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Prevention of spread of vector borne diseases through monitoring mosquito populations in and around Bandaranaike International Airport (BIA)

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Increased international transport and trade has resulted in incursion of exotic mosquitoes to new territories and spread of diseases among countries. These public health consequences prompted the World Health Assembly to adopt International Health Regulations. Capacity building for vector surveillance and control at points of entry and up to at least 400 meters around them is an important area stressed in this regulation. The Bandaranaike International Airport (BIA) in Katunayake is the major international airport in Sri Lanka, with passenger and cargo handling. In view of establishing a baseline of native mosquito species in and around the BIA premises and for early detection of invasive mosquito species, mosquito surveillance activities have been conducted from January 2017 to May 2018. Seven comprehensive larval surveys were done in and around the BIA covering an area of 1.5 km radius. Of larger water collections 2506 dips were taken and 1414 containers were inspected for mosquito breeding. Despite the considerable sampling effort carried out no invasive species was found and the perimeter of 400 m from the airport area was free from mosquito breeding. Beyond this area, a total of 1265 mosquitoes of various mosquito species were present. Eight of them were medically important mosquitoes as major and potential vectors of dengue, filarisis, malaria and Japanese encephalitis. Two dengue vector species namely *Aedes aegypti* (16.28%, n = 206, breeding mainly in outdoor discarded items filled with water) and *Aedes albopictus* (35.18%, n = 445, in ponds) were found. *Anopheles barbirostris* (0.32%, n = 4), *Anopheles nigerrimus* (0.63%, n = 8), *Anopheles tessellates* (0.08%, n = 1), and *Anopheles vagus* (4.6%, n = 39) were found to be breeding mainly in canals. The most abundant species was the Lymphatic Filarisis vector *Culex quinquefasciatus* (42.37%, n = 534),which, together with the Japanese Encephalitis vector *Culex tritaeniorhyncus* (0.79%, n = 10), have been found breeding in drains and waste water tanks. The two non-vector species found were *Aedes vittatus* (1.11%, n = 14) and *Culex (Lut) fuscanus* (0.32%, n = 4). Considering the potential public health impact that can be caused by these vectors, it is necessary to continue control programmes by the Ministry of Health with the collaboration of Airport officials of BIA. Enhanced entomological monitoring with strengthened vector control efforts at BIA and other ports of entries is a national need to prevent the spread of disease agents and overcome the threat of importation of vectors through international transport.

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