



## Pacific Hydrology Services Panel

Virtual Meeting – 18th October 2022

0200-0400 UTC

Present: Graham Elley (NIWA), Matthew Coulton, Ryuji Yamada, Jacqui Reed (SPC), Mika Perez (Tokelau), Peter Sinclair (SPC), Hwirin Kim (WMO), Nakul Prasad (WMO), Eden (FSM), Amini Loco (SPC), Salesa Nihmei (SPREP), Emarosa Romeo (Samoa), Malaki Iakopo (Samoa), Henry Taiki (WMO), John Fenwick (NIWA), Maria Ngemaes (Palau), Viliame Vereivalu (Fiji), Andre Siohane (Niue), Rossylynn Mitiepo (Niue), Tessa Tafua (WMO).

- Mr. Malaki Iakopo, chair of the meeting, started the session with a Prayer.
- Chair also provided a word of welcome to all present online and extend apologies from Madam Chair and CEO of the Ministry of Natural Resources and Environment, Ms. Frances Brown.
- Introductions were encouraged to be done throughout the different sessions and during Q&A due to the limited time allocated to sessions.
- **PHS Background and Overview**
  - The Chair began by giving an overview and background of the Pacific Hydrological Services (PHS). This meeting marked the first since 2019 and aimed to re-engage and update the membership, explore opportunities for hydrological services development, and discuss the way forward for PHS.
  - The Chair provided a summary of the role and functions of PHS, highlighting its establishment and the activities that had been completed in previous years. However, due to the impact of COVID-19, some planned activities had been affected. The Chair also briefly mentioned the membership and structure of PHS, with further details provided in the PowerPoint presentation.
- **Summary of Country Survey/Gaps and Needs**

The Chair provided background on the Hydrological Capacity Assessment and Needs Survey conducted in 2019 by Wave Consult. This survey was conducted via online surveys and country visits for face-to-face interviews to gather information and data.

He also covered the scope of the assignment and its preliminary findings. (Refer to details in the PowerPoint)

The assessment identified top 10 training needs that included:

  1. Drought and flood forecasting/modelling
  2. Water quality parameters/sampling/analysing
  3. Extreme events measurement/recording (e.g., flooding)
  4. Tertiary courses in hydrology
  5. Data auditing and QA
  6. Water Balance calculations
  7. Groundwater modelling
  8. GIS and mapping
  9. Providing expert advice and policy development

## 10. Pump tests

The report is attached for reference.

- **Overview of PMC and Panels** was presented by Salesa Nihmei of SPREP
  - Salesa presented on the linkages of the PHS and PMC and other panels. He provided an overview on the PMC and its role and function.
  - The PMC is a specialised subsidiary body of SPREP, established to facilitate and coordinate the scientific and technical programme and activities of the Regional Meteorological Services. The PMC meets on a bi-annual basis until the pandemic happened. The last PMC was in Apia in 2019.
  - Linked to the PMC is the Pacific Ministerial Meeting on Meteorology (PMMM) that has met twice now (2015 and 2017).
  - Another link is the Donors and Partners Roundtable that started in 2017. This was an opportunity for NMHSs, donors and partners to discuss programs and support to continue the development of weather and climate resilient Pacific Communities. This discussion is looking to be formalized and is a work in progress in partnership with WMO.
  - Salesa also touched on the Governance of the PMC and Partners. The Pacific Met Desk Partnership is composed of SPREP and WMO, and their main role is to support the PMC and Panel Expert Working groups.
  - There are 6 expert panels to support the PMC and provide guidance and main role is to implement the priorities in the PIMS, they are as follows.
    - I. Climate Services
    - II. Hydrology Services
    - III. Communications and Infrastructures
    - IV. Aviation Services
    - V. Education, training, and research
    - VI. Marine and Ocean Services
  - Salesa reminded the Panel of the Pacific Key Outcome (PKO) 7 of the PIMS- *Strengthen collaboration between meteorological and hydrological services to better manage water resources and reduce the impact of water related hazards*. There are 5 key priorities under this PKO with specifics on the priorities at national and regional level with the leads also identified.
- **Opportunities for Hydrology Services**
  1. WMO Regional Hydrological Adviser for Regional Association V
    - John Fenwick presented on the WMO Regional V working group on hydrology and water resources, highlighting the importance of the production and dissemination of hydrological information, products, and services as mentioned in the PMC Hydrology Panel TOR. He discussed the new WMO data policy, known as the Global Basic Observations Network (GBON), which requires members to share data from key stations. He also mentioned the Systematic Observations Financing Facility (SOFF) as a potential funding mechanism for PHS priorities. Additionally, Fenwick mentioned the HydroHub project, aimed at engaging current and potential information users and developing products to suit their needs, starting with Fiji and Samoa as pilot locations. The global hydrological status and outlook system (HydroSOS) was highlighted as a valuable tool to assist NHS in providing information and products to their stakeholders. Lastly, Fenwick emphasized the key tasks of the RA V Working Group in

Hydrology and Water Resources, which focus on using data to transform it into valuable information.

