MEETING REPORT

Inaugural Meeting of the Pacific Vector Network

5-7 June, 2023 Hawai'i Convention Center, Honolulu

Meeting overview

The goal of the meeting was to establish the Pacific Vector Network (PVN) which is a new initiative under the Pacific Public Health Surveillance Network (PPHSN) approved by members from the Pacific Island Countries and Territories (PICTs) at the October 2022 Regional Meeting.

The PVN is comprised of vector-borne disease (VBD) control practitioners to facilitate and promote the expansion of vector surveillance and control capacity across PICTs. The network aims to provide a sustainable regional mechanism to coordinate and upscale the vector management activities of PICTs, and to ensure that initiatives are appropriately tailored to the needs and priorities of PICTs. The network is supported by a Secretariat comprised of three regional organizations: the World Health Organization (WHO), the Pacific Island Health Officers' Association (PIHOA), and the Pacific Community (SPC). This inaugural meeting was hosted by PIHOA and co-hosted by WHO, with support from SPC.

The specific meeting objectives were:

- 1. Review and refine Terms of Reference (ToR), strategic objectives, and key activities for the Pacific Vector Network (PVN) to support;
- 2. Enable interaction and sharing of experience, challenges, and solutions by representatives of PICTs and regional partner institutions; and
- 3. Identify network communication and information sharing mechanisms to maintain relationships and promote collective action to strengthen vector surveillance and control across PICTs.

The meeting was attended by 16 PICT representatives, 15 in-person and one virtual. These were: American Samoa, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, Commonwealth of the Northern Mariana Islands (CNMI), Republic of the Marshall Islands (RMI), Republic of Palau, Papua New Guinea (PNG – virtual), Samoa, Solomon Islands, Tokelau, Tonga and Wallis and Futuna. There was also participation by the Hawai'i Department of Health, and 10 regional partner institutions: the Innovative Vector Control Consortium, Institut de Recherche pour le Developpement, Institut Louis Malardé, Institut Pasteur of New Caledonia, Institute of







Environmental Science and Research, James Cook University, PNG Institute of Medical Research, the University of California, Davis/Southwest Pacific Center of Excellence in Vector-Borne Diseases, the World Mosquito Program and the U.S. Centers for Disease Control and Prevention (CDC), along with additional partners who were present for the associated Early Warning Systems meeting, as observers.

During the three-day meeting, a number of presentations from both PICT representatives and institutional partners were given, and there was active discussion on potential strategies and activities for enhancing regional vector management capacity. The ToRs for the PVN were also reviewed and revised by PICT representatives, and a series of PVN activities were agreed upon, including means of communication and information sharing amongst the PVN members.

In a final closed session for PICT representatives only, the following priority areas of work were documented for the PVN to pursue:

- (1) Ensure regular meetings and communication between PVN members;
- (2) Promote sharing of information among members;
- (3) Improve entomology skills and vector management expertise;
- (4) Establish or improve the capacity of entomology laboratories in each sub-region;
- (5) Strengthen preparedness and response to outbreaks of vector-borne diseases; and
- (6) Support use of digital tools for collecting and sharing vector surveillance data.

In addition, seven PICT representatives were nominated to act as the PVN Technical Working Body (TWB) to act as the decision-making body for network activities for a three-year period in between inperson regional meetings (with support from the PVN Secretariat: WHO, PIHOA and SPC). These countries were: American Samoa, Guam, Samoa, Fiji, Solomon Islands, Tokelau, and Wallis and Futuna. A Chair (Guam) and Co-Chair (Samoa) of the TWB were also nominated. The TWB members held a separate first meeting together shortly after the PVN meeting; a report of their meeting is attached in **Annex 1**.

Summary of sessions

The following section outlines the presentations given and key discussion points during the PVN meeting.







