fulfilled by keeping the building.</i></p> <p><i>Designation if according to the use in the hinterland (urbanisation, industrial or agricultural use) which was causative for water regulation, measures to reach good status are not or only restricted possible and when there are no alternatives to the uses.</i></p> <p><i>Die Verrohrung von Gewässern in urbanen Gebieten behindert die</i></p>

	<i>Durchgängigkeit und das Erreichen des guten ökologischen Zustands des WK.</i>
	<i>Risiko für die Menschen und die von ihnen geschaffenen Werte</i>
- Flood protection	<i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i>
	<i>The removal of the flood protection constructions has significantly negative impact on the flood.</i>
	<i>Urbanisation:</i> <i>a) lifting the river bed causes increasing ground water in the floodplain and therefore causes exceeding wetness in urban areas;</i> <i>b) A better diversity of substrates and structures of river beds can cause a backing of water area by area and in times of high water local floodings;</i> <i>c) dehydration facilities in urban areas are adjusted to specific water levels.</i> <i>Generally:</i> <i>Designation if execution of measures to reach good status endangers the former protected fields. Technical possibilities to avoid these impacts are restricted.</i>
	<i>erhebliche Auswirkungen auf den Hochwasserschutz in der Region, z. B. bei Beseitigung vorhandener Schutzdeiche</i>
	<i>Risiko für die Menschen und die von ihnen geschaffenen Werte</i>
- Land drainage	<i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i>
	<i>There are no other options, the drainage of floodplains for the interests of rural users.</i>
	<i>Designation if execution of measures to reach good status causes the following significantly negativ impacts on use:</i> <i>- lifting river bed causes increasing ground water and therefore exceeding wetness in the hinterland (e.g. negative impacts on agricultural and forestry use)</i> <i>- a better diversity of substrates and structures of river beds causes a backing of water area by area and in times of high water local floodings</i> <i>- reduction of land for agricultural and forestry production due to an allocation of the land to the development of water bodies</i>
	<i>Die Entwässerung vieler landwirtschaftlicher Niederungsgebiete in SH ist nur möglich, wenn die Flächen dräniert und künstlich entwässert werden. Der Wasserpiegel im Gewässer musste entsprechend abgesenkt werden, so dass der gute ökologische Zustand nicht erreichbar ist.</i>
	<i>Risiko für die Menschen und die von ihnen geschaffenen Werte</i>
- Mining Subsidence	<i>Designation if execution of measures to reach good status causes significantly negativ impacts on use like exceeding wedness of buildings nearby and reduction of protection against floods.</i>
Equally	<i>Feasibility, ecological efficacy, cost-effectiveness, prioritisation</i>

important sustainable human development activity' [Art.4(3)(a)(v)]	<p><u>Urbanization:</u> The buildings and infrastructure of residential estates use than to receive. They can not be changed or shifted.</p> <p><u>Worthy of protection as culture heritage:</u> Hydromorphological improve the situation lead to the use as a cultural and historical monuments and tourist objects especially in the forest is lost. The extensions to the waters Trift (transportation of timber) with small ponds (Wooge), the transversely construction stone (sliding and slipping for Trift) and the shoreline construction (wood or stone braid) are essential components for the specified use. You can not be altered without the use of highly-specified to affect (cultural monuments, attractive for recreation and tourism), or abandon.</p> <p><u>Gravel extraction:</u> There are no other options, the gravel extraction for the interests of building infrastructure;</p> <p><u>Fisheries:</u> The removal of the dam constructions has significantly negative impact to the fisheries.</p>
	<p>Land consumption respectively obtaining land cultivable for agriculture: designation if measures cause disproportional pressures on availability of land or if they disproportionally complicate the entrance to good locations. Disporportionality often is given, if saving the entrance neecessitates corresponding construction measures (bridges, pathes).</p>
	<p><u>Urbanisierung:</u> erhebliche Auswirkungen auf vorhandene städtische Infrastruktur und vorhandene Bebauung, z. B. Straßen, Häuser, Industrie</p> <p><u>Landwirtschaft:</u> erhebliche Belastung der wirtschaftlichen Situation eines landwirtschaftlichen Betriebes u. a. durch überdurchschnittlich starken Flächenentzug</p>

