

Capacity of vector surveillance and control in the Pacific

Tanya Russell, James Cook University



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- 1 Needs Assessment
- 2 Online training course





PacMOSSI

Needs Assessment

Needs assessment



01 Bottlenecks to implementing vector surveillance activities to be identified

02 The quality of vector surveillance programs to be assessed against best practice

03 Prioritization of areas to support with training

17 out of 21 countries that have completed the needs assessment



KoBoToolbox Choose Language English



Needs Assessment for surveillance and control of Aedes-borne disease vectors

This survey was designed to support national vector borne disease control programs to collect, manage and use vector surveillance data to facilitate effective responses to mosquito-borne disease outbreaks. The survey development was supported by the PacMOSSI project, which is managed by James Cook University and the World Health Organization.

The aim of this needs assessment is two-fold: 1) to identify potential capacity limitations of countries to help target the develop of training programs to address the identified needs, and 2) to provide a mechanism to assist countries to track their progress against standardised indicators. We appreciate your taking the time to fill out the survey which should take less than 30 minutes. We respect the confidentiality of individual country data and will not disseminate individual country data.

* Name

* Position

* Organization

Needs assessment

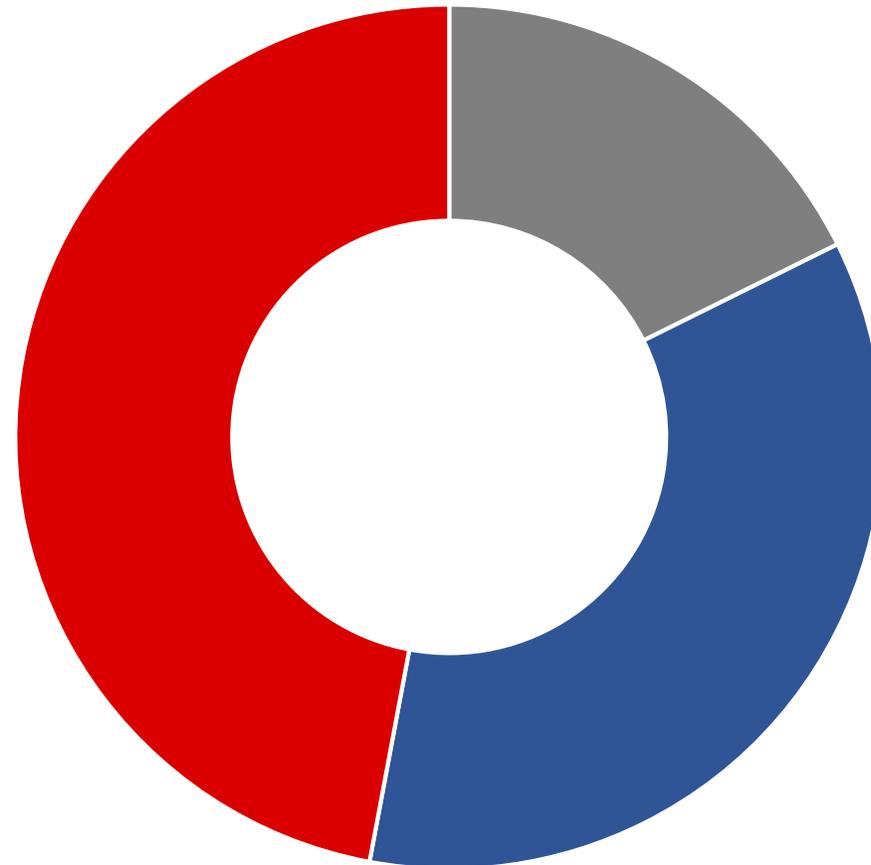
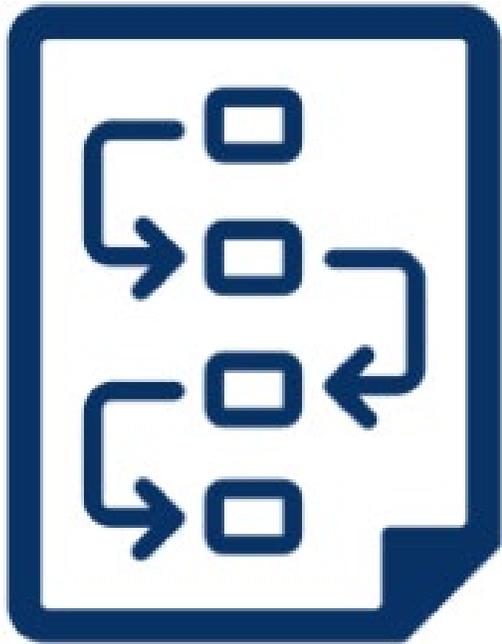


