

THE WATER FRAMEWORK DIRECTIVE IN SWEDEN - DAM REMOVAL AS A MEASURE?

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WFD IMPLEMENTATION IN SWEDEN

- Water Management according to WFD
 - Assessment of water status in surface water bodies
 - Ecological status (5 classes, High → Bad)
 - Significant pressures
 - Hydromorphological changes (including dams and other barriers) are the most frequent types of pressure on Swedish water bodies
 - Measures identified – *inter alia* dam removal, fish passes, etc.
 - Environmental objectives set – in relation to present status, pressures and possible/reasonable mitigation measures (High → Good → Moderate → Poor → Bad Ecological Status)

Exemptions



Länsstyrelserna

WFD IMPLEMENTATION IN SWEDEN

- Implementation – levels of governance
 - Government
 - Legislation, funding, governing authorities
 - Regional Water District Authorities
 - Characterisation, assessment of pressure, risk and status, identify needs for improvement and physical measures
 - Set environmental objectives
 - Programs of measures (administrative)
 - State authorities (national and regional)
 - Carry out measures (administrative and physical)
 - Provide information and knowledge base, funding
 - Municipalities
 - Carry out measures (administrative and physical)



WFD IMPLEMENTATION IN SWEDEN

- Dam removal - governance and measures
 - Water District Authorities identify need for measures and decide on relevant administrative measures
 - Derived from Environmental objectives (Good ecological status/potential, or less stringent objectives)
 - State authorities (primarily County Administrative Boards) consider appropriate measures in individual cases
 - Initiate administrative procedures in relation to operators
 - Carry out measures on own behalf
 - Environmental courts decide on physical measures to be carried out
 - Main rule that all removal/mitigation measures require permit – on application from authorities or operators



DAMS AS PRESSURE

- For approximately 11 500 water bodies, dams and barriers (weirs, hydropower plants, storage dams etc.) were identified as significant pressures on water status – less than GES
- Wide variety of size, use, scale of impact
 - Large scale hydropower plants and storage dams
 - Small scale hydropower stations
 - Irrigation, drinking water and flood protection dams
 - Old barriers and dams relating to, for instance, mills, log driving, irrigation, ironworks
 - Embankments, road culverts etc.



MEASURES

- Dam removal suggested for only 125 dams (in present Programs of measures, 2016-2021)
- For the majority of dams, other measures are suggested – fish passes, reconstruction etc.
 - 12 300 other, different measures related to fauna passages are suggested, planned or ongoing
- For large scale hydropower plants and storage dams, removal is generally not an option
 - However, removal of smaller dams and barriers downstream large plants may be relevant

MEASURES

- Up to date, 1 650 measures related to upstream and downstream fauna passages have been carried out (as reported)
- However, large uncertainty in data – only one (!) dam removal measure has been reported so far
 - Delay in reporting completed measures
 - All measures are not reported (access, awareness, resources)
 - Mistakes/interpretations in reporting



HEAVILY MODIFIED WATERS

- 658 water bodies (lakes and streams) are presently appointed as Heavily modified water bodies (HMWBs)
- Due to pressure from large scale hydropower facilities
 - 247 hydropower plants and storage dams
 - Considered essential for Swedish energy supply (electricity production and frequency regulation)
- Specific, adapted environmental objectives – Good ecological potential (GEP)
 - Generally, minimum flows and fauna passes are required, but less stringent objectives are applied also



PRESENT AND FUTURE...

- Main shortcomings so far:
 - Slow administrative procedures, lack of funding, legislative issues
 - Low impact for environmental objectives in legal proceedings
 - Lack of data and knowledge on specific measures required
- New legislation and other changes underway:
 - Mandatory reconsideration of permits for all hydropower related facilities
 - Stronger connection to environmental objectives in permit cases – must be observed and applied
 - Environmental objectives for HWMBs
 - Development of data and knowledge base in general



THANK YOU FOR LISTENING!

