

# Development and testing of a flow estimation model for Nepal

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## ABSTRACT:

A hydrological model has been developed that provides an estimate of the long-term flow duration curve at any location in Nepal. The model was derived from multi-variate regression analysis between the low flow statistics and key catchment characteristics of 40 small (< 3000 km<sup>2</sup>) gauged catchments. It has been incorporated into software to enable a rapid estimation of the hydrological and hydropower potential of prospective small-scale hydropower schemes. This paper describes the development and performance of the model and its software application. Performance of the model is assessed in terms of regression statistics and bias. Application of the software is illustrated in two catchments, with comparisons made, in each, of flow duration curves (FDCs) calculated from the model, observed data and analogue catchment data. The comparisons showed that, while the model approximated observed FDCs reasonably well, using data from suitable analogue catchments provided a better representation of flows across the whole regime.

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