WMO RA V Working Groups – presented by Ryuji Yamada

- The RA V-18 session, held virtually from 1-3 September 2021, had over 100 participants from 16 out of 24 RA V members. Mr. Ofa Faanunu from Tonga was elected as the President, and Mr. Terry Atalifo from Fiji was elected as the Vice President. During the session, the RA V decided to establish the RA V Working Structure, consisting of three working groups (Services, Infrastructure, and Hydrology and Water Resources) and a Tropical Cyclone Committee. The Hydrology and Water Resources Working Group formed two Expert Teams (Operations and Infrastructure and Hydrology Applications and Services), with Mr. Roy Badilla from the Philippines serving as the Working Group Chair and Mr. John Fenwick from New Zealand as the Regional Hydrological Adviser. The working group is currently in the process of selecting members for the expert teams, with over 150 nominations received, and a proposal for the teams' composition will be reviewed and approved by the RAV management group. The chair had a question on the nominations as to when it will be finalized and available. Ryuji responded that the proposal will be submitted together with other regions to the management group and hopes the membership will be finalized within a month.

WMO- Hydrology And water resources presented by Dr. Hwirim Kim

- Dr. Kim expressed gratitude for the invitation and willingness to collaborate with the Panel.
- She acknowledged the importance of the meeting and expressed interest in learning about the Panel's activities and identifying potential synergies.
- The World Meteorological Organization (WMO) was established in 1950 as a specialized agency of the United Nations. WMO focuses on meteorology, operational hydrology, and related geophysical sciences. WMO provides technical support and services to its 193 member states.
- She shared information about the regional associations, regional hydro advisers, and working groups within the WMO structure. Two technical commissions were mentioned: Infrastructure Commission (data observation and monitoring) and Services Commission (flood forecasting, drought forecasting, water resources management). The Hydrology Services Committee falls under the Services Commission. The Standing committees and joint expert teams on hydrological monitoring were highlighted. The Hydrological Coordination Panel was described as a think tank that establishes linkages between technical commissions, regional associates, and external partners.
- Dr. Kim discussed the long-term ambition in hydrology, for instance, no one is surprised by a flood, everyone is prepared for drought, these ambitions form the action plan for hydrology. An action plan for hydrology was developed during the extraordinary congress, focusing on collaboration with regional associations and partners. Dr. Kim emphasized ongoing collaboration with hydrology advisers and regional offices to implement the action plan.
- The Hydrology Assembly, to be held during Congress-19 in 2023, was mentioned as a platform for hydrology advisers to address hydrology issues and provide recommendations.
- The Regional Hydrological Adviser Forum in November 2022 was highlighted, encouraging experts from Regional Association V (RA V) to join technical commissions and research groups. Ongoing initiatives such as the quality management framework and the Global HydroHub were mentioned. The WMO's flood forecasting initiative and support for disaster risk management were discussed. Capacity building in hydrology and water resources management was emphasized, along with the World Water Data Initiative.

- She also mentioned projects supported by the CREWS Initiative, including the Fiji Flood Forecasting Guidance System (FFGS) and the Southeastern Asia Ocean FFGS.
- Opportunities in Tonga and Papua New Guinea for future projects focusing on hydrology and drought management were highlighted.
- Dr. Kim expressed interest in the EW4All initiative and requested more information to be shared with the members in due time.

#### **Actions**

- Share more information on the EW4All initiative.
  - Submit Regional Association V (RA V) Implementation Plan during Congress-19.
  - Arrange a separate meeting to focus on HydroSOS.
2. SPREP – presented by Salesa Nihmei
- Mr. Nihmei mentioned the support provided to Tuvalu (Funafuti) and Kiribati (Christmas Island) in developing drought plans in partnership with the WMO.
  - Highlighted the importance of prioritizing the development of national drought plans, especially considering the impacts of El Nino and La Nina.
  - Emphasized the need to link the warning system to action from the National Disaster Management Offices (NDMO) side.
  - He informed participants from CKI, Niue, Palau, RMI, and Tuvalu to look out for opportunities under the UNEP-GCF project. And mentioned the project's focus on drought plans and potential synergies available.
  - Noted the opportunities available under the Weather Ready Pacific investment plan endorsed by Pacific leaders. The plan highlighted the potential for developing flood and drought investments including national infrastructures.
  - Mr. Nihmei also mentioned ongoing discussions with UKMO (WMO and SPREP) under the WISER Program for Asia and Pacific. He indicated that specific areas of investment have not yet been narrowed down and still waiting for next updates.
  - Shared information about a training workshop organized under the Pacific Climate Change Center (PCCC) called, strengthening climate resilience and safe water access in rural areas in the Pacific with the first one focused on the Polynesian group. The workshop aimed to assist the hydrology community in developing bankable project proposals. He suggested the need for another workshop of similar nature to be organized.
  - Mr. Nihmei reminded the members in previous hydro panel meeting a consensus reached that the membership of the panel should be from the water sector rather than the meteorological sector. This point was noted by the Chair.

