PacMOSSI
Pacific Mosquito Surveillance Strengthening for Impact

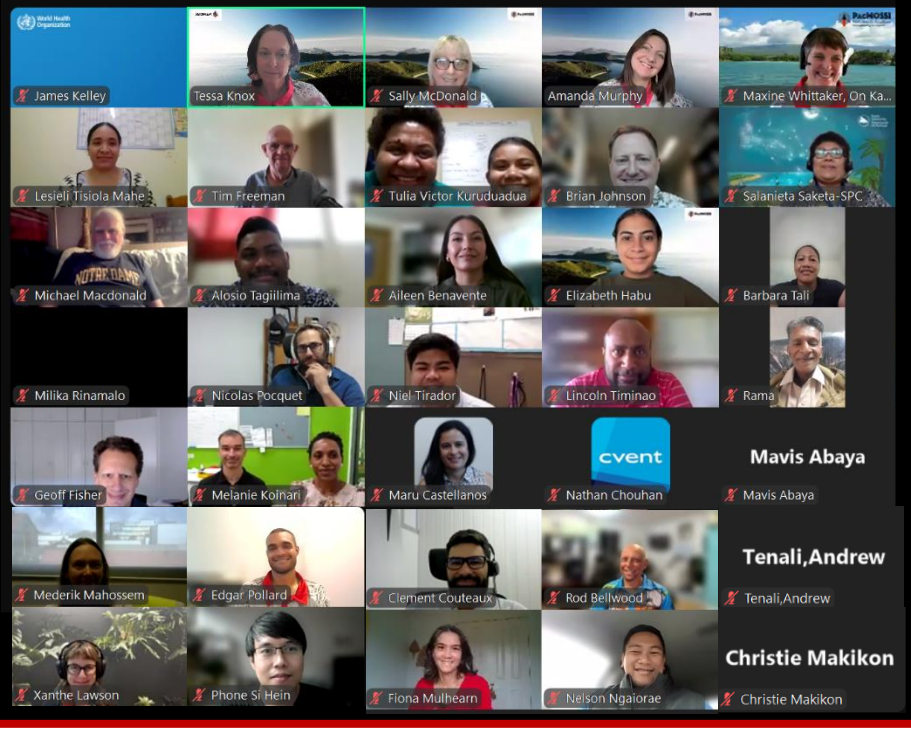
JAMES COOK UNIVERSITY AUSTRALIA
Cairns
Singapore
Townsville

PacMOSSI Annual Meeting 2025

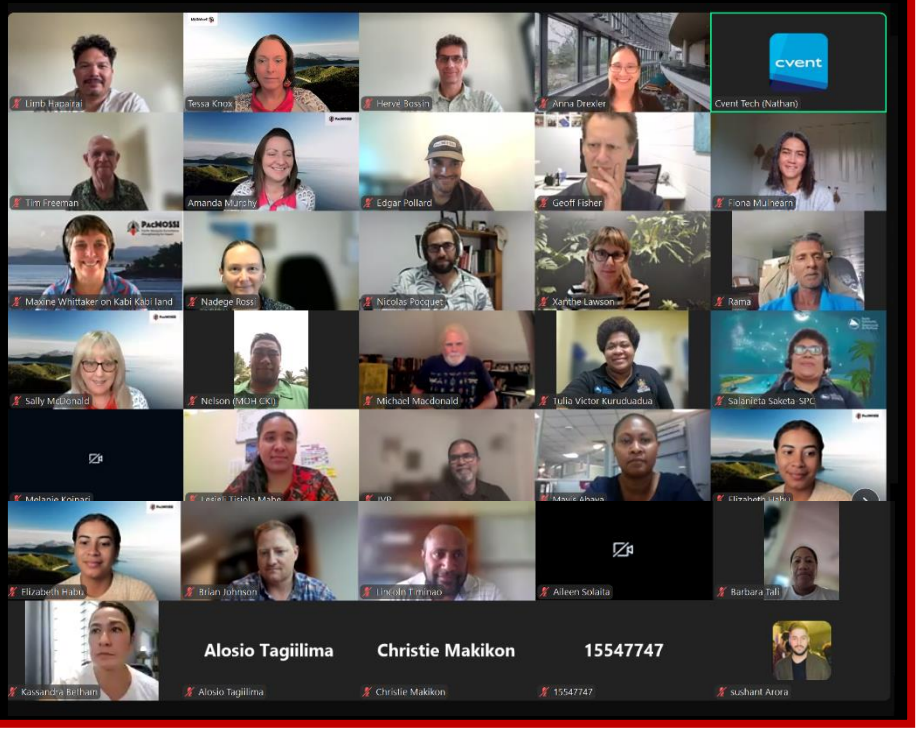
Online | 13-14 May 2025

MEETING REPORT

DAY 1



DAY 2



Meeting objectives

The annual meeting objectives were to:

