

## Economic impact of optimized sediment management at Swiss dams

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) defines Nature's Contributions to People (NCP) as all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people. The ValPar project implemented on behalf of the Swiss Federal Office for the Environment conducts ecological, social and economic valuation of various NCPs for Switzerland, among them also the NCP Formation, protection and decontamination of soils (for details s. [www.valpar.ch](http://www.valpar.ch)). IPBES defines this NCP as "Formation and long-term maintenance of soil structure and processes by plants and soil organisms" including "physical protection of soil and sediments from erosion..." (Díaz et al. 2018)<sup>1</sup>.

The process of soil erosion on unvegetated alpine surfaces is a key factor for sedimentation of storage lakes in the Alps (see Fig. 1) and discharge of sediments to mountainous rivers and further downstream. Vegetation increases soil resistance and thereby reduces soil's exposure to climatic stress factors such as extensive rainfall, runoff and frost, and in this way reduces the extent of soil erosion. Thus, forests and other vegetation types fulfill an important regulating function: by reducing soil erosion they retain sediments that otherwise would have been discharged in water reservoirs and rivers.

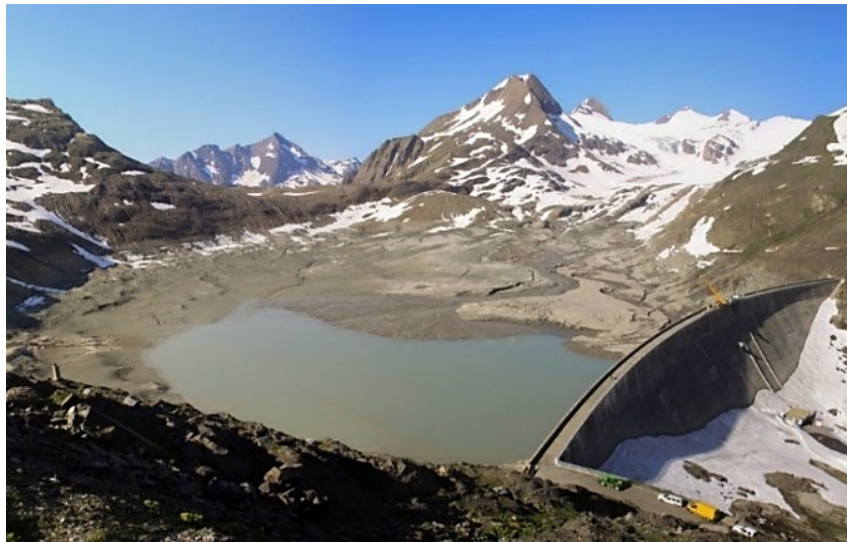


Fig. 1: Gries reservoir (CH) during partial emptying in 2015 (Source: VAW)

Management of sediments is a complex and costly task. The cost of sediment management appears to be particularly high in the Swiss hydropower sector. The objective of this project or Master's thesis is to establish a typology of hydropower facilities and to conduct an assessment of sediment management costs for the main types of hydropower facilities in different catchment areas.

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**Particular information:**

Project oriented thesis, group work possible  
Communication & Report in English or German

<sup>1</sup> Díaz, Sandra; Pascual, Unai; Stenseke, Marie; Martín-López, Berta; Watson, Robert T.; Molnár, Zsolt et al. (2018): Assessing nature's contributions to people. In *Science* 359 (6373), pp. 270–272. DOI: 10.1126/science.aap8826