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)]	Regarding historical heritage possibilities to give up or to relocate the touristical valorisation respectively to keep a few building in order to demonstrate will be assessed when updating the river basin management plan.
	Archäologische Fundstellen, konnten teilweise gesichert werden, so dass eine Gewässerentwicklung möglich wurde, teilweise aber auch nicht, weil die Fundstelen von besonderer Bedeutung waren
	Können Maßnahmen so ausgestaltet werden, dass keine Auswirkungen auf die Ziele der FFH- und Vogelschutzrichtlinie bestehen
Navigation, including port facilities, or recreation [Art.4(3)(a)(ii)]	
- Navigation, including port	Verkehrswirtschaftlicher und ökologischer Vergleich der Verkehrsträger Straße, Schiene, Wasserstraße (PLANCO 2007)
	Switching on other routes/modes of transport
	Zur Schifffahrt gibt es meist keine Alternative, weil andere Verkehrsmittel

facilities	<i>umweltschädlicher sind und die Infrastruktur von Straße und Bahn Umweltbeeinträchtigungen an anderer Stelle bewirken.</i>
	<i>Einzelfallweise Betrachtung im Rahmen des Ausweisungsverfahrens durch die fachlich sachverständige und zuständige Behörde (zumeist „offensichtliche Sachlagen“)</i>
- Recreation	<i>When assessing disproportionality when updating the river basin management plan possibilities like relocating the recreation facilities or like shifting to “quiet” recreation will be assessed.</i>
	<i>Ersatz durch vergleichbare Freizeitmöglichkeiten in der Region zu verhältnismäßigen Kosten</i>
Activities for the purposes of which water is stored [Art.4(3)(a)(iii)]	
- all activities	<i>Alternativ Entnahme aus dem Grundwasser, damit würde der gute mengenmäßige Zustand des Grundwassers in best. WK gefährdet</i>
- Storage for drinking water supply	<i>Assessment of alternative possibilities to ensure the purpose of supply: currently no alternatives existing.</i>
	<i>Trinkwasserversorgung zu verhältnismäßigen Kosten anderweitig möglich</i>
- Storage for power generation	<i>Zur Wasserkraft gibt es in SH die Alternative der Stromerzeugung durch Windenergie, Staurechte der Betreiber oder Denkmalschutz verhindern häufig, dass Alternativen genutzt werden können.</i>
	<i>Energieerzeugung auf der Basis erneuerbarer Energien zu verhältnismäßigen Kosten anderweitig möglich.</i>
	<i>Einzelfallweise Betrachtung im Rahmen des Ausweisungsverfahrens durch die fachlich sachverständige und zuständige Behörde (zumeist „offensichtliche Sachlagen“)</i>
- Storage for irrigation	<i>Wasserversorgung zu Bewässerungszwecken zu verhältnismäßigen Kosten anderweitig möglich</i>
Water regulation, flood protection, land drainage [Art.4(3)(a)(iv)]	
- Water regulation	<i>Alternatives has been/will be assessed in the particular cases. For some uses no alternatives exist. An in-depth-assessment will be adopted in the next management-cycle.</i>
	<i>Zur Produktion landwirtschaftlich erzeugter Güter gibt es keine sinnvolle Alternative. Die Verlagerung der Produktion in andere Regionen würde dort vergleichbare Beeinträchtigungen bewirken</i>
	<i>Nach dem Landesraumordnungsprogramm soll die Landwirtschaft als raumbedeutsamer und kulturprägender Wirtschaftszweig erhalten werden, so dass andere Möglichkeiten nicht in Betracht gezogen wurden</i>
- Flood protection	<i>The alternative to reduce protection does not exist.</i>
	<i>Die Möglichkeiten eines verstärkten Rückhaltes des Regenwassers in der Fläche sind wegen der bestehenden landwirtschaftlichen Nutzungen beschränkt, die urbane Besiedlung an den Gewässern ist überwiegend nur noch durch technische Maßnahmen (Deiche) realisierbar</i>
	<i>Gewährleistung des Hochwasserschutzes zu verhältnismäßigen Kosten</i>

