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WP4: Transformation

Short Note of 1st Hydropower Sector Round Table

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The H2020 MERLIN roundtables aim to build a community of practice linking the economic sector representatives with MERLIN scientific and implementation partners. This report captures the main discussion points of the roundtable. A further briefing on the sector, reflecting on all sources of data, will follow in autumn 2022.

What we did:

The Hydropower roundtable was held on 21st April 2022. Nine representatives from International, European and National energy and hydropower associations attended, as well as representatives from individual energy companies. A presentation on the Swedish experience of working with the hydropower sector to restore rivers to meet the Water Framework Directive helped set the context, supplemented by a summary of themes arising from questionnaire responses and a literature review. These themes (see subheadings below) were used to structure the breakout discussions.

Themes Discussed:

The following main discussion points are not the views of **all** participants or the authors.

Trends in Hydropower

Hydropower has an important role to play in provision of renewable electricity mix, particularly as hydropower can respond when other renewables are not available. Hydropower also provides energy security and self-sufficiency. Many argued that hydropower is already one of the most efficient forms of energy generation. Participants pointed to technical developments that result in lower CO₂-equivalent emissions per kwh produced.

There is a divergence in opinion regarding new hydropower sites – some participants felt there was potential to develop green field sites; others preferred to upgrade existing sites; some argued both are needed to reach EU Goals.

We need to look at hydropower on a case-by-case basis, taking account of the age of the infrastructure, ownership model, potential and actual power generation, and fit within the wider catchment. It is not as simple as big or small-scale hydropower.

Sustainability & Nature-based Solutions

Some argue that hydropower producers upgrade plants to meet ecological requirements, but not all hydropower is ‘sustainable’ in the meaning of addressing social, environmental, and economic impacts. There is more that the sector can do to support Green Deal Biodiversity objectives.

The International Hydropower Association [guidelines](#) were promoted to help the sector address sustainability, helping to focus on the most appropriate type of dam, in the best place, built and maintained the correct way.

The EU taxonomy could be used to support investment in both downstream and upstream restoration, however, there are concerns regarding how the delegated acts are defined, and the evidence-base used.

Nature-based Solutions is a very broad term and not consistently used in the sector. The IUCN principles could help the sector develop Nature-based Solutions when developing or maintaining hydropower sites.



Small Dam Removal

Many argued that most 'small' dams in a catchment are not used for hydropower – should MERLIN be addressing these dam owners as well? Dams also built for water regulation, navigation, recreation, land reclamation and sediment control.

Some participants believe that removing small dams will reduce capacity to produce renewable energy required to reach the Green Deal (e.g. Eurelectric's Fit for 55 goal). They argued removal should be based on a site-by-site assessment which evaluates both the current and future needs assessment.

There are cases of small hydro dam removal for economic reasons (costly to maintain or repair) but this is when the dam is no longer viable. When dams are producing energy, there is less incentive. Sometimes the local communities are worried about the risks from dam removal, impact on water levels or loss of cultural heritage.

It can be expensive and time-consuming to remove dams, compounded in cases of old dams with no clear owner. It is unclear how restoration associated with small dam removal can and should be financed – the Swedish model of State funding supplemented by industry funding is not found in other parts of the EU.

There was debate over whether dam removal is the best way to achieve environmental outcomes – often other forms of riparian and instream restoration is needed to return the waterbody to ecological function.

Many wanted the focus to be on innovation to achieve the final goal (free flowing rivers, favourable condition and ecological function) and not on only the intervention of dam removal.

It is important to consider individual dams as part of a wider catchment to identify the most effective way to restore the ecological functions. This means a cross-sectoral approach.

What MERLIN can provide to the sector:

- Provide practical information on outcomes of small dam removal for Green Deal objectives.
- Provide practical information on other restoration measures to help sector meet Green Deal objectives.
- Provide practical information on potential finance schemes for restoration associated with Hydropower.
- Help to place individual hydro structures in the wider context of other instream barriers within a catchment.
- We were also requested to provide a space to discuss dam removal with other dam users and catchment stakeholders.

Next Steps

- Feedback from the roundtable to other parts of MERLIN project
- Develop draft briefing in autumn & share for comment with the sector before publication
- Build towards mid-project hydropower roundtable (possible solutions & policy modifications)
- Keep up with upcoming events or reports relevant to us as we build a community of practice linking the hydropower sector to NbS

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