1. Update on PacMOSSI consortium progress to strengthen mosquito surveillance and control in the Pacific;
2. Review dengue control activities and implementation experiences in selected Pacific Island Countries and areas (PICs);
3. Detail planned PacMOSSI activities in focus areas of work for 2025-2028; and
4. Provide a briefing from key partners on their support to vector surveillance and control in the region.

Format

The meeting was held from 13 to 14 May 2025 and was hosted online using Cvent Attendee Hub and Zoom. Sessions included a welcome and opening, plenary presentations, and question and answer discussions. The agenda overview is included as Annex 1.

Attendees

The annual meeting was attended by 52 people from 21 countries, of which 52% were women (or 57% were women for representatives from PIC ministries or departments of health). The attendees represented ministries or departments of health from 14 PICs (21), core PacMOSSI partner institutions (14), other technical and donor partners (17). The full list of participants is included as Annex 2. A survey was conducted in the final session to document the experiences of participants, with results presented below.

Proceedings

The following provides an overview of proceedings from the 2-day annual meeting. Short summaries of each presentation are provided below. Presentation files are accessible via the PacMOSSI 2025 Annual Meeting event page. Videos of all presentations are available via the links provided in the individual topic titles or on the PacMOSSI YouTube channel.

Day 1 – Tuesday 13 May 2025

Topic	Speaker	Summary
Session 1. Consortium updates		
Overview of PacMOSSI progress and plans	Tessa Knox	The meeting commenced with an acknowledgement of the traditional custodians of the land and a prayer. Tessa then presented an overview of the PacMOSSI consortium's progress and strategic direction, highlighting the current vector-borne disease situation and challenges in the Pacific, and consortium activities undertaken to strengthen vector surveillance and control in the region. She emphasised the linkage of key activities to ensure strategic and sustainable capacity building.
Vector control needs assessments in Pacific Island Countries and areas	Amanda Murphy	Amanda presented the results of 2024 vector control needs assessments (VCNAs). Countries were acknowledged for making notable progress in strengthening vector surveillance capacity. These improvements reflect enhanced technical capacity and country-led efforts under initiatives like PacMOSSI. While surveys did not report increased vector control activities, this was likely dependent on the disease situation and limitations to the survey methods which meant that improved quality was not captured. A report is being formulated to compare 2021 and 2024 VCNA outcomes, which will inform future PacMOSSI activities and advocacy.
Gender, disability and social inclusiveness	Maxine Whittaker	Maxine discussed the critical role of gender, disability and social inclusiveness (GEDSI) approaches in vector-borne disease programs. She shared survey findings and suggested actions to continue strengthening the GEDSI approach. These included systemic changes in governance, policy, planning, leadership, surveillance and response, health promotion and community engagement, capacity development, and monitoring, evaluation and learning. PacMOSSI will follow-up on country reports, devise case studies, generate checklists, and provide other support as requested. Maxine fielded questions about integrating GEDSI into health systems and underscored the need for comprehensive inclusion throughout the program cycle
PacMOSSI communications	Elizabeth Habu	Elizabeth presented on consortium social media performance, noting increased reach and engagement on platforms like Facebook, LinkedIn and Twitter. She outlined goals to boost awareness, facilitate knowledge sharing, and support evidence-based vector control actions, with plans to increase posting regularity and refine communication strategies to better engage stakeholders and promote cross-cutting themes. She also indicated that the PacMOSSI communication strategy is currently being refined for simplicity.