| Indicators | Year: 2021 |
|--|-----------------|
| Vector control indicators | |
| Proactive vector control implementation during 2020: | |
| Larval control (includes larval source reduction and larviciding) | ● Outbreak |
| Targeted indoor residual spraying- <i>Aedes</i> (IRS- <i>Aedes</i>) | ● Never |
| Outdoor residual spraying- <i>Aedes</i> (ORS- <i>Aedes</i> , e.g. harbourage spraying) | ● Never |
| Issuing bednets or repellents to febrile patients | ● Outbreak |
| Quality assurance for vector control tools in place | ● No |
| Vector surveillance indicators | |
| Routine vector surveillance for <i>Aedes</i> conducted in 2018 - 2020 * | ● Not monitored |
| Insecticide susceptibility monitored 2018 - 2020 | ● Not monitored |
| Use of entomological data for decision making | ● No |
| Community engagement indicators | |
| Community engaged for vector surveillance and control in 2018 - 2020 | ● Unknown |
| Operational research indicators | |
| National research agenda including vector surveillance and control * | ● Unknown |

Indicator based analysis and reporting

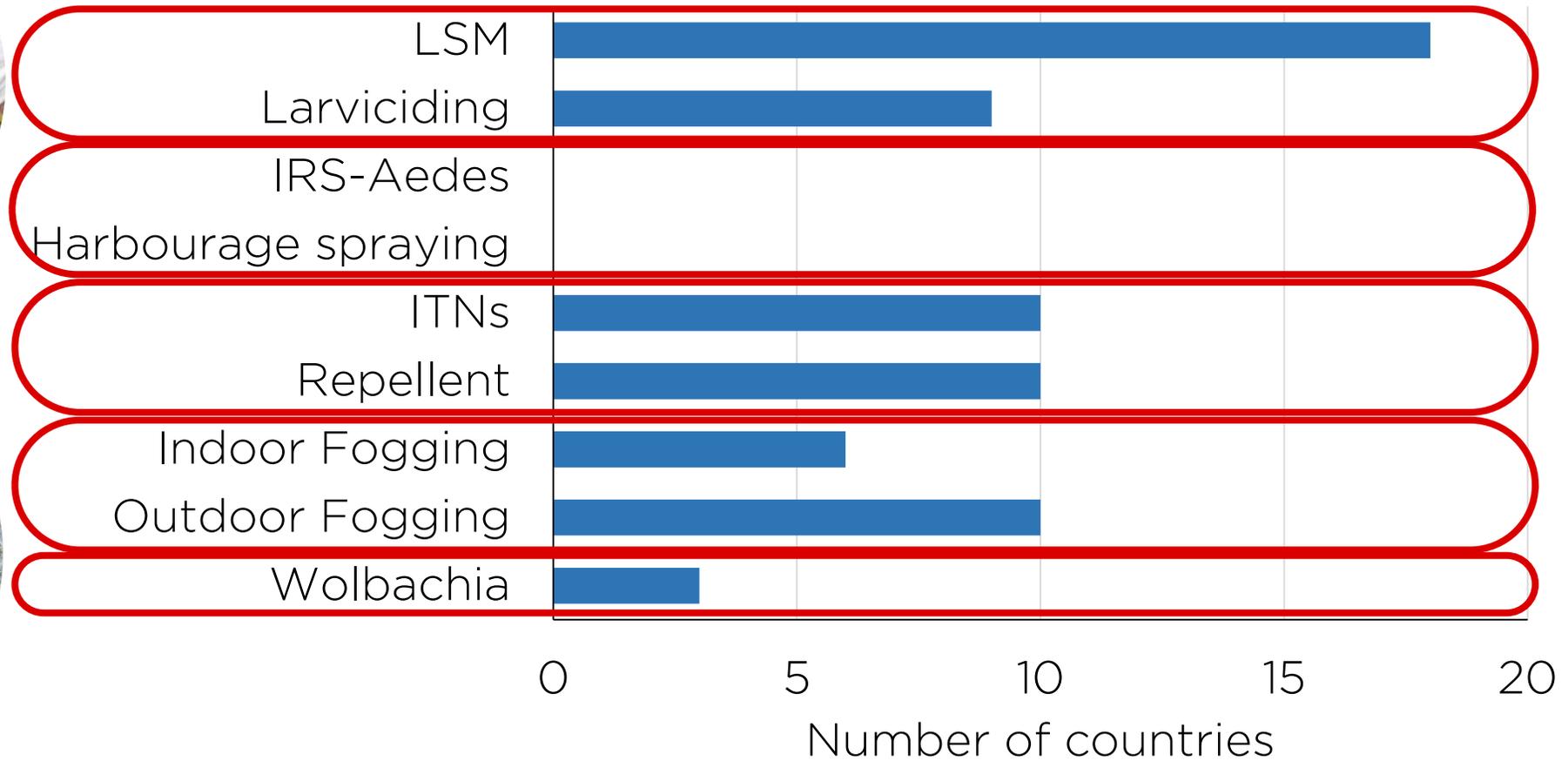
Track change over time

Strategic response plans that incorporate *Aedes* control

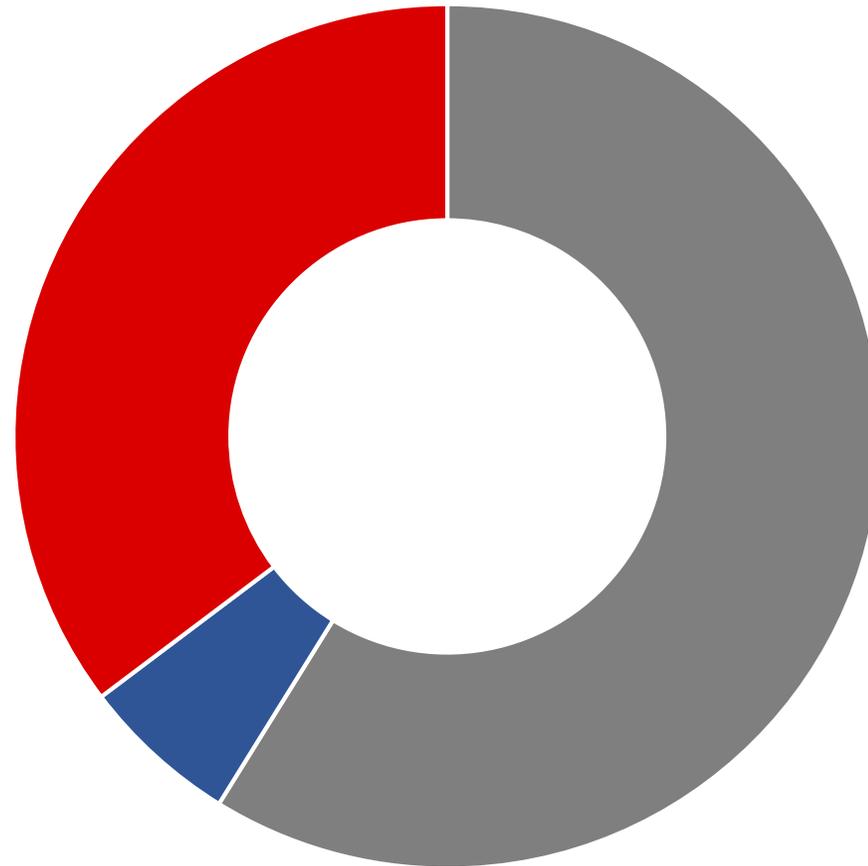


- Draft
- Finalised
- No plan

Aedes vector control implemented in 2020

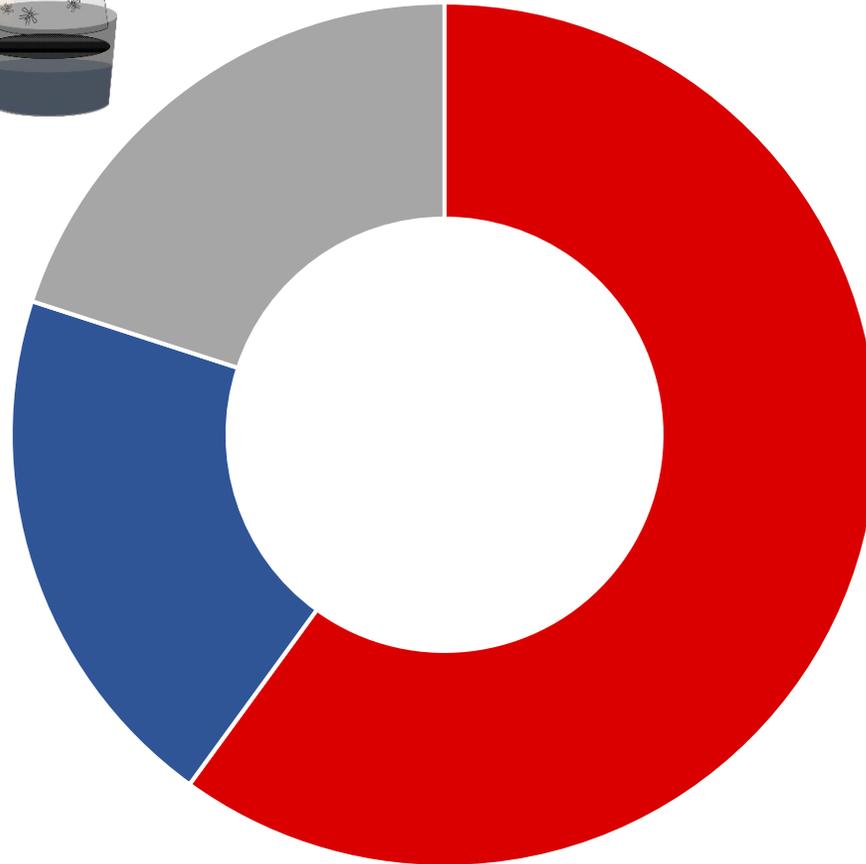
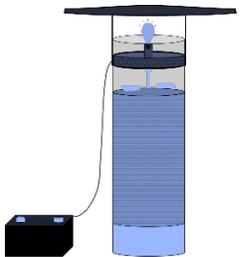
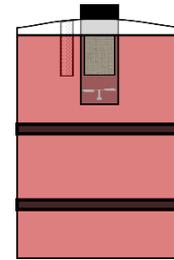


How much routine vector surveillance for *Aedes* was conducted in 2018 - 2020 in Pacific Island Countries



