Water Framework Directive & Hydropower

Common Implementation Strategy Workshop
Berlin, 4-5 June 2007

Key Conclusions

General remarks

1. The benefits of hydropower as a highly reliable CO2-free and renewable source of electricity production but also the need to maintain the ecological functions of hydropower-affected water stretches have to be taken both into account to achieve a proper and well-balanced approach to meet climate, water & nature protection objectives.
2. It is important to ensure that existing and forthcoming EU policies to promote hydropower ensure coherence with the Water Framework Directive/other EU environmental legislation and clearly consider the ecological impacts on the affected water bodies and the adjacent wetlands.
3. The discussion has shown that more holistic approaches for hydropower use are needed. The focus should be on catchment level and not only site-specific or on water body level.
4. During WFD implementation, an environmental assessment based on WFD criteria is required for all water bodies including those with hydropower plants. This assessment includes other environmental criteria and a socio-economic assessment. In addition, in the River Basin Management Plans, all water uses have to be taken into account.
5. Hydropower development should take into account future climate change impacts. Possible future conflicts between new hydropower priorities due to climate change impacts and the aims of the WFD to achieve GES or GEP should be taken early into account.
6. The Berlin workshop was the first occasion, where broad and intensive discussions took place on the European level between hydropower stakeholders and those responsible for the implementation of the WFD on the national level. There is a strong recommendation to continue the discussions to achieve sustainable solutions concerning hydropower and WFD requirements.

Instruments to promote hydropower & to improve water status

7. National and European instruments (such as tradable certificates, feed-in tariffs, support schemes for renewables or ecolabelling) to support and promote hydropower development should be linked to ecological criteria for the protection of water status.
8. There should be a clear insight into all costs & benefits of hydropower. This insight will help sustainable decision-making on hydropower projects and implementing the polluter pays principle.
9. The workshop identified 3 practical approaches for integrating good water status and utilisation of hydropower. For new plants, best available techniques (BAT) should be defined and utilised. For old plants which are to apply for new permits, environmental concerns should be addressed while issuing the new permit. For old plants with continuing long-term permits, financial incentives may be helpful. Monetary or non-monetary compensation should be considered for long-term concessions.
10. The workshop participants recognised the advantages of pre-planning mechanisms to facilitate the (proper location) identification of suitable areas for new hydropower projects. These pre-planning mechanisms should take into account WFD and other environmental criteria as well as socioeconomic aspects, including other water uses. The use of such preplanning systems could assist the authorisation process to be reduced and implemented faster, provided that the criteria of WFD Art. 4.7 are met.

11. At least 3 categories of areas could be distinguished for pre-planning: suitable, less favourable and non-favourable areas. These categories should be identified with the involvement of all stakeholders based on transparent criteria, they should be monitored and revised within a period of time.
12. Small and large hydropower should be treated equally with regard to promotion. Promotion should be based on basin-specific as well as site-specific WFD criteria and global environmental criteria (climate change) and not on the size of the hydropower plant per se.

Technical approaches for good practice in hydropower use

13. Biological continuity (upstream and downstream migration) and ecologically acceptable flow were identified as priority considerations for the improvement of water ecological status. Hydro-peaking is also of importance (e.g. erosion and habitat degradation).
14. Biological continuity: For upstream migration, many solutions are available (e.g. fish passes and fish ladders, but also fish lifts, fish stocking, catch & carry programmes etc.) to mitigate the negative impact of migration barriers – but more work needs to be done on evaluation and monitoring of effectiveness. Much research leading to technical innovations has still to be undertaken, especially related to downstream migration in combination with turbine damage.
15. Ecologically acceptable flow: Approaches to determine ecologically acceptable flow have been developed and are being further developed by several European countries. There is no one-size-fits-all approach - a combination with other mitigation measures is often necessary.
16. The use of compensating measures together with mitigating measures is highly recommended.
17. Hydro-peaking: Some studies identify serious ecological consequences of hydro-peaking, but there are still knowledge gaps. Mitigation options are limited and often involve high costs due to the loss of peak-load capacity and their designated function. However, examples for the successful implementation of mitigation measures also exist (like coordination between hydropower plants).
18. Some degree of standardisation at European level is desirable, but solutions for mitigation measures will have to be largely site-specific (e.g. definition of ecologically acceptable flow). Exchange of information should be promoted on standards that have been developed by different countries or organisations (e.g. for continuity).

Strategies & priorities on catchment level

New hydropower projects

19. New hydropower projects are compatible with the WFD as long as they comply with the Art. 4.7 test.
20. For new hydropower projects, external effects – e.g. on the water environment - should be taken into account properly by the use of the Art. 4.7 test. There is relatively little experience across Member States with the use of this test. Exchange of experience is needed to develop a transparent approach.

Delivering improvements for existing hydropower

21. It was agreed that prioritisation of measures, catchment areas and rivers is compatible with the WFD but the Member States should deliver a proportionate programme of measures.

22. Criteria for prioritising action in regions affected by hydropower should consider different scales. On the European level, species and habitat issues of ecological importance should be identified, for example via the Natura 2000 designation process. Other criteria on an international level are lateral connectivity regarding wetlands and management of water and sediment flow. On the catchment and regional level, longitudinal continuity for key migrating fish is especially important. On the level of water bodies/groups of water bodies, we should also consider lateral connectivity, the geographical scale of impact and severity and we should identify trends (to prevent deterioration). Measures that bring the highest improvement potential, calculated as e.g. river length, should be prioritised.

23. We should aim at achieving self-sustaining populations of migrating fish species where possible/needed and where historically verifiable at the catchment level, in particular aiming at delivering interconnectivity in combination with habitat and spawning ground conservation/restoration. Interdependency of measures should be regarded as well as the risk of negative impacts of measures, such as introduction of alien species and climate change.

24. In addition to the definition of ecological priorities, we should use socio-economic analysis to define a cost-effective programme of measures. This work should ideally be undertaken at a catchment or sub-catchment level, so as to maximise the ecological potential and the energy production. Economic aspects for hydropower should include a wide range of benefits (e.g. economic importance of species, economic uses of water) and costs (financial cost of measures, environmental and resource costs). Social aspects also bringing benefits include recreational/amenity value, tourism, multifunctional use for hydropower, flood protection, fisheries as well as public views on the relative importance of benefits/costs (public participation).

25. The main advantages of prioritisation for all surface waters are:

    - Provision of technical basis for the prioritisation of measures to improve hydromorphology and ecology.
    - Establishment of a strategy on catchment level to ensure a coordinated and uniform approach for delivering ecological improvement and ultimately reaching GES/GEP in the River Basin Management Plans.
    - Ensuring the selection of cost-effective and ecologically efficient measures to deliver ecological improvement, e.g. biological continuity.