Session 2. Country perspectives		
Dengue in Tonga 2025	Lesieli Tisiola Mahe	Lesieli provided an update on the ongoing dengue outbreak in Tonga, which began in February 2025 and has affected multiple islands, particularly among youth aged 10–20. She described the Ministry of Health's focus on mosquito population reduction through vector control and community engagement, and prevention of human-mosquito contact through awareness campaigns plus repellent and mosquito net distribution, as well as case investigations. Vector control training was supported by PacMOSSI and an Interaction Review on dengue has been completed. Lesieli highlighted challenges such as misinformation, staff shortages, and public fatigue, and stressed the importance of community partnerships and the need for sustained vigilance in outbreak management.
PacMOSSI Mentoring Program: Fiji participant perspective	Tulia Kuruduadua	Tulia's presentation focused on her experiences as a participant in the PacMOSSI Mentoring Program, highlighting the valuable technical and professional development opportunities it provided. She shared how the program's structured pairing of mentors and mentees fostered increased confidence, skill-building, and knowledge exchange, while also acknowledging challenges such as balancing mentoring activities with outbreak response duties. Tulia emphasized the importance of ongoing support and communication within the mentoring network and encouraged colleagues across the Pacific to participate in future cohorts to further strengthen regional vector control capacity.
Country experience: Cook Islands	Nelson Ngaiorae	Nelson shared the Cook Islands' experience with a recent dengue outbreak, outlining the challenges encountered and the actions taken to mitigate disease spread. He emphasized the importance of community engagement, strategic planning, and adapting to unique local conditions, echoing the broader regional need for flexible and responsive vector control strategies.
Dengue situation in Samoa 2025	Alosio Tagiilima	Alosio reported on the dengue situation in Samoa, detailing the current outbreak and the vector control response measures. He noted PacMOSSI support for residual spray implementation (indoors and outdoors) for members of the Integrated Vector Control Committee. He discussed the effectiveness of community engagement, health awareness initiatives, and the strategic action plans being implemented, while also noting the impact of climate change and humanpower limitations on outbreak response efforts.

Session 3. Focus on training		
PacMOSSI online course	Melanie Koinari, Tim Freeman	Melanie discussed the broader challenges of controlling vector-borne diseases such as dengue, chikungunya, and Zika in the Pacific, including diagnostic difficulties, high vaccine costs, and the necessity for tailored interventions. She noted the limitations of convention methods such as indoor and outdoor residual spraying, and the limited financial and human resources in most PICs, noting that *Aedes* vector control is usually reactive rather than proactive. Tim advocated for detailed situation analyses to develop costed national strategic plans, developing a functional vector control unit with the Ministry of Health, developing an effective outbreak detection system, and improving diagnostic capacity and effective vaccines. He presented the scope of two PacMOSSI online modules and associated manuals currently under development, noting that these will support a practical approach to vector-borne disease control.
2025 Practical training course	Brian Johnson	Brian introduced an upcoming PacMOSSI practical training workshop on *Aedes* mosquito surveillance, aimed at building capacity in mosquito collection, survey design, and data-driven decision-making. He introduced the learning outcomes, and a short poll was held to gather feedback on current larval surveillance perspectives and approaches. Brian invited volunteer PICs to host the workshop and requested mosquito samples for developing new identification tools.
PacMOSSI Mentoring Program (PMP) and Mid-Term Review	Edgar Pollard	Edgar introduced the PacMOSSI mentoring program, which pairs mentors and mentees to foster technical and professional growth, noting both the benefits and challenges experienced during the program's first six months. Edgar outlined the principles of engagement and the structure of monthly activities. He also presented results of a mentor and mentee survey, which indicated favourable experiences with the new program. He noted that Phase 2 of the program will be launched later in 2025 and invited participants to express their interest early.
In-country technical support in Pacific Island Countries and areas	Rod Bellwood	Rod reported on technical support and in-country training activities in Samoa, Kiribati, and Tonga focussed on residual spray techniques and mosquito surveillance. He described logistical challenges such as limited chemical stocks and equipment transport, while acknowledging the staff workloads and importance of ongoing support and training in country. Rod invited countries interested in support visits to contact PacMOSSI with their requirements.