	<i>anderweitig möglich</i>
	<i>Aufgabe von Siedlungen. Dies ist nur durch Enteignung auf Grundlage eines Gesetzes möglich. Das wäre unverhältnismäßig</i>
	<i>Einzelfallweise Betrachtung im Rahmen des Ausweisungsverfahrens durch die fachlich sachverständige und zuständige Behörde (zumeist „offensichtliche Sachlagen“)</i>
- Land drainage	<i>Tecnical possibilities to avoid the significantly negativ impacts on use are restricted. In North Rhine-Westfalia there exists a disadvantageous area ratio due to intensive ground sealing. Therefore shifting to other areas where production would be a better environmental option would be not possible or would cause disproportionate costs. Because of that, giving up agricultural land or economical disadvantages due to exceeding wetness are only proportionate in singular cases.</i>
	<i>Zur Landentwässerung gibt es in Niederungsgebieten keine Alternative, wenn eine landwirtschaftliche oder urbane Nutzung erhalten werden soll..</i>
	<i>Nach dem Landesraumordnungsprogramm soll die Landwirtschaft als raumbedeutsamer und kulturprägender Wirtschaftszweig erhalten werden, so dass andere Möglichkeiten nicht in Betracht gezogen wurden</i>
- Mining Subsidence	<i>Alternative possibilities to maintain settlements in areas with mining subsidence does not exist at time.</i>
Equally important sustainable human development activity' [Art.4(3)(a) (v)	<i><u>Urbanisierung</u>: Verlagerung von urbanisierten Flächen und die damit verbundenen Nutzungen anderweitig zu verhältnismäßigen Kosten möglich</i> <i><u>Landwirtschaft</u>: Kompensation des Verlustes landwirtschaftlicher Flächen und der damit verbundenen Erträge zu verhältnismäßigen Kosten möglich</i> <i><u>Für Urbanisierung und Landwirtschaft</u>: <u>Einzelfallweise Betrachtung im Rahmen des Ausweisungsverfahrens durch die fachlich sachverständige und zuständige Behörde (zumeist „offensichtliche Sachlagen“)</u></i>

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)?	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	Have you developed <u>another method</u> of classifying the effect of hydromorphological alterations on ecological potential? (yes/no)
---	---	---	---

	(yes/no)	Annex)? (yes/no)	
In some federal states yes, in others yes but with constraints , in some federal states no	In some federal states yes , although in some only for lakes but not for rivers ; in other federal states partly and in others no	In some federal states yes , in others yes for rivers but not for lakes , in others partly while in others no	In some federal states yes , in others no

On methods, note also following method descriptions:

Method A :

One method developed combines the CIS-Guidance approach based on biological assessment methods and the “Prague approach”. It comprises following main steps:

- Identification of measures without use conflicts
- Modelling hydromorphology after implementation of the measures
- Calculation of class limits for ecological potential
- Transfer of these class limits (hydromorphology) to the class limits of biological quality elements (use of mathematical modelling)
- Comparison of the hydromorphological and biological current potential with the determined values for GEP

Method B :

In one of the approaches used, the current WB status which can be measured is the starting point. In a second step, there is a rough estimation of the effect of the practicable measures (estimation of whether there is improvement by less than one, one or more than one biological status class). This results in the classification of the current potential as moderate (in case of less than one or one status class) or unsatisfactory (in case of more than one status class). Thus, the current potential results from the effect of the practicable measures on the WB and the difference of the current from the expected good ecological potential. The Good Ecological Potential is thus measurable. It corresponds to the ecological status, which results after the implementation of all practicable measures.