DAY 1 -	- Monday June 5, 2023
Session Title/Presenter	Overview and discussion points
Introduction and Welcoming Remarks Minister Gaafar Uherbelau, PIHOA Board President and Minister, Palau Ministry of Health and Human Services (MHHS) Dr. Salanieta Saketa, Senior Epidemiologist Surveillance, Preparedness and Response Program, The Pacific Community (SPC), Fiji Dr. Nuha Mahmoud, Communicable Diseases Team Leader, Division of Pacific Technical Support, World Health Organization (WHO), Fiji Dr. Limb Hapairai, Regional Medical Entomologist, Pacific Island Health Officers'	 The session began with an opening prayer from PVN Secretariat representative, Dr. Sala Saketa. Words of welcome were given by representatives from Palau MHHS, SPC, and WHO expressing the value of coming together as a network and emphasizing the need to strengthen regional strategies to combat vector-borne diseases through improved vector management. Dr. Limb Hapairai provided an overview of the meeting objectives and general housekeeping, and then introduced the two plenary speakers.
Association, Hawai'i Plenary presentations	
WHO global vector and arbovirus control strategies - Dr. Raman Velayudhan, Unit Head, Veterinary Public Health, Vector Control and Environment unit, Global Neglected Tropical Diseases Programme, WHO, Geneva Initiatives from the TDR/WHO Special Programme for Research and Training against Tropical Diseases regarding the vectors of arboviruses in LMICs - Dr. Florence Fouque, Scientist, Focal person for Vectors, WHO, Geneva	 Dr. Velayudhan gave an overview of global mortality and morbidity from vector-borne diseases (VBD) and a status update on WHO's global strategies to address this through locally adapted, sustainable vector control. He noted the following key challenges: Tracking movement of vectors and need for comprehensive maps for VBD threats; Resource generation at country level; Greater coordination among all partners; and Integration of novel tools in a cost-effective manner. Dr. Velayudhan also outlined WHO's new Global Arbovirus Initiative, which promotes an integrated approach to detection, prevention, response and control of Aedes mosquito-transmitted viruses, including advancing innovation for vector control. Dr. Fouque outlined TDR's priorities and provided examples of vector control and multisectorial activities in different countries such as support for research projects, capacity building and facilitating networking. Mr. Nadeau (Guam), Ms. Tanielu (Samoa) Mr. Butafa (Solomon Islands) and Mr. Glasser (USA) raised questions about community acceptability, community participation, and training for new vector control technologies. The







importance of community engagement and multi-sectoral

DAY 1 -	- Monday June 5, 2023
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	collaboration approaches were discussed, along with mechanisms for all countries to access new technologies such as Sterile Insect Technique (SIT) and <i>Wolbachia</i> .
Role of regional networks	
Pacific Public Health Surveillance Network: 'Its journey, growth and future' - Dr. Salanieta Saketa, SPC, Fiji Pacific Vector Network, background, rationale, and summary of country consultations - Dr. Amanda Murphy, Vector surveillance and control specialist, WHO, Vanuatu CDC's work with Pacific partners and the role of regional networks - Dr. Anna Drexler, Division of Vector-Borne Diseases, U.S. Centers for Disease Control and Prevention (CDC), USA Improving Vector Management in the USAPIs: Pacific Island Vector Management Council (PIVMC) - Mr. Thomas Nadeau, Chief Environmental Public Health Officer, Department of Public Health and Social Services, Guam	 Dr. Saketa gave an overview of the Pacific Public Health Surveillance Network (PPHSN) and its six service networks supporting surveillance and control of infectious diseases across PICTs. Dr. Murphy outlined the background and rationale for establishing the network, and the priority areas of support which have been indicated through PICT consultations to date. Dr. Drexler outlined the work of CDC's Division of Vectorborne and Diseases Arboviral Diseases Branch, outlined the Division's international goals and strategies, and gave examples of global networks supported by CDC through their VecNet project. Mr. Nadeau described the functions and experience of the PIVMC and some key activities and successes. General discussion points included: Recognition of the broad role of Environmental Health as a discipline in the region, including in vector control, and discussion around where this can fit (and can be recognized more) within existing regional networks. The need to strengthen communication within countries and territories between environmental health teams and other departments such as epidemiology and lab teams. The need to build in-country entomology capacity, and to strengthen technical partner support incountry, rather than remotely. Clarifying the difference in roles between the PacMOSSI project and the PVN network: the aim of the network is to ensure a sustainable, country-led mechanism to set regional priorities, and to work closely with projects and partners in the region (including PacMOSSI) to implement them. Ways to increase confidence about what vector species are present and that exotic vector species







