



Euro-FLOW: a European training and research network for environmental FLOW management in river basins. A MARIE SKŁODOWSKA-CURIE ACTIONS Innovative Training Network (ITN) funded under H2020-MSCA-ITN-2017

ESR 12: Improved reservoir operating policies for implementation of environmental flows

3 year fixed- term PhD position.

Host institute: IHE- Delft, Netherlands

Supervisor: Professor Pieter van der Zaag (IHE Delft Institute for Water Education)

Project Description:

The research will focus on alternative dam operations for existing dams in operation. Dams have a history in which their great potential has been coupled with inequity, environmental degradation and social disruption. What remains unclear is whether dams can give both economic growth and support healthy ecosystems or whether there is a certain trade-off between the two. Learning from existing dams will provide opportunities to plan, operate and govern new dams in a more equitable and sustainable manner for the river and delta ecosystems and for the people who rely upon them. Through this research we aim to provide insight into how dams can be operated differently to support healthy riverine habitats while providing sufficient water for economic development. In order to answer those research questions it first needs to be understood how the dams have modified the flows of water, how the dam was operated and governed and how this has influenced different groups of people and the ecology of the river. Strategies for alternative dam operations can then be developed that incorporate environmental flows and the impact of those alternative strategies will need to be evaluated.

Different case studies will be selected from with the case studies involved in the Euro-FLOW project. The case studies cover a range of scales from regional to national and European. The applicant will have excellent connections to relevant stakeholders (dam operators, water authorities, policy makers, end-users). This ensures access to the relevant data, grounded situational understanding, and local dissemination channels.

Objectives:

- (1) To describe current and potential reservoir operating policies
- (2) Develop alternative reservoir operating policies which can incorporate e-flows
- (3) Evaluate the impact of the different operating policies on functional processes, ecosystem services and socio-economic outcomes
- (4) Recommend strategic policy arrangement for water authorities and other relevant stakeholders to effectively implement e-flows

Expected outcomes:

- (1) Novel reservoir operating policies for environmental flows
- (2) Improved decision support system for dam operators and/or river basin authorities

(3) Identification of impacts of implementation of environmental flows in dam regulated river systems

Secondments:

Secondments to UFZ (with Dr Martin Volk) and MWH (with Dr Evan Dollar) will be undertaken in years 2 and/or 3 of the research for a minimum period of 3 months each.