Method C includes the following steps:

- 1) Choice of mitigation measures according to Prague methodology (GEP = all ecological effective measures)
- 2) List and abundance of habitats, which would be created when 1) would be fulfilled
- 3) Definition of the list of species and their abundance according to habitats under 2) (as "reference" for GEP)
- 4) Biological assessment

Method D:

Pressure case groups have been determined, which similarly to water types enable a categorisation of HMWB. Existing biological assessment methods were a component for the classification of a water body to a pressure case group. This approach is under examination.

Method E:

Für ein HMWB wird ermittelt, welchen Typ der Deutsche Fauna Index des Makrozoobenthos anzeigt. Mit dem GES dieses „Bewertungstyps“ wird verglichen. Für die Fische wird die

Potential-Referenzzönose des Bewertungsverfahrens FIBS ermittelt und der Bestand mit ihr verglichen. Mit diesen Verfahren können viele, vor allem kleinere Gewässertypen bewertet werden. Für einige fehlen diese Bewertungstypen, nämlich für 5.1 (ein Bachtyp), 9.1K (ein Typ mittelgroßer Flüsse) sowie beide Typen großer Flüsse (9.2, 10). Hier wird das GEP dem mäßigen Zustand gleich gesetzt.

In general, it is desired to develop an approach for the biological assessment of HMWB and the definition and classification of ecological potential which is comparable and harmonised on federal level. This has not been possible for the first RBMP.

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

In some federal states, this has been done for lakes but not for rivers.

See also notes above

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	Some federal states	benthic invertebrate fauna and fish fauna
Lakes	In some federal states yes , in some this is in preparation (via LAWA), in others no	phytoplankton, macrophyten/phytobenthos and macrozoobenthos
Transitional waters	No	No
Coastal waters	No	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	some federal states	some federal states	some federal states	some federal states (*)

Storage for drinking water supply	some federal states	some federal states	some federal states	some federal states (*)
Storage for power generation	some federal states	some federal states	some federal states	some federal states (*)
Storage for irrigation	some federal states	some federal states	some federal states	some federal states(*)
Water regulation	some federal states	some federal states	some federal states	some federal states(*)
Flood protection	some federal states	some federal states	some federal states	some federal states(*)
Land drainage	some federal states	some federal states	some federal states	some federal states(*)
Equally important sustainable human development activity'	some federal states	some federal states	some federal states	some federal states(*)

*: Round tables and bilateral talks in very extensive form (more than 300 discussions in one federal state)

If you have developed generic checklists of measures, please describe these

The following example explains measures for one water use in one federal state (there is extensive description of the use-related measures):

Land drainage:

Intrinsically dynamic running initiate development

Raising the water bottom for connection to the Floodplains or creating a secondary floodplain (Set deep in the waters of strip development)

Increase the flow diversity

Improving the depth variance

Sole structure improve

Eliminate bank reinforcement

Shoreline vegetation initiate

Water development to produce strips

Some federal states refer to general catalogues of hydromorphology measures (see examples in Annex 2 and Annex 3) and other measure catalogues which are used to extract measures for HMWB (e.g. approach of programme measure profiles (Maßnahmensteckbriefe)³)

³ Federal state example: The measures which count for measure case groups are taken from two types of measure profiles. On the one hand there are profiles of programmatic measures describing measures relatively abstract (e.g. optimising operation methods of waste water treatment plants). These profiles include average costs of measure types (e.g. average costs for measures to guarantee passability of dams depending on the elevation of

Please specify if you have a special methodology for the definition of Maximum Ecological Potential (MEP), which differs from your GEP methodology

In one federal state, it is reported that the determination of MEP is made by the estimate of the expected biological values, if all the improvement measures are implemented.
 Determination of GEP is made by the estimation of the expected biological values, if the selected improvement measures are implemented.

The decisive difference: Measures with minor environmental improvement will offer this approach impossible

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?

One federal state reports that the use of the “Prague” approach is planned only for single cases, where the other approach has not led to GEP

Other federal state reports that the target is done by determining parameters of the water structure. Some recommend to use the “Prague” approach for the first RBMP and then to define GEP by considering the degradation of the quality elements.

