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## Reintroducing ecological complexity into highly managed catchments

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**Session: Basin (Mekong) x Core TWG (Resilience)**

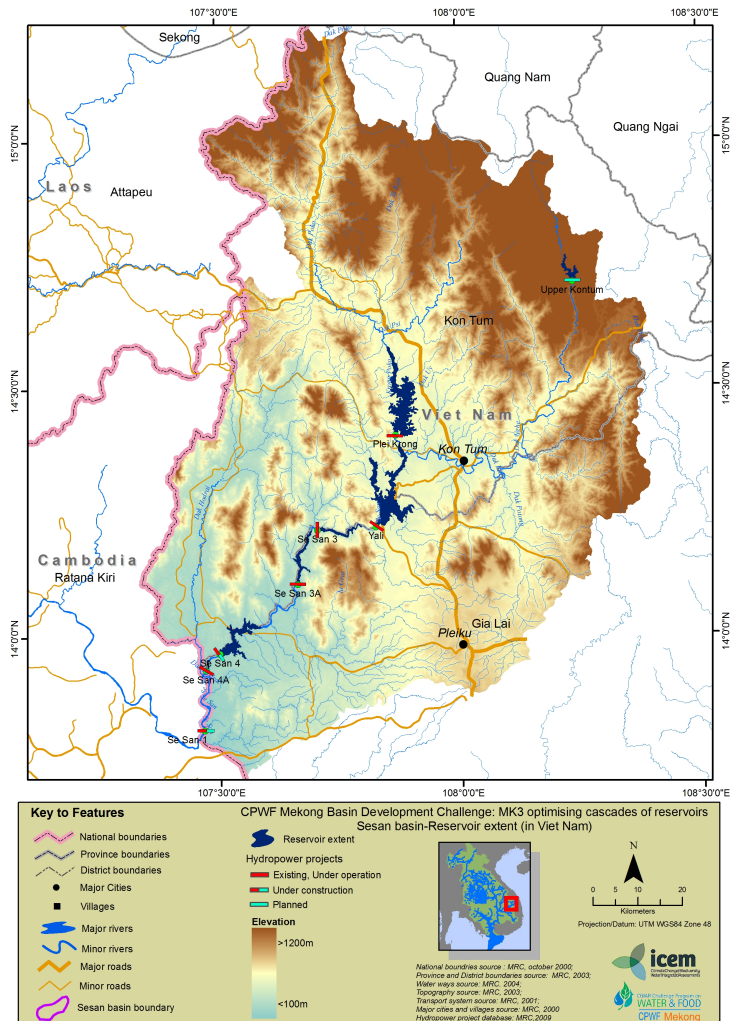
### Key Message

Cascades of hydropower dams transform a diverse riverine ecosystem into a series of poorly connected lakes, linked by river reaches stressed by discharges from the HPPs. It is possible to add diversity back into reservoirs and develop downstream flow regimes that maintain productive habitats and contribute to environmental sustainability and resilience of the system.

## Summary

Using examples from the transboundary Sesan River in Cambodia and Vietnam and the Nam Theun/Nam Kading in Lao PDR, the potential for re-introducing complexity into the agro-ecological and riverine systems of highly managed catchments is explored. Rapid trends in hydropower and agricultural intensification are resulting in increasingly less diverse and less productive ecosystems. Options for promoting resilience are limited, predominately involving the promotion of: environmental flows between reservoirs in cascade, and resource conservation practice for upland areas of the catchment. Within the reservoir cascade, the diversity and productivity of the lacustrine ecosystems can be enhanced through the creation of artificial aquatic habitats and maintenance of connectivity with

tributaries feeding into the reservoir. Within catchments maintenance of the downstream hydrograph and sediment transport can be achieved through improvement to protected area management, while a number of erosion control measures can improve the functioning of hill-slopes under intensive agriculture. This paper considers the parameters needed to define environmental flows in rivers that have already been transformed, and how the rather barren aquatic environments of reservoirs can be diversified for greater productivity and biodiversity.



### THE SESAN RIVER CATCHMENT IN VIETNAM AND CAMBODIA SHOWING LOCATIONS OF HYDROPOWER DAMS