can be detected and prevented from entering new

DAY 1 – Monday June 5, 2023	
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	territories e.g. <i>Ae. aegypti</i> absence in Guam; e.g. need for routine vector surveillance across PICTs
Regional capacity building projects	
Regional capacity building projects The PacMOSSI project: Pacific Mosquito Surveillance Strengthening for Impact - Dr. Tanya Russell, Senior Research Fellow, James Cook University, Australia PacVec + PacSurv: enhancing outbreak response capacity in the USAPIs - Dr. Christopher Barker, PacVec Program Director, Professor, University of California, Davis, USA Regional capacity building work of Institut Pasteur - Dr. Nicholas Pouquet, Head of Medical Entomology Unit, Institut Pasteur de Nouvelle-Calédonie, New Caledonia	 Dr. Russell provided an overview of the PacMOSSI project including its vector control needs assessment, training program and capacity building activities, emphasizing the collaboration and regional partnerships established across PICTs and partners. Dr. Barker presented the PacVec Center of Excellence (CoE) mission and outlined some research, training and collaboration activities, as well as the PacSurv Surveillance system operating in the USAPIs as decision support tool. Dr. Pouquet outlined the mission and work of Institut Pasteur including research, teaching/training, public health support such as entomological surveillance, and regional cooperation with countries including Fiji, Vanuatu, and Wallis & Futuna. A new facility is under construction on the University campus and will open in 2024, offering new laboratories, insectary, and teaching spaces. Discussion points included: Re: PacMOSSI support for strategic planning, importance of adapting approaches to different country needs over time, including resource and infrastructure constraints, and engaging key implementing partners. A major challenge in the Pacific is how to coordinate all the work being done, and to leverage opportunities to standardize strategies or surveillance procedures/methodologies across PICTs – currently there are overlapping activities in different areas of the Pacific – hopefully the PVN can play a role in harmonizing these/design a Pacificwide monitoring framework, based on what PICTs agree is useful. How can we pool the different resources (and funding) available across the Pacific?







funding proposal for this has been drafted previously.

DAY 1	- Monday June 5, 2023
Session Title/Presenter	Overview and discussion points
	Often Hawaii shares more commonality with PICTs and islands of the Caribbean than mainland USA. Suggestion to enhance practical training going forward, while also recognizing that retention of vector management expertise is a challenge – and considering mechanisms to improve continuity of staff/skills.
Country reports on vector surveillance and control	
Hawaii's Vector Control Program: Past, Present and Future - Mr. Matthew Kurano, Environmental Program Manager, Vector Control Branch, Hawai'i Department of Health Building Vector Control Capacity to Reduce Malaria Transmission in Papua New Guinea - Mr. Elias Omera, Scientific Officer, Entomology, Vector Borne Diseases Unit, PNG Institute of Medical Research Vector Surveillance and Control in Fiji - Mr. Vimal Deo, Chief Health Inspector, Fiji Ministry of Health and Medical Services PICT panel discussion: representatives from American Samoa, Cook Islands, CNMI, Samoa, Tokelau, and Solomon Islands.	 Three 15-minute presentations were provided by PICT representatives outlining their respective vector control programs: Mr. Kurano provided a historic perspective of the events shaping Hawaii's vector management program through to current program operations, challenges and needs for optimal management of VBD risks to Hawai'i. Mr. Elias outlined the incidence of malaria in PNG and gave an overview of the 'NatNat' project collaboration between the national malaria control program and institutional partners aiming to build local entomology infrastructure, provide training and strengthen capacity to investigate, test and evaluate vector control tools in PNG. Mr. Deo outlined the vectors and VBD situation in Fiji and gave an overview of the surveillance and control activities conducted as well as key needs and challenges. Examples of surveillance and control outcomes were shown including surveillance data management, insecticide use, and monitoring of Wolbachia presence in Ae. aegypti. Questions and comments included: Mr. Johanes (Palau) asked for more information about how vector control governance is structured in Fiji. Mr. Deo described Fiji's public health act and associated legislative requirements. Dr. Mahmoud (WHO, Fiji) commented that this is the opportune time for the PVN to launch and to identify ways that PICTs can be supported to share knowledge and foster effective control. WHO is