Other comments indicate that the use of only the measures-oriented approach (without ecological assessment) is not considered appropriate.

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	-

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

<u>yes</u>	<u>No</u>
Some Yes	Some No

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

Mit der Ableitung von Maßnahmen und der Zusammenstellung kosteneffizienter Maßnahmenkombinationen wurde zugleich die HMWB-Prüfung auf der Basis des Art. 4, Abs. 3 WRRL durchgeführt. Im Anschluss daran wurde die zur Erreichung des GÖP gewählte Maßnahmenkombination dahingehend geprüft, inwieweit die Inanspruchnahme von Fristverlängerungen zur Erreichung des guten ökologischen Potenzials erforderlich ist. Die im Art. 4, Abs. 4 WRRL genannten Kriterien wurde dazu herangezogen.

the dam). These programmatic measures are linked to so-called execution-measures. Every programmatic measure is linked to several profiles of execution-measures, in which the measures are described more precisely and which include more complex cost-functions instead of only average costs. Profiles of justifications for exemptions from the environmental objectives are linked to those measures which have to be assessed regarding the question if the execution of the measure would have a significantly negative impact on use.

Time derogation to apply, if monitoring results and biological assessment of ecological potential show significant deficits, that cannot be overcome until 2015 because of technical or natural reasons or disproportionately expenses:

- Die Umsetzung der erforderlichen Verbesserungen (= die machbaren, das GÖP beschreibenden Maßnahmen) ist aufgrund der technischen Durchführbarkeit nur schrittweise möglich, der Zeitrahmen wird dabei überschritten (WRRL Art. 4 a) i)).

- Die termingerechte Verwirklichung der Verbesserungen (= Umsetzung der machbaren, das GÖP beschreibenden Maßnahmen) bis 2015 verursacht unverhältnismäßig hohe Kosten (WRRL Art. 4 a) ii)).

- Die natürlichen Gegebenheiten lassen keine Verbesserung des Zustands des Wasserkörpers bis 2015 zu (WRRL Art. 4 a) iii)).

Darüber hinaus können als Hinderungsgründe weiterhin herangezogen werden:

- Abhängigkeit von Anderen

- Rechtliche Gründe

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?

Suggestion: The important role of the affected and interested people on-site when categorising the waters and when evaluating the existing hydromorphological alterations, the technical and practical possibilities of execution of necessary measures due to existing uses and the possibility of giving up the existing uses. As an example for the integration of the affected and interested people on-site one implementation element in North Rhine-Westphalia could be presented. North Rhine-Westphalia has negotiated a framework agreement with the farmers, in which a cooperative approach when implementing WFD is agreed. In this agreement there is one article in which a procedure regarding the designation of HMWB is laid down.

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.