Day 2 – Wednesday 14 May 2025

Topic	Speaker	Summary
Recap of Day 1	Elizabeth Habu	Elizabeth provided a concise recap of the first day of the meeting, highlighting updates on vector-borne diseases, recent outbreaks, and control measures implemented by Pacific countries. She also emphasized PacMOSSI's progress in needs assessments, training, mentoring, and communications, and underscored the importance of community engagement and partnerships in advancing vector control efforts across the region.
Session 4. Focus on data generation		
Baseline surveillance	Nicolas Pocquet	Nicolas presented on mosquito surveillance methods, explaining the complexities of correlating adult and larval mosquito populations due to varied breeding sites. He outlined the importance of baseline surveillance, available tools and methods, and presented examples including from Noumea and Wallis and Futuna. Nicolas contributed to discussions on data collection, interpretation, and the importance of tailored surveillance strategies for effective vector control in diverse Pacific contexts.
Operations research, citizen science and community engagement	Adam Craig	Adam discussed operational research and citizen science initiatives, highlighting the importance of community involvement in data collection and the use of innovative methods to enhance vector surveillance. He emphasized the need for adaptable approaches and regional collaboration to strengthen vector control efforts, highlighting PacMOSSI's evolving program of work. He outlined the expansion of PacMOSSI initiatives and the call for Expressions of Interest from country partners anticipated later in 2025.
Session 5. Focus on enabling factors		
Data management and case study	Geoff Fisher	Geoff presented new developments and recent work on Tupaia by some PIC ministries of health. He highlighted new features including a browser-based data collection tool called DataTrack, a tasking system for assigning surveys, and QR code generation for easier identification. Recent work for PacMOSSI includes an insecticide resistance module, improvements to the vector surveillance module, and a spraying module for Samoa. Geoff also discussed ongoing efforts to support countries in using existing modules and introduced a new vector asset management system, which allows for tracking of both assets and consumables related to vector control.

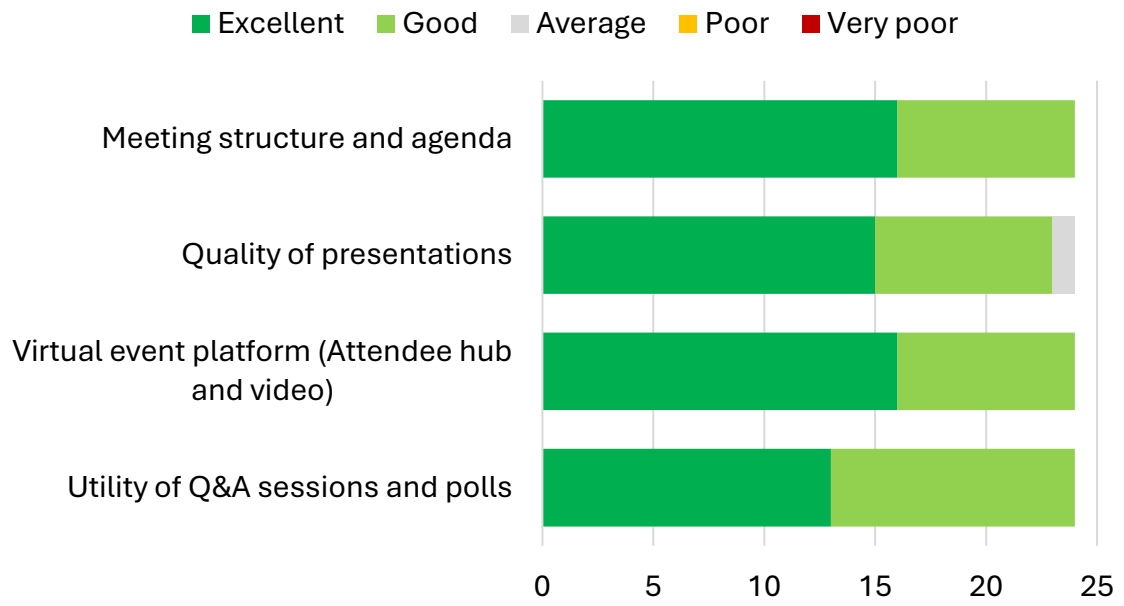
Equipment and supplies available through PacMOSSI	Amanda Murphy	Amanda presented an overview of previous PacMOSSI support for provisioning vector surveillance and control items to PICs. She discussed management of supplies and equipment for PICs, discussing the challenges of ensuring timely delivery, maintaining adequate stock levels, and addressing logistical barriers such as transportation between islands. She emphasized the importance of communication between country teams and PacMOSSI to identify needs and facilitate the distribution of essential materials, and highlighted ongoing efforts to streamline procurement and supply to support outbreak readiness and response. She indicated that requests for equipment and supplies should be provided to PacMOSSI.
Technical guidance	Tessa Knox	Tessa delivered an update on technical guidance developed by PacMOSSI, outlining progress to update the website to ensure these were all available (with editable versions available upon request). She presented plans to develop new manuals (including to accompany online modules and trainings) and job aids. The proposed structure and content of a toolkit for *Aedes* vector control focused on outbreak preparedness and response was presented. Tessa reiterated the importance of adapting technical materials to meet the diverse needs of PICs.
Session 6. Partner updates		
SPC support for vector surveillance and control activities - updates	Sala Saketa	Sala provided a regional perspective on vector-borne disease surveillance and control, emphasizing the rising number of mosquito-borne disease outbreaks in the Pacific. She presented on recent progress in support provided to PICs, including trainings, studies, technical support and endorsement of the Pacific Vector Network. Current initiatives to strengthen health security in the IndoPacific and to scale-up public health surveillance network services, including through PacMOSSI, were outlined. Next steps for further progress were outlined, including formalising the relationship between SPC and PacMOSSI and progress online modules, practical workshops and baseline vector surveillance. Sala discussed the value of data-driven decision-making and the need for strong partnerships to reduce the burden of disease.
Pacific Vector Network	Limb Hapairai	Limb opened his session by acknowledging the impact of dengue outbreaks in the Pacific region, and then presented the Pacific Vector Network strategic framework including the inputs and priorities. He emphasized the importance of strengthening regional strategies for vector management, fostering communication between environmental health, epidemiology, and laboratory teams, and building in-country entomology capacity. Limb acknowledged the

