A-20 Malaria and climate change in Sri Lanka

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Doubling CO_2 in the atmosphere has been predicted to occur in the next century. Malaria is endemic in the dry zone of Sri Lanka and is transmitted by the anopheline mosquito.

An increase in temperature and a decrease in rainfall has been predicted to result in a doubling of CO_2 in Sri Lanka. The impact of climate change on malaria was modeled indirectly using the influence of temperature and rainfall on the life cycle of the malaria parasite in the mosquito, and the potential of the mosquito to transmit the disease as measured by the vectorial capacity, using models proposed by Garrett-Jones (1964) and McDonald (1957). Data from a malaria field study conducted in Kataragama, Sri Lanka was used for the analyses. The average monthly vectorial capacity for the dry zone of Sri Lanka for the $1CO_2$ situation was estimated to be 0.2815, and for the $2CO_2$ situations, 0.2294 and 0.2751 potentially infective bites/case/day, representing a 14.56% and 1.23% decrease respectively for the CCC and GFDL-R30models. The

decrease in the vectorial capacities, which were not statistically significant, were primarily due to a decrease in rainfall resulting from a doubling of CO_2. It is concluded that the endemicity of malaria in the dry zone of Sri Lanka is likely to remain unchanged or decrease slightly, provided that other conditions remain as at present.