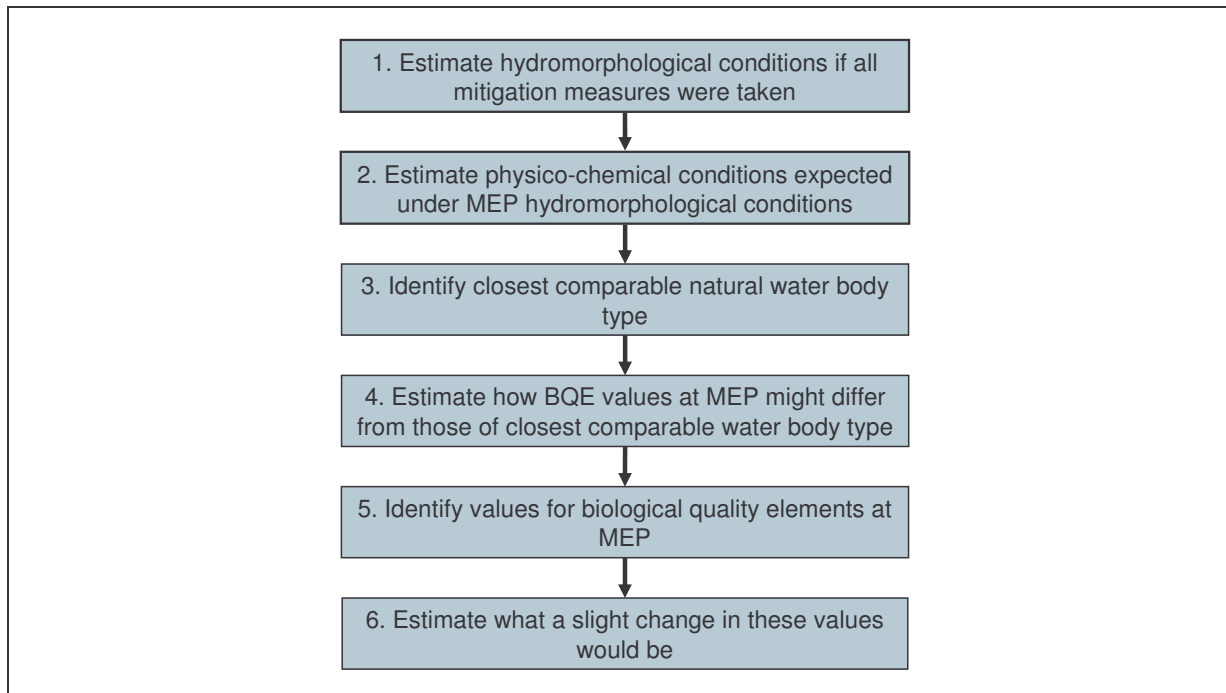


Figure 1: Steps in defining GEP as described in the CIS Guidance Document No. 4.

- ✓ 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).

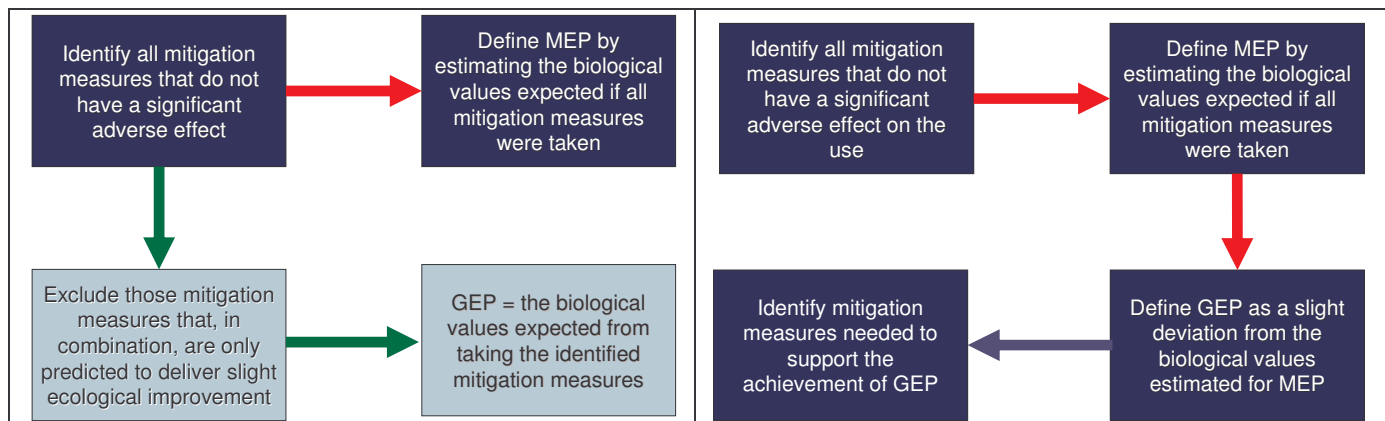


Figure 2: Steps involved in defining GEP using alternative approach (left side) compared to the relevant steps in the approach described in CIS Guidance Document No. 4 (right side); red arrows: steps following CIS method, green arrows: modifications of CIS method.

- ✓ 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.