		challenges of coordinating vector control efforts and the need for sustainable, country-led mechanisms to set regional priorities in collaboration with PacMOSSI and other partners.
Enhancing vector surveillance and control: CDC's strategic priorities and collaborations with PICs	Anna Drexler	Anna presented on trends in vector-borne diseases in the USA, and the vision and mission of the CDC Division of Vector-Borne Diseases. Projects and collaborations in the Pacific were outlined, including public health vector control interventions in the Marshall Islands, French Polynesia and Cook Islands and partnerships, networks and technical assistance for preparedness in the USA and across the Pacific. Regional networks supported by CDC's VecNet project were outlined, along with examples of activities conducted or planned. Anna highlighted the significant accomplishments to be built on and the task ahead, underscoring the importance of a strong network of collaborators to achieve vector-borne disease control.
ILM updates on innovative vector surveillance and control for the Pacific	Hervé Bossin	Hervé contributed insights on enhancing innovative mosquito surveillance and control for the Pacific. He outlined a consortium for evaluating the operational efficacy of the Sterile Insect Technique to control *Aedes aegypti* in Pacific Island settings (PAC-SIT). A phased conditional approach to SIT program development is taken, with inaugural releases in April 2025. The integrated approach of release of sterile male mosquitoes (SIT) and community participation for source reduction in Cook Islands was overviewed, as was the Institut Louis Malardé sterile male mosquito factory in French Polynesia. This facility is one of a few in the world, and supports research, teaching, public health intervention, and entomological surveillance.
Implementing WMP's Wolbachia method to protect communities against mosquito-borne disease	Simon Kutcher	Simon summarised the extensive work of the World Mosquito Program to deploy *Wolbachia*-infected mosquitoes to control dengue. Deployment began in Australia in 2011 and was expanded worldwide, including to Brazil and Indonesia with new projects currently scaling up in Laos, Kiribati, and Timor-Leste. A randomized controlled trial in Yogyakarta, Indonesia and other examples from Mexico and Fiji demonstrate that *Wolbachia* has been effective at reducing dengue transmission. In the Pacific, notable success has been reported in New Caledonia, while results in Vanuatu and Kiribati were mixed due to operational challenges. Efforts are ongoing to expand coverage and collect more data in the Pacific, particularly in Fiji and Kiribati.
Meeting wrap up and closing	Edgar Pollard, Amanda Murphy & Sala Saketa	In the final session, Edgar revisited key achievements and emphasised the importance of ongoing collaboration and knowledge-sharing amongst PICs. Presenters and participants were thanked for their engagement and were encouraged to continue to capitalise on upcoming opportunities for support and capacity building with the PacMOSSI consortium.

