

Junior Fellowship for Dr. Fabrice Amisi Muvundja: Environmental flow requirements of two dammed tropical Rivers of the Congo Basin (Eastern Democratic Republic of Congo)

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika

Ausschreibung: Postdoctoral Fellowships "Resources, their Dynamics and Sustainability - Capacity-Development in Comparative and Integrated Approaches"

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Hydropower (HP) is the main source of electricity in the Democratic Republic of Congo. The need for constructing new dams is higher than ever. However, for almost all HP dams, little attention was paid to environmental and social impacts. This study aims to assess the environmental flow of two impounded rivers of the Congo Basin in order to suggest better water resources use and obtain useful insights to enhance the sustainability of future projects. Thus three HP dams are selected in two different eco-geographical settings, namely Ruzizi I and II hydropower dams and Tshopo dam. The flow regime, nutrient and solids retention by the dams, macro-benthic invertebrate communities, erosion and sediment loading as well as human impacts will be analysed. Water quality, algal total biomass, aquatic macrophytes, macrobenthic and fish diversity will be assessed at different sites (habitats and substrates) across the rivers upstream and downstream the dams. Faunal dynamics and threats, ecological and social importance of the rivers will be addressed using a participatory method in a survey among the riparian communities. The key expected outcomes include the determination of the best environmental - management practices of HP as well as the social and ecological importance of these rivers. It will be possible to determine the types of species which are adaptive to the new dam-induced conditions and those most vulnerable. Benthic faunal turnover will be calculated and interpreted in terms of community changes. The project will enhance the capacity of local universities in EIA and allow building up environmental awareness.

Projektbeteiligte

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Mollusk communities of the central Congo River shaped by combined effects of barriers, environmental gradients, and species dispersal