#### **Actions:**

- Country members to prioritize the development of national drought plans and their integration with the warning system.
  - Continue discussions with UKMO under the WISER Program.
  - Consider organizing another workshop to assist the hydrology community in project proposal development through PCCC
  - Ensure panel membership comprises individuals from the water sector.
3. SPC – Peter Sinclair presented on behalf of his team on SPC Hydrology Overview
- Provided an update on the impact of drought on water supplies in Kiribati and Tuvalu, specifically highlighting the 2022 drought conditions. He emphasized the importance of

prioritizing the development of national drought plans to link the warning system with action from the National Disaster Management Offices (NDMO) side.

- Shared information on ongoing SPC projects related to hydrology, including managing coastal aquifers, water scarcity, and enhancing water-food security and climate resilience.
- Highlighted project funding sources, timeframes, and target countries for each project.
- Jackie presented on the hydrology support provided for flash flood early warning systems in the Pacific region. She discussed the three-pronged approach involving stakeholder and community engagement, technical support, and knowledge exchange.
- She also presented the four-pillar framework for the flash flood early warning system, focusing on risk/impact, monitoring and warning, response, and dissemination and communication.
- Provided an update on the progress made, including stakeholder workshops, site assessments, and the selection of pilot catchments. Have completed some work in Fiji and Vanuatu and plans to move to Samoa and Solomon Islands soon.
- Dr. Kim highlighted the community-based approach and suggested utilizing WMO's available resources, including guidelines and assessment tools for gender mainstreaming.
- Mentioned the upcoming publication of assessment guidelines and the Community of Practice (CoP) platform for flood forecasting, the CoP invites more actors to the platform.
- The Chair Acknowledged the work done in the region on droughts and the use of hydrological data for producing products by SPC and appreciated the presentation from SPC.

#### **Actions:**

- Prioritize the development of national drought plans to address water scarcity during drought conditions.
  - Continue implementation of SPC projects supporting hydrology in the region.
  - Utilize WMO's available resources, such as gender mainstreaming guidelines and assessment tools.
  - Explore opportunities to join the WMO Hydrology Community of Practice platform.
4. NIWA – presented by Graham Elley
- NIWA discussed their role in supplying, installing, and providing operational support for hydro-meteorological monitoring equipment. They emphasized that although not a donor, they offer technical support across the entire hydro-met chain.
  - Mr. Elley discussed their role in supplying, installing, and providing operational support for hydro-meteorological monitoring equipment. They emphasized that although not a donor, they offer technical support across the entire hydro-met chain.
  - NIWA outlined their efforts in conducting both in-country and New Zealand-based training programs focused on technology and support systems in hydrometeorology.
  - They also mentioned their role in providing network spares and spare equipment to ensure the smooth functioning of hydro-meteorological stations in the Pacific region.
  - NIWA discussed their work in developing Sharepoint and MS Team resources to facilitate the sharing of information and provide technical and operational support to regional National Meteorological and Hydrological Services (NMHSs). They also emphasized the development of standard procedures and documentation for station and network operations and maintenance.
  - He also touched on their collaboration with donors and regional partners to develop products and services based on the data collected. They displayed examples of practical, sector-based products, such as flood forecasting portals and water accounting tools, which have been utilized across the Pacific region.

- The chair expressed appreciation for the comprehensive presentation provided by NIWA and acknowledged their significant contribution to hydrological activities in the region.
- 5. BOM could not present due to another commitment.

- **Q&A**

- SPREP touched on the representation in the meeting, need more hydrology members to participant as the meeting consists mostly of the partners. Suggests as part of the panel, to organize a special session for lessons learned and sharing between the organizations, partners in terms of flash flood, can be for high islands. Chair notes this and will consider this as a way forward for potential online seminars or face to face meetings to share and learn from.
- Chair makes notes of the number of initiatives ongoing in the region and mapping these with the gaps in the survey completed.
- SPC recognizes the concerns raised and mentioned that the project led by Jackie and Tom can confirm a few of the priorities and gaps, perhaps after they visit Samoa and Solomon Islands. Thanked everyone for the opportunity.

