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## **Sediment dynamics: The missing link for integrated catchment planning in highly managed transboundary watersheds**

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**Session: Mekong Basin, Spatial Analysis and Modelling TWG**



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## **Key Message**

Large hydropower reservoirs are often points of conflict between established agriculture and forestry sectors and a rapidly emerging hydroelectricity sector, with conflicts centered on downstream impacts to the hydrological regime, water use rights and access of downstream water users. Better understanding of the fate and transport of sediments through the catchment highlights the importance of upland catchment management on the supply of sediments to river systems and siltation rates in reservoirs. This allows expanding understanding of important inter-dependencies of hydropower and agriculture/forestry sectors and highlighting important trade-offs between upland, reservoir and downstream management for improved IWRM at the catchment level.

## **Summary**

Sediment dynamics are a key ecosystem function linking land and water management at the catchment scale through the processes of erosion, transportation and deposition. Despite the long history of hydropower development, studies on the impacts of reservoirs on the fate and transport of sediments have been limited to short reaches immediately downstream and reservoir sedimentation rates. A rapid assessment methodology has been developed to explore the linkages between upland catchment management and siltation rates of reservoirs, reservoir operations and downstream geomorphology providing an integrated assessment of the complete sediment transport cycle, the change in habitat and resource availability. Focusing on the forestry, hydropower and agriculture sectors, the methodology allows an assessment of the trade-offs between upland catchment management, reservoir management, and downstream catchment management, improving the evidence base available to provincial management authorities; their ability to promote sustainable use of the watershed and its resources; and improving understanding of the implications of use-decisions at the smaller scales.