DAY 1 – Monday June 5, 2023	
Session Title/Presenter	Overview and discussion points
	looking forward to support this as part of the Secretariat. A panel discussion was held with PICT representatives to discuss the strengths and challenges of implementing vector management in their countries. Strengths noted included: Some routine surveillance and reporting takes place. Committed teams, despite being stretched. Development of national strategies and/or SOPs for VBDs. Strong community structures in place to enable participation in vector management. Challenges noted included: Insufficient or inconsistent funding availability. Competing priorities amongst government departments and stakeholders. Availability of sufficient trained staff and supplies such as vehicles, fuel, vector control equipment. Limited access to technical expertise in-country.

DAY 2 – Tuesday June 6, 2023	
Session Title/Presenter	Overview and discussion points
Thematic session: Vector control tools and novel technologies	
Development, evaluation and improvement of vector control tools - Dr. Anna Drexler, U.S. CDC	The session began with Dr. Anna Drexler providing an overview of different types of vector control tools under development globally, targeting different stages of the
A Pacific consortium for testing the efficiency of the Sterile Insect Technique to control Vector Borne Diseases – Mr. Hitinui Teinaore, Sanitary Engineer, Environmental Health, Directorate of Health, and Dr. Hervé Bossin, Head of Medical Entomology Unit, Institut Louis Malardé, French Polynesia	 mosquito life cycle. These included SIT and Wolbachia approaches for Aedes, novel technologies and targeted insecticides for Culex species. Mr. Teinaore and Dr. Bossin outlined the two Aedes mosquito vectors of concern in French Polynesia, the SIT and Wolbachia techniques used for their control, and the process and outcomes of using these approaches. Ms. Chutaro described the 'Ma Nam Ne' project for Ae.
Use of novel vector control tools: the Marshall Islands experience – Ms. Earlynta Chutaro, Environmental Health Director,	 aegypti control, the genetic manipulation (suppression) technology used and the implementation, outcomes and lessons learned from the project. Ms. Cheilan and Dr. Pouquet outlined New Caledonia's experience using the Wolbachia replacement strategy,







DAY 2 - Tuesday June 6, 2023 Session Title/Presenter Overview and discussion points Ministry of Health, Republic of Marshall and impact on dengue cases, as well as discussing Islands findings of recent studies into mechanisms of insecticide resistance of Ae. aegypti. Wolbachia Replacement strategy in New Questions and discussion points included: Caledonia - Ms. Florie Cheilan, Head of the o Is there any evidence of evolution of vectors or cross-Environmental Health Office/Sanitary species transmission of Wolbachia? Engineer in Vector Control, Direction of Every technology comes with risk – this needs to be Health and Social Affairs, and Dr. Nicolas discussed in communities and weighed against the Pocquet, Institut Pasteur de Nouvelleburden of disease potentially prevented, and factors Calédonie, New Caledonia such as tourism/impact on revenue/mosquito nuisance etc. o Are there any criteria for which geographic areas SIT can be applied? What type of local capacity/infrastructure/lab is needed to implement these new tools? Of the three technologies presented, which is thought to be superior? How are relative benefits of different technologies weighed in local contexts? E.g. one factor is cost, another is community acceptance. How much does it cost? Who can fund it? Can we support countries to keep costs down by working together as a region/network? Perhaps simpler methods building basic capacity and harnessing community engagement are more sustainable. SPC is undertaking initiatives to assess ways to build and support regional capacity for entomology including the possibility of a regional entomology laboratory. Thematic session: Regional training needs Dr. Murphy presented an overview of PICT consultations on training needs. She mentioned that some of the What are the training priorities in the highest priorities expressed by countries to date were: Pacific? - Dr. Amanda Murphy, WHO, Improving entomology skills and laboratory capacity; Vanuatu Strengthening preparedness and response to outbreaks; and Use of digital tools for collecting and sharing vector surveillance data A break-out group session was held to discuss the following questions: 1. What are the priority training needs?