- **Review of PHS TOR and update focal points**

- Deferred this item to the next meeting due to time constraints. This was supported by members present.

- **Way forward – presented by the chair**

The following actions were identified for the way forward in the meeting:

- Conduct face-to-face meetings and sharing opportunities to review the Terms of Reference (TOR) and Workplan, vote for Chair and Vice-Chair, update membership, and participate in virtual seminars.
- The Chair encouraged all participants to join online meetings, such as those organized by WMO, to ensure that the needs and perspectives of the panel are voiced and reflected.
- Explore partnership opportunities for project development and capacity building, particularly with organizations like PCCC (Pacific Climate Change Center) and UNEP GCF (United Nations Environment Programme Green Climate Fund).
- The Secretariat will circulate the meeting minutes, including the presentations, and initiate the next meeting with a few achieved actions.
- Look forward to organizing a face-to-face meeting soon, especially the next PMC (Pacific Meteorological Council) meeting.
- The Chair expressed gratitude to all presenters and participants for their contributions during the session.
- SPREP (Secretariat of the Pacific Regional Environment Programme) raised a request for SPC (Secretariat of the Pacific Community) to designate focal points for hydrology in the countries, ensuring representation beyond meteorological services. This will facilitate ownership and involvement in the panel.
- The Chair acknowledged the request made by SPREP and agreed to communicate the request to the countries. WMO also noted that the request for hydrology focal points had been made through formal correspondence and would double-check with SPC regarding their focal points.

END OF MEETING

- Annex 1: Agenda

## Pacific Hydrological Services Panel Meeting

**18<sup>th</sup> October 2022, 3pm – 5pm (Samoa local time)**  
**Virtual-Teams**

### Background

The Pacific Hydrology Services (PHS) Panel was established at the Fourth Meeting of the Pacific Meteorological Council (PMC-4) in Honiara 2017. It was established to serve in the capacity of an advisory committee to the PMC on hydrological services matters in the Pacific region, with emphasis on flood and drought warning and management at the national and regional level. The panel also works collaboratively with relevant partners on the development and implementation of new programmes and initiatives to enhance the capacities of PICTs to provide quality hydrological services. The Terms of Reference and Workplan for the PHS Panel are attached for more information.

### Objective of the Meeting

1. Update on the progress of Hydrological Services in the Region;
2. Discuss the current needs and gaps of Hydrological Services in the Pacific;
3. Update on the planned and pipeline projects and programmes for the Region specific to Hydrology;
4. Discuss planned activities or way forward for the PHS Panel.
5. Review TOR and clarification of committee members

### Expected Outcomes of the Meeting

1. Understand the current Status of the Pacific Hydrological Services and gaps required to be addressed;
2. Clear understanding of the role of the PHS Panel;
3. Develop a clear list of priority activities
4. Provide direction for the PHS Panel;
5. Update PHS Panel Representation.

Time	Agenda Item	Lead
3:00-3:15PM	Prayer Welcome Introductions	Malaki Iakopo, Panel Chair
3:15-3:25PM	Meeting and PHS Panel Background and Overview	Malaki Iakopo, Panel Chair
	<b>Group Photo</b>	
3:25-3:35PM	Overview of PMC and link to PHS and other Panels	Salesa Nihmei
3:35-3:45PM	RAV Hydrology Advisers Forum Update RAV Working Groups	John Fenwick Ryuji Yamada

3:45-4:00PM	Summary of Country Survey /Needs and Gaps	Panel Chair & Countries Representatives
4:00-4:25PM	<b>Opportunities to support hydrological services</b> <ul style="list-style-type: none"> <li>- WMO</li> <li>- SPREP</li> <li>- SPC</li> <li>- NIWA</li> <li>- BoM</li> </ul>	Representatives TBC
4:25-4:30PM	Review of PHS TOR and update focal points	Salesa Nihmei
4:30-4:45PM	Q&A	Malaki Iakopo, Panel Chair
4:45-4:50PM	Way Forward	
4:50-5:00PM	Wrap Up	

## Annex 2: Pacific Countries and Territories Hydrological Capacity Assessment and Needs, 2019



Annex C\_PICT Hydro Capacity Assessment

## Annex 3: Presentations



Intro\_PHS Panel Meeting 2022.pptx



PMC Hyd Panel WMO presentation JF



Hydrology Panel - PMC\_HKim.pptx



WMO - RA V Working Structure - P



RAV Hydrology panel 2022.pptx



Hydrology Overview Oct 2022 - SPC.pptx

## Annex 4: PHS Panel TOR and Workplan



WP\_14.2\_Att3\_Hydrology Panel ToR.pdf



Malaki\_WP\_14.2\_Att2\_PMC Pacific Hydrolog