

Sustainability Criteria for Hydropower Development

For more information

Igor Vejnović
Hydropower Policy Officer
igor.vejnovic@bankwatch.org

Pippa Gallop
Research Coordinator
pippa.gallop@bankwatch.org

Any hydropower project no matter the size can cause negative consequences to water basins, associated ecosystems, to climate and affected communities¹ living along the water basins. A large number of individually acceptable projects can also lead to unacceptably high negative cumulative effects. Therefore, strategic planning should be the first step in setting thoughtful goals for hydropower's contribution to a country's electricity balance, taking into account that rivers are a vital element of the environmental, climate adaptation, social and cultural systems of our planet and that areas of high conservation value (either protected by law or not) have to be preserved from the negative impacts of hydropower plants. In the process of planning and development of hydropower projects, the recommendations of the World Commission on Dams should be followed. The EU Water Framework Directive's respective guidelines (such as the WATECO guidance² should be applied at the project level.

I. Strategic planning of hydropower development

1. A national energy strategy³ should be in place and be subject to a Strategic Environmental Impact Assessment (SEA) procedure in line with the EU Strategic Impact Assessment Directive (SEA Directive), where a needs assessment, demand management and assessment of various alternatives for satisfying energy needs is given thorough importance. Attention should be paid to the impacts of climate change on hydropower generation levels and overdependence on hydropower must be avoided. Rehabilitation and increased efficiency of existing HPPs has to be given priority before new project development;
2. River basin management plans should be in place and be subject to strategic environmental assessment (SEA);

¹ As defined by the UN Special Rapporteur on Adequate Housing; October 16, 2011: "Affected parties consist not only of those who will be displaced, but also those who will be subject to any restrictions on their access to resources required for continuity of their way of life, or any loss or reduction of employment, income or means of subsistence. Affected parties also include those living around the project sites, those that may be segregated from their original communities, those living in or near resettlement sites, and downstream communities in the case of a dam project. Owners and non-owners, renters, sharecroppers, partners, occupants, lessees, informal workers, for example, may be considered as the affected community.

² EU Water Framework Directive's Common Implementation Strategy (CIS) Guidance document 1.

³ If a national Renewable Energy Strategy is in place this should also be subjected to an SEA.

3. Small hydropower may be developed on not more than 30–50 percent of rivers in a catchment area. Determination of the exact boundary must be subject to prior assessment during the preparation of river basin management plans and their strategic environmental assessment;
4. Based on strategic environmental assessment of the river basin management plans, “no go zones” should be created where implementation of any hydro project will be prohibited. ‘No go zones’ should include river stretches located in or having direct impact on existing or proposed protected areas, including IUCN categories I–IV, areas protected within national categorization systems, nationally recognised important biodiversity areas not currently protected or proposed to be protected, as well as river stretches located in areas with high conservation value/importance territories (e.g. upstream areas of rivers, riparian floodplains, intact (virgin) forests, mountainous wetlands, habitats of rare and endangered species and subspecies).
5. Classification of rivers and river stretches with respect to their potential appropriateness as locations for HPPs has to be conducted based not only on technical energy potential, but also based on ecological and landscape value. Water body status⁴ has to be determined (from high status to heavily modified) in order to define sufficient environmental flows⁵ downstream from the water intake. Maintaining of an environmental flow in the river (rather than minimal sanitary flow) is necessary to ensure that riverine ecosystems, climate change adaptation potential and the livelihoods of people depending on them are sustained.

II. Project level criteria

1. Project development should be based on timely and informed public participation procedures in which affected communities and other stakeholders including civil society groups are pro-actively consulted (not only informed), where their views properly taken into account and consent of the affected communities is obtained for the project development.
2. Compensation measures for affected communities have to be mutually agreed and be legally enforceable.
3. In the case of derivative HPPs, based on the status of the river determined as the result of classification (see point 5 above), a holistic methodology must be used to determine environmental flow;
4. Affected community livelihood needs (water, plants, animals, recreation etc.) are assessed and sufficiently provided for during project construction and operation; Impacts

⁴ Classification according to EU WFD can be used: high, good, moderate, poor, bad, heavily modified, artificial water bodies.

⁵ Environmental flows describe the quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend upon these ecosystems (Brisbane Declaration, 2007, Appendix 1).

on water ecosystems (including on lakes, estuaries and other water bodies or their elements downstream) and climate are assessed and prevented/mitigated during the project construction and operation.

5. The hydropower project must not involve construction of any dam that affects the water flow regime and wildlife circulation, therefore any project must:

- Not involve any dam that blocks the river flow entirely;
- Not involve mitigation like fish ladders and/or fish friendly turbines that have low passage efficiency;

6. Any hydropower project must:

- Not derogate the current status of the river;
- Not derogate the ecological services / functions of the river including wildlife reproduction, climate change adaptation potential, erosion protection and sedimentation;
- Not involve any physical and large scale economic resettlement that will have a significant negative impact on livelihoods of the affected communities
- Be integrated into the existing landscape in a way that it does not cause significant visible changes⁶ or disrupt wildlife movement;
- Have a significant positive climate change impact or impact on a river's capacity to serve climate adaptation.
- Not involve any existing or planned associated facilities such as other HPPs or transmission lines that would generate significant cumulative environmental and social impacts.

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⁶ In line with the European Landscape Convention.