Key discussion points or information captured in the accompanying Zoom chat included:

- Both larval and adult mosquito surveillance were highlighted as important, even though immature indices do not directly correlate with disease transmission. Larval surveys are more sensitive for detecting species and help prioritize targeted larval control, while adult surveillance informs outbreak risk and measures intervention impact. A literature review was proposed-via multi-institutional collaboration-to assess the relevance of different larval and adult sampling methods for understanding dengue transmission, guiding control strategies, and evaluating interventions in the Pacific.
- A five-country PacMOSSI-supported study compared *Aedes* adult sampling methods and found that BG-Sentinel II traps outperformed GATs and sweep netting, without species bias. Operational feedback highlighted the need for simple, robust tools and the value of academic mentoring and co-design.
- National strategic plans, especially in Tonga and Samoa, were crucial during dengue outbreaks, helping identify priority response areas. These plans also provided frameworks for intra- or after- action reviews and adaptation based on outbreak experiences.
- Countries raised questions about diagnostic methods used to confirm dengue cases, such as PCR versus RDTs. Some outbreaks were detected through private clinic testing, raising concerns about integrating data sources and diagnostic consistency.
- Major challenges to effective vector control during outbreaks included limited staff, funding, and transport. Frequent rainfall and limited tourism sector support in some countries compounded these issues. Tourism engagement varied: Tonga's Ministry of Tourism actively supports environmental clean-up, while Fiji receives no direct support, though public health messaging was issued during outbreaks. Some hotels provide educational materials and repellents to guests.
- Community attitudes toward vector control differ significantly between routine periods and outbreaks. While IRS faced acceptance issues in Samoa, it was well-received in Tonga, and other countries noted increased community demand for spraying once outbreaks were declared.
- A proposal emerged to explore community acceptance of residual spraying through a multi-country operational research study. Differences in acceptance levels within and across countries highlighted the need for contextual evidence to guide intervention selection, behaviour change and communication strategies.
- An assessment of the regulatory landscapes for vector control products is ongoing, with support from the Innovative Vector Control Consortium (IVCC). This initiative arose from discussions in a recent PacMOSSI Monthly Buzz meeting during which countries expressed a need for this. SPC's Land Resources Division is also working on regional product regulation and will be approached for inputs.

Participant feedback



An online survey was issued to participants in the final session on Day 2. A total of 24 submissions were received from participants from ministries/ or departments of health (9), core PacMOSSI partner institutes (9) or other partners (6).

Ratings for individual aspects of the meeting were either excellent or good, with one answer of average (for quality of presentations) and no ratings of poor or very poor.

Responses from ministry or department of health representatives were particularly positive, with 78% of responses across all meeting aspects indicating 'excellent'.

Additional written suggestions for improvement included:

- Share presentations after each day of the meeting to ensure attendees have a chance to read and can raise questions on the subsequent day.
- Invite attendance from other partners or networks, such as Roll Back Malaria Vector Control Working Group or CariVecNet.
- Ensure presentations have minimal text and effectively use figures or animations.
- Find ways to encourage the use of the chat for questions and answers.

Additional positive feedback received from participants congratulated all the presenters on their informative contributions, the facilitators on their time keeping and reflections, and the PacMOSSI team on the technical guidance during questions and answers. All respondents are thanked for their feedback, which will be considered when designing future PacMOSSI activities and meetings.

Acknowledgements

PacMOSSI is a consortium supporting Pacific Island Countries and areas to combat mosquito-borne diseases through strengthened mosquito surveillance and control. It is coordinated by James Cook University in collaboration with The Pacific Community and other international partners. PacMOSSI is supported by the Australian Government through Partnerships for a Healthy Region, the French Government, the New Zealand Government and the European Union.

The Australian Government through Partnerships for a Healthy Region is thanked for supporting information technology costs for remote convening of the PacMOSSI 2025 Annual Meeting.

For more information, see: www.pacmossi.org

Annex 1. PacMOSSI 2025 annual meeting agenda overview

DATE	SESSION	SESSION
Day 1 Tuesday 13 May	Opening	Welcome, housekeeping and opening prayer
	Session 1	Consortium updates: • Overview of progress and plans • Vector control needs assessments • Gender, disability and social inclusiveness • Consortium communications
	Session 2	Country perspectives: • Perspectives from Tonga • Perspectives from Fiji • Perspectives from Cook Islands • Perspectives from Samoa
	Session 3	Focus on training: • Online course • Practical training • Mentoring program • In-country technical support
	Closing	Summary
Day 2 Wednesday 14 May	Opening	Recap of Day 1
	Session 4	Focus on data generation: • Baseline surveillance • Operations research, citizen science and community engagement
	Session 5	Focus on enabling factors: • Data management • Equipment and supplies • Technical guidance
	Session 6	Partner updates: • The Pacific Community • Pacific Vector Network • USA Centers for Disease Control and Prevention • Institut Louis Malardé • World Mosquito Program
	Closing	Survey, meeting wrap up and closing prayer

Annex 2. List of participants

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