Proposal on the Definition of the Maximum Ecological Potential (MEP) and the Good Ecological Potential (GEP) for Heavily Modified Water Bodies (HMWB) and Artificial Water Bodies (AWB)
suggested by UK/GER CIS WG A Co-leads

1.0 Purpose
1.1 This paper reports on an important outcome of the UK/Germany Water Framework Directive conference on Hydromorphology which was held in Prague on 17 to 19 October 2005. In addition the suggestions below meet the tasks of the mandate of the new activity on WFD and hydromorphological pressures.

1.2 The aim of this paper is to introduce a practical approach on the definition of MEP and GEP as part of the designation process of HMWB and AWB. The overall stepwise approach laid down in the Guidance Document No. 4 on “Identification and Designation of HMWB and AWB” is suggested to be modified at step 10 (MEP definition) and step 11 (GEP definition). All other rules developed for identification, designation and classification of HMWB and AWB are not concerned (see for more detail: http://europa.eu.int/comm/environment/water/water-framework/guidance_documents.html). The method proposed in the HMWB guidance document for defining GEP is more aligned with the requirements of the WFD and this method would be more appropriate for application for the first RBMP by countries well advanced in WFD implementation. The practical approach introduced in this paper should be considered as an alternative approach to WFD procedure. Furthermore, this practical approach will be developed so that it includes an assessment of effects on the values of biological quality elements as well as consideration of cost effective measures before implementing measures. Without these developments, the method as proposed would not be sufficiently robust to justify significant expenditure to meet the ‘estimated’ GEP. Improvement in the values of biological quality elements should be the basis.

2.0 Introduction
2.1 For surface waters the overall aim of the Water Framework Directive (WFD) is for Member States to achieve “good ecological status” and “good surface water chemical status” in all bodies of surface water. In order to achieve the specific objectives for heavily modified and artificial water bodies (i.e. good ecological potential and good chemical status), the provisions for designation (see Article 4 §3), contain elements of comparing the consequences of achieving the ‘good ecological status’ to...
a number of aspects including economic considerations. Moreover, the assessment of “good ecological potential” is linked to the possible mitigation measures.

2.2 Member states have to define by mid 2008 what mitigation measures should be taken in HMWB and AWB in order to report the ecological potential of such bodies in the river basin management plan (RBMP). Concerns had been expressed in some Member States that the existing process for the definition of MEP and GEP as laid down in the HMWB guidance document (steps 10 and 11) was too complicate and not practicable to allow Member States to deliver within the required timetable.

2.3 The Directive explicitly requires that:

- Maximum ecological potential (MEP as reference condition) be defined in relation to the mitigation measures that could be taken without significant adverse effects on the specified water use or on the wider environment; and
- High ecological status be defined in terms of the values for the biological quality elements expected if there were no or only very minor human disturbance to the natural hydromorphological characteristics of the body.

This means that the ecological quality associated with MEP and GEP depends on the ecological effectiveness of those mitigation measures that can be taken without significant adverse effects on the water use or on the wider environment whereas the ecological quality associated with HES and GES does not depend in any way on the effectiveness of restoration measures.

3.0 Proposals

**Definition of GEP**

3.1 A proposal by UK was made by the conference to modify the steps required to deliver GEP for the first basin plan.

3.2 The existing stepwise approach to identifying the measures to achieve GEP involves four steps. It requires Member States to define a theoretical MEP and GEP and then predict, if GEP is not reached, the mitigation measures which are required to deliver this theoretical GEP at a specific site (Figure 1).
2. Define MEP on the basis of all mitigation measures by taking the nearest equivalent comparable WB.

1. Identify all mitigation measures which do not have a significant adverse effect.

3. Define GEP by allowing slight changes in biological quality elements (GEP).

4. Define measures which will deliver GEP.

In figure 1: in second box: write “all these mitigation measures” instead of “all mitigation measures”; in box: add “if GEP is not reached”.

3.3 The proposal introduces another approach for the first RBMP cycle and involves assessment of all the measures which could be undertaken at the site. Afterwards a subset of these is applied. The measures excluded would be those that in combination would only deliver a slight improvement in the condition of the biological quality elements. Once the mitigation measures identified for GEP have been applied, biological monitoring would determine the improved biological condition. This could be compared to the theoretical MEP derived by modelling. This comparison would happen in the second RBMP cycle once sufficient monitoring data had been accumulated. Nevertheless in the first RBMP the classification of HMWB and AWB has to be undertaken compared to the theoretical MEP.

4. Estimate MEP on the basis of all mitigation measures (use closest comparable water body).

1. Identify all mitigation measures which do not have a significant adverse effect upon the use.

3. Measure GEP on the basis of reduced list of mitigation measures.

2. Remove measures which would only cause a slight change in the biological quality elements.

3.4 The consequence of this approach would be that discussions could focus on what mitigation measures could be applied in the first cycle. This avoids esoteric arguments on the definition of mitigation measures via theoretical MEP and GEP biological quality elements.

Lists of measures

3.5 The conference agreed to ask the new Hydromorphology Group to facilitate the collation of lists of measures which are appropriate for certain uses. A number of member states have already started such lists, e.g. the UK on reservoirs, France on rivers used for navigation and Germany on hydropower plants.
3.6 It was emphasised that these lists were required very quickly if they were to be of any use. All member states recognised that only three years were left to define measures and consequently alternative objectives in time for the draft plan.

3.7 The following process was proposed for the application of the lists:

- A generic list defines the possible measures which could be applied at a site and do not have “adverse impact on the use”.
- This list then needs to be assessed for a specific site. The measures which would be effective at delivering improvements in ecology at this site need to be identified.
- The full list of appropriate measures could be used to define MEP.
- A shortened list of measures (excluding a combination of measures which would only deliver a slight ecological benefit) would then be proposed as part of the programme of measures.
- If all these measures could be delivered then the objective for the site should be GEP. If only a proportion of the measures can be delivered then the preliminary objective for the first river basin management plan should be less than GEP.

3.8 In addition the following amendments are suggested:

- The biological conditions at the specific site should be derived by modelling on the basis of the theoretical implementation of the mitigation measures which are planned to be carried out in the first RBMP (e.g. MEP and GEP conditions).
- In the first RBMP the classification of HMWB and AWB has to be undertaken compared to the theoretical MEP. This comparison should be validated in the second RBMP cycle on the basis of monitoring data when the mitigation measures have been implemented.

4.0 Recommendation

4.1 The CIS Working Group A members are invited to discuss the suggestions made as a pragmatic approach to simplify the process of the HMWB designation as endorsed by the mandate on WFD and hydromorphological pressures.