DAY 2 -	-Tuesday June 6, 2023
Session Title/Presenter	Overview and discussion points
	 What are challenges in maintaining a trained workforce that a network could help overcome? What opportunities already exist in the Pacific that can be leveraged? Discussion points included: Synergies with Point of Entry Management with, EH, Invasive species, and Biosecurity groups Preparing for disasters Entomology training with preference of on-island instructions including ID, insecticide resistance, tracking, data entry, data analysis, field training. Link with local colleges and experts. Participants receive certification. Sharing standards including SOP, information, lessons learned among PICTS.
Thematic session: Network operations	
Network activities, communications, and governance – Dr. Amanda Murphy, WHO, Vanuatu	 Dr. Murphy presented an overview of PICT consultations to date on priority network activities, preferred communication methods, and outlined the key aspects of the Terms of Reference (ToR) document drafted to enable to PVN to operate under the umbrella of the PPHSN. It was noted that these items will be deliberated by PICT representatives during the closed session on Day 3. Discussion points included: Potential for the network to act as a regional data repository for PICTs, and need to build trust in order to facilitate data sharing between countries. The network should start small and first evaluate what data already exists. For the network to work, there should be an incentive for each PICT/partner to participate. A key motivation would be sharing intelligence on suspected or confirmed outbreaks and/or vectors in neighboring countries. However, this relies on countries having VBD testing capacity. This could delay data sharing (especially if off-shore testing is required). Need to consider whether the PICT representatives attending network meetings be 'decision makers' in leadership roles or the 'boots on the ground' staff. Suggestion that this should ideally be someone







DAY 2 – Tuesday June 6, 2023	
Session Title/Presenter	Overview and discussion points
	directly involved in the program with experience or knowledge of the program.
Monitoring and evaluation of networks Overview of PICT consultations and discussion on training needs – Mr. Jerry Jacobson, VecNet Consultant, Universidad del Valle in Guatemala	 Mr. Jacobson explained what is meant by monitoring and evaluation (M&E), the purpose and use of monitoring and evaluation activities and their application to networks, and an overview of the different components to include in a M&E plan. A breakout activity was conducted to define activities and potential milestones and brainstorm how these might be evaluated. Discussion points/feedback included: How M&E provides situational awareness around activities and their progress What are the appropriate indicators to use and how many What is the relationship between M&E and early warning systems (EWS)

DAY 3 – Wednesday June 7, 2023	
Session Title/Presenter	Overview and discussion points
Closed session for PICTs	The Secretariat gave an overview of the key agenda items for PICTs to discuss: a. ToR endorsement b. Strategic plan for network c. Priority activities/next steps
	PICTs took time to privately discuss these points in a closed session without partner institutions present.
Open session: PICT report back	 The PICT representatives announced their newly elected PVN Chair (Guam) and Co-Chair (Samoa) of the TWB for the first rotation. The Chair (Guam) then outlined the key discussion points from the closed session, including feedback on the ToR and the six agreed key focus areas proposed for network activities:
	(1) Ensure regular meetings and communication between PVN members;(2) Promote sharing of information among members;







DAYS	3 – Wednesday June 7, 2023
Session Title/Presenter	Overview and discussion points
	 (3) Improve entomology skills and vector management expertise; (4) Establish or improve the capacity of entomology laboratories in each sub-region; (5) Strengthen preparedness and response to outbreaks o vector-borne diseases; and (6) Support use of digital tools for collecting and sharing vector surveillance data. The Chair also announced the core PICT members suggestion that the next in-person meeting be held in Guam, in 2024. The Secretariat agreed to take these focus areas forward following further discussion with, and guidance from, TW members. Dr. Hapairai thanked all participants for their contribution and closed the meeting.







