

**POTENTIAL NEGATIVE IMPACTS OF PRAPOSED
ANDHA DOLA MINI-HYDROPOWER PLANT ON
STREAM ECOSYSTEM**

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by

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ABSTRACT

Small hydropower is defined as tapping the potential energy of running water and development of a hydropower plant with generation capacity of 10 megawatts or less. It has been estimated that Sri Lanka has the small hydropower potential of about 400 megawatts of which nearly 90 percent has been already tapped establishing over 160 mini hydropower plants in headwater streams of Mahaweli, Kelani, Kalu, Gin, Nilwala and Walawe basins. A mini-hydropower plant with a capacity of 770 kilowatts has been partially constructed on Andha Dola, a tributary of the Gin Ganga draining Dellawa forest reserve. Construction has been stopped due to objections of community and the Department of Irrigation.

A study was conducted to determine the potential negative impacts of proposed mini-hydropower plant on aquatic fauna, hydrological network, and riparian community by analysing, the Initial Environmental Examination report and rapid field surveys. Analysis revealed that there are errors and miscalculations in the Initial Environmental Examination Report. Generation of 770 kilowatts is very unlikely if proposed 300 liters/second is released as environmental flow and there is a reduction in flow volume towards the downstream according to available hydrological data. Study found 10 endemic fish species of which some of them are endangered. Breeding sites of fish consisted of the specific bottom substrate were prominent at certain stretches of the Andha Dola. However, eels were not observed, although Andha Dola means a stream of eels according to folk legendry. Existing weir on Gin Ganga at Lowe Neluwa may regulate the upstream movement of elvers. Apparently, the flow of Andha Dola reduces towards downstream due to lateral loss and there are no influent streams between the weir and the proposed tailrace outfall. Construction and operation of proposed mini-hydropower plant will certainly eliminate endemic aquatic fauna while there will be certain negative impacts on the riparian community.

Keywords: Environmental Flow, Initial Environmental Examination, Mini-hydropower, Stream Ecology, Endemic Fish