The 3rd International Forum on Water and Food
Tshwane, South Africa
November 14 – 17, 2011

CGIAR Challenge Program on WATER & FOOD
Andes • Ganges • Limpopo • Mekong • Nile • Volta

Co-hosted by: IWMI International Water Management Institute; FANRPAN Food, Agriculture and Natural Resources Policy Analysis Network

Scoping for sustainable multiple use of water in cascades of hydropower schemes

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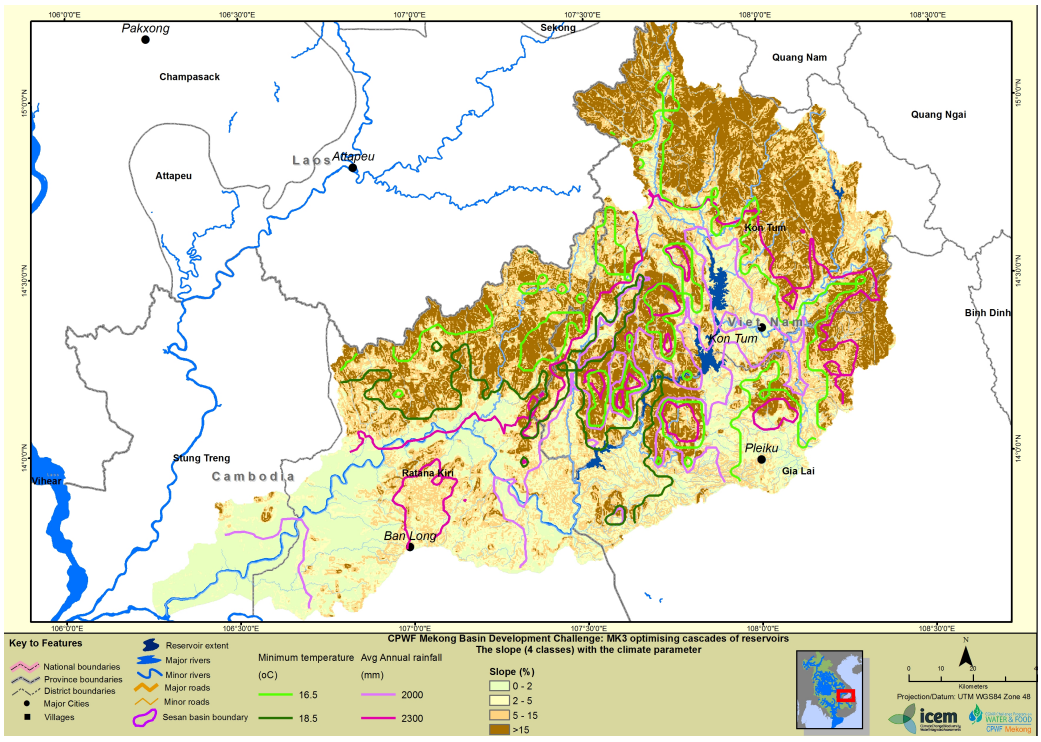
Session: Emerging TWG-Spatial analysis and modeling (SAM) or Multiple Use Session



REPRESENTATION OF SOME OF THE PARAMETERS (4 CLASSES OF TERRAIN SLOPE, 3 CLASSES OF ANNUAL RAINFALL AND MINIMUM TEMPERATURE) USED IN THE AGRO-ECOLOGICAL ZONING IN THE SESAN RIVER CATCHMENTS

Key Message

Hydropower planning and development often does not include a systematic consideration of the other uses of water. A rapid scoping for the potential for multiple uses of water in a catchment with a cascade of HPP schemes is proposed, highlighting the feasibility of different uses and the implications these might have for hydropower generation.

Summary

Use of reservoir waters is typically defined by sector specific priorities, for example electricity production or provision of irrigation waters. Recent attempts to broaden use from single to multiple use have focused on incorporating requirements from one or more additional sectors. A rapid scoping approach is proposed for identifying the multiple use potential of new and existing hydropower schemes that takes an area-based approach optimizing sustainable use of a catchment's resources rather than optimization of a particular sector. The approach considers such multiple uses as irrigated agriculture, recession agriculture, fisheries and fish culture, domestic and industrial water supply, navigation, tourism and recreation against a framework of ecological principles developed to promote sustainable use of watershed resources. The approach is based upon a geospatial and agro-ecological zoning of the surrounding area to assess the extent to which these other multiple uses of water may be associated with a specific reservoir. Seasonal water use requirements are determined and trade-offs compared through reservoir and water use optimization models. The approach is demonstrated in the Sesan River, a major tributary of the Mekong River, with 7 existing hydropower projects in Vietnam and three proposed projects in Cambodia.