Meeting Report

Inaugural Pacific Vector Network Technical Working Body Meeting

June 7, 2023 Hawai'i Convention Centre, Honolulu

Seven core PICT representatives were nominated during the inaugural Pacific Vector Network (PVN) meeting to form the first PVN Technical Working Body (TWB) representing the countries of American Samoa, Guam, Samoa, Fiji, Solomon Islands, Tokelau, and Wallis and Futuna. A Chair (Guam) and Co-Chair (Samoa) of the TWB were also nominated. The TWB aims to act as the decision-making body for network activities for a three-year period in between in-person regional meetings (with support from the PVN Secretariat: WHO, PIHOA and SPC).

Following the conclusion of the PVN meeting, the TWB members held an in-person meeting to plan future virtual TWB meetings and to discuss the short-term next steps for the PVN Secretariat to support in the meantime. The following topics were discussed:

- 1. **Frequency of meetings**: It was agreed that quarterly virtual meetings be established and an inperson meeting be held in conjunction with each in-person PVN meeting. Virtual meetings will be organized by the Secretariat, with the first to be scheduled in September 2023.
- 2. Allied partner membership: The most appropriate approach to invite and review allied partner membership to the network was discussed, including how to select the three temporary allied TWB members. It was agreed that the Secretariat should reach out to all potential partners who were invited to the inaugural PVN meeting, along with any others that may be identified with relevant expertise to contribute and to seek their interest in participating either as an allied network member and/or a temporary allied member of the TWB. An application form would be drafted and sent by the Secretariat, and allied partner applications received would be reviewed at the next TWB meeting.
- 3. **PVN logo and branding**: The TWB members requested the Secretariat to provide copies of the preliminary PVN logo options that were designed in the lead-up to the inaugural meeting for further discussion and review at the next TWB meeting. SPC's assistance was requested to develop an initial webpage for the PVN on the PPHSN website.
- 4. **PVN activities and funding**: the six priority areas of work proposed by the core PVN members during the PVN meeting were discussed. The Secretariat also provided an overview to the TWB core members of the current funding status for PVN meetings and activities, and the need to prioritize which activities could be completed in the short term versus the longer term was discussed
- 5. **Secretariat roles**: WHO's role in establishing the network was acknowledged and appreciated in the context of implementing WHO's global and regional strategies to strengthen vector control







capacity. As such, the WHO Secretariat was requested to act as the focal point going forward for all PVN communications. SPC's related vector control activities and their contribution to PVN activities were also discussed, such as the cross-linkages with PPHSN, assistance with English-French translation, and the upcoming feasibility study planned to establish a regional insectarium. PIHOA's experience with the PIVMC network in USAPIs and their strong links to US-based partners was also acknowledged.

Next steps and action items:

In addition to supporting the priority areas of work agreed by all PICTs present at the PVN meeting, the specific actions requested for the Secretariat to undertake included:

- (1) Notify and request support of the 7 departments and ministries of health of those countries whose representatives were selected to serve on the Technical Working Body (TWB) of the PVN;
- (2) Invite applications from regional partner institutions with entomology and vector control expertise to join the network as allied partners, and seek expressions of interest for those wishing to serve as temporary TWB members;
- (3) Provide copies of the PVN logo options designed to the TWB for consideration; and
- (4) Schedule and coordinate the first quarterly meeting of the TWB, to be held approximately three months following the inaugural meeting (September-October 2023).