- Not monitored
- Less than annually
- Yearly or more

Which traps are used to sample adult *Aedes* vectors



- BG Sentinel trap
- CDC light trap
- Gravid traps

Needs assessment



| <i>Aedes</i> Indicators | Various countries | | | | | | |
|--|-------------------|---|---|---|---|---|---|
| Vector control indicators | | | | | | | |
| Proactive vector control implementation during 2020: | | | | | | | |
| Larval control (includes larval source reduction and larviciding) | ● | ● | ● | ● | ● | ● | ● |
| Targeted indoor residual spraying- <i>Aedes</i> (IRS- <i>Aedes</i>) | ● | ● | ● | ● | ● | ● | ● |
| Outdoor residual spraying- <i>Aedes</i> (ORS- <i>Aedes</i> , e.g. harbourage spraying) | ● | ● | ● | ● | ● | ● | ● |
| Issuing bednets or repellents to febrile patients | ● | ● | ● | ● | ● | ● | ● |
| Wolbachia | ● | ● | ● | ● | ● | ● | ● |
| Quality assurance for vector control tools in place | ● | ● | ● | ● | ● | ● | ● |
| Vector surveillance indicators | | | | | | | |
| Routine vector surveillance for <i>Aedes</i> conducted in 2018 - 2020 * | ● | ● | ● | ● | ● | ● | ● |
| Insecticide susceptibility monitored 2018 - 2020 | ● | ● | ● | ● | ● | ● | ● |
| Use of entomological data for decision making | ● | ● | ● | ● | ● | ● | ● |
| Community engagement indicators | | | | | | | |
| Community engaged for vector surveillance and control in 2018 - 2020 | ● | ● | ● | ● | ● | ● | ● |
| Operational research indicators | | | | | | | |
| National research agenda including vector surveillance and control * | ● | ● | ● | ● | ● | ● | ● |



PacMOSSI

Vector Surveillance and Control

Online Training Course

Vector surveillance and control online training course



- 1 Mosquito behaviour and biology
- 2 WHO guidance documents
- 3 Vector surveillance
- 4 Vector control
- 5 Insecticide resistance and quality assurance
- 6 Data management and use
- 7 Community engagement
- 8 Operational research

Registration open: www.pacmossi.org/training

A Guide to the Mosquitoes of the Pacific

SOP.

Performing a Human Landing Catch

Effective Date: 1 September 2021

SOP #: HLC-2021



SOP.

CDC Light Trap Assembly and Deployment

Effective Date: 1 September 2021

SOP #: CLT-2021



Pacific mosquito handbook: the distributions and behaviours of the important vectors

2022

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Anopheles (Anopheles) bancroftii s.l. Giles 1902

Distribution of *Anopheles bancroftii s.l.* throughout the Pacific Island Countries



Bionomics of *Anopheles bancroftii s.l.*

| | |
|-------------------------|--|
| Distribution | A complex of four species found across Australia, West Papua, the Moluccas, and Papua New Guinea ¹⁴⁻²² . <i>Anopheles bancroftii</i> A (ITS2 genotype A1) was introduced in New Caledonia in 2017 ¹⁰ . |
| Aquatic habitats | The aquatic habitats are mainly large vegetated freshwater swamps and wetlands. Larvae have also been collected from the margins of streams and drains ^{22,23} . |
| Feeding times | Feeds primarily at night-time, and will also feed during the day amongst well shaded vegetation ²² . |
| Blood meal hosts | Opportunistically feeds on humans or other animals. The preference of the species to feed on humans differs among localities ^{22,24,25} . |
| Feeding location | Readily feeds both indoors and outdoors, with the preferred feeding location differing among localities ²² . |
| Resting habits | Rests outdoors in vegetation, and those that entered houses to feed will rest inside for a short period ²² . |
| Flight range | Long flight range of up to 4-5 km, and will cross water ²⁶ . |
| Vector status | <i>Plasmodium</i> spp. (secondary vector) ^{15,27,28} , <i>Wuchereria bancrofti</i> ²⁶ , Ross River virus and other zoonotic arboviruses ^{22,29} . |

SOPs: 22
Videos

Standard Operating Procedure for collecting resting mosquitoes with pyrethrum spray catch

Effective Date: 19 November 2021

SOP #: PSC-2021



PacMOSSI Resources

<https://pacmossi.org/resources/>

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Pacific Mosquito Surveillance Strengthening for Impact

