**A-27: Trends in mosquito breeding prevalence during irrigation development of an area of Mahaweli System C**

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This paper summarises the results of a 6-year study on mosquito larval bionomics carried out in Block 6, Zone 4 of Mahaweli system C, as the area underwent ecological change from a forest to an irrigated rice ecosystem. Mosquito immatures were sampled by the dipping technique at fortnightly intervals during the study. Immatures were identified to species and counted. Species prevalence was computed

as the product of relative abundance (i.e., geometric mean immatures per dip per sample) and percentage occurrence (i.e., percentage of samples positive for that species). Prevalence scores of the different species were then ranked within each of 5 phase s of development: forest (1984-85, 14 month period), settlement (1986, 12 months), and irrigation years 1, 2 and 3 (12 month periods in 1987, 1988, and 1989, respectively). The results showed that species richness declined from 49 species in pre-development forest to 42-39 in the years after irrigation. Species prevalence relationships changed markedly during development: 40-45% of the 20 highest-ranking species in the forest phase were displaced by previously low-ranking species during the three years after irrigation. The newly prevalent species included potential vectors such as *Anopheles annularis* van der Wulp, *An nigerrimus* Giles, *An. subpictus* Grassi, *An. varuna* Iyengar, Culex fuscocephala Theobald, *C. gelidus* Theobald, *Cx. tritaeniorhynchus* Giles, *Cx. vishnui* Theobald, and *Mansonia uniformis* (Theobald). Thus, irrigation development resulted in an increase in the potential risk of mosquito-borne disease to humans inhabiting the area.

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