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Identifying bio-physical, social and political challenges to catchment governance for sustainable freshwater fisheries in West Africa: Systems overview through scenario development in the SUSFISH project.

Jan Sendzimir (1), Gabriele Slezak (2), and Andreas Melcher (1)

(1) Institute of Hydrobiology and Aquatic Ecosystem Management, University of Natural Resources and Applied Life Science (BOKU), Vienna, AustriaAustria (sendzim@gmail.com), (2) Dept of African Studies, University of Vienna, Vienna, Austria (gabriele.slezak@univie.ac.at)

Chronic and episodic water scarcity prompted construction of 1400 reservoirs in Burkina Faso since 1950, greatly expanding fisheries production. These fisheries provided an increasingly important protein source for a population that has risen 600% since 1920, but production has plateaued, and dramatic declines in adult fish size suggest these fisheries are not sustainable. The SUSFISH project joined Austrian and Burkinabe scientists to increase local capacities to manage fisheries sustainably. SUSFISH has successfully increased capacity to monitor fish populations, identify endangered species, and use specific fish and macroinvertebrate species as bio-indicators of water and habitat quality as well as anthropogenic pressures. But projects to support sustainable development in Africa have a long history of failure if only based on transfer of technology and theory based on bio-physical sciences. This paper describes the processes and products of knowledge elicitation, scenario development and systems analysis to identify barriers and bridges to long-term sustainable fisheries development that arise from bio-physical, social, political and cultural causes, and, especially, interactions between them. Lessons learned and important on-going research questions are identified for both the natural and social sciences as they apply to managing catchments at multiple scales of governance, from local to national.