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Costs and effectiveness of application of *Poecilia reticulata* (guppy) and temephos in anopheline mosquito control in river basins below the major dams of Sri Lanka

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Summary In this study we examined the costs and effectiveness of using larvivorous fish, *Poecilia reticulata*, and a chemical larvicide, temephos, in anopheline mosquito control in the riverbeds below the major dams in Sri Lanka. Five riverbeds below the dams, namely Laxapana, Kotmale 1, Kotmale 2, Nilambe, Rantembe and Victoria, were selected. Riverbed pools in Laxapana and Kotmale 1 were treated with *P. reticulata*; Rantembe and Victoria were treated with temephos; and Kotmale 2 and Nilambe were kept as controls. In each area, the anopheline larval density, before and after application of fish/temephos, was estimated. The cost of application of fish/temephos was estimated by activities involved for each treatment. After intervention, there was a significant reduction in anopheline larval density in the fish-treated areas compared with the temephos-treated and control areas. Application of *P. reticulata* was 2.67 times less costly than that of temephos. The cost of fish application can be further reduced if the community is involved in the application.

1. Introduction

Large-scale hydroelectric power generation and irrigation projects in Sri Lanka involve damming and the formation of reservoirs along the major rivers in the country. Construction of major dams across the rivers and diversion

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