# SEVENTH MEETING OF THE PACIFIC METEOROLOGICAL COUNCIL (PMC-7)

*"At the Frontline of Weather, Climate, Water, and Ocean Action in the Pacific"*

17-19 September 2024, Warwick Le Lagon-Vanuatu Resort, Port Vila, Vanuatu

## Agenda Item 12.1: Progress and update on the Pacific Hydrology Services Panel

**Purpose:**

- **Inform** the Council of the progress of the Pacific Hydrology Services (PHS) Panel;
- **Update** the Council of regional initiatives related to hydrology data and services including flood and drought warning and management; and
- **Inform** the Council of the Hydrology Forum proposed for November 2024.

**Background:**

The purpose of the PHS Panel is to provide advice and guidance to the Pacific Meteorological Council (PMC) on matters related to hydrological services, with an emphasis on flood and drought warning, and water resource management at the national and regional levels, as prescribed in the Pacific Island Meteorological Strategy 2017-2026, and other international and regional frameworks such as the Framework for Resilient Development in the Pacific. The Panel works collaboratively with relevant partners on the development and implementation of new programmes and initiatives to enhance the capacities of the Pacific Island Countries and Territories (PICTs) to provide quality hydrological services.

There is a lack of awareness of the integral role that hydrological services play in realising climate resilient communities. For example, hydrological data is a critical input into disaster risk reduction, water security, water quality, sanitation and hygiene, water resources management, design of climate resilient infrastructure and communities, energy and food security. The inclusion of hydrological data and engagement with National Hydrological Services (NHSs) has been minimal in recent years. A study related to hydrological services in the Pacific in 2019 identified 46 projects where high-quality hydrological services were fundamental to the success of these projects. However, only three appear to have directly involved the NHSs in the activities being undertaken through the project (Catchlove et al, 2019).

Hydrometric observations and analysis (hydrology) underpin the accuracy, timeliness and confidence in flood and drought warnings, and inform water resource management.

However, hydrology within the region is poorly supported. This has led to reduced hydrological capacity for monitoring and analysis, which limits the ability to effectively provide flood and drought warnings, and water resource management.

**Pacific Hydrological Services Panel Updated**

The PHS Panel and members have progressed various actions to enhance the development of hydrological data and services in the Pacific in the last 12 months. These include:

1. **National and Regional Hydrology Database Assessment**

With the imminent retirement of the long serving TIDEDA regional hydrological data management system, the Pacific Community (SPC), in collaboration with the New Zealand National Institute of Water and Atmospheric Research (NIWA) and PICTs, is undertaking an assessment of hydrological database options that are suitable for the PICTs setting. The assessment is taking place in a staged approach, including identification of requirements for future Pacific hydrology database needs, evaluation of possible hydrological database options compared to the minimum requirements identified in the assessment, and reporting on the options evaluation and recommendations.

2. **Hydrology Related Initiatives**

- **Hydrology support to enhance flood early warning in the Pacific:** SPC leads the implementation of the initiative with funding support from the Australian Department of Foreign Affairs and Trade (DFAT) and Australian Water Partnership (AWP). Fiji, Samoa, Solomon Islands, and Vanuatu are the participating countries in this initiative. The initiative focuses on enhancing monitoring capabilities (inc. equipment installation), impact-based forecasting tools, NHSs capacity development, and framework to support hydrological services to enhance flood early warning in project countries. Phase 1 of the initiative will be completed in November 2024. Phase 2 proposal is currently under development.

- **Managing coastal aquifers in selected Pacific SIDS:** SPC leads the implementation of this initiative and funded by the Global Environment Programme (GEF). Palau, Marshall Islands, and Tuvalu are participating in the initiative. The initiative focuses on groundwater resource assessment, management and protection, numerical modelling of freshwater lens, technical guidance notes aquifer management, and community-based monitoring approaches. The implementation of the initiative is on track and to be completed in April 2026.

- **Enhancing water and food security and climate resilience in volcanic island countries of the Pacific:** SPC leads the implementation of this initiative and funded by GEF and the Food and Agricultural Organization (FAO). Fiji, Solomon Islands and Vanuatu are participating in the project. The project focuses on groundwater resource potentiality mapping at island scale, support for water resource policy and legislation development, and development of aquifer management plans for hotspots.

- **Strengthening water security in vulnerable Island States:** SPC leads the implementation of the project with funding support from New Zealand MFAT. Cook Islands, Kiribati, Marshall Islands, Tokelau, and Tuvalu are participating in the project. The project focuses on the procurement of water resource assessment and water quality equipment, training in water quality and water resource assessment techniques, drought management support, and asset management support. The project will be completed in March 2025.

**Global Hydrometry Support Facility (WMO HydroHub):** The HydroHub is managed and coordinated by WMOand funded by the Swiss Agency for Development and Cooperation (SDC) and Inter-American Development Bank (IDB). The HydroHub manages a portfolio of activities focused on innovation within hydrometry, including Capacity needs assessments, trainings and learning exchanges, innovation workshops, innovation Calls, user-provider workshops and ministerial roudntables. One HydroHub activity, implemented by NIWA in 2 PICTs namely Fiji and Samoa was a User-Provider workshop focusing on hydrology data and analytical systems to provide the best possible assessments of water, and water-related early warning systems. An earlier Innovation Call in Fiji was implemented by NIWA. HydroHub Ministerial Roundtables in the Pacific are planned for 2025-26.

- **Global Hydrological Status and Outlook System (HydroSOS):** The initiative is managed and coordinated by WMO. HydroSOS regional workshop was held from 21 – 24 March 2023 in Christchurch, New Zealand. The outcome of the workshop was the WMO Regional Association (South-West Pacific) HydroSOS implementation plan, that was approved by the 19th WMO Congress in 2023. There are ongoing efforts to raise funds for projects to implement HydroSOS in the region (see later GCF). In addition, a first pilot hydrological outlook forum was held in Nadi, Fiji on 10th July 2024, which saw the participation of the HydroSOS focal points from the PICTs. This is aligned with the Regional HydroSOS implementation plan.

- **Early Warning System for Floods (EWS–F):** WMO is leading the coordination of the EWS-F project in 6 PICTs (Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu) with funding support from the U.S Agency for International Development /Bureau of Humanitarian Assistance (USAID/BHA). The purpose of the project is to develop EWS for floods in these participating countries. Following the Initial Planning Meeting which was held in Nadi, Fiji, national capacity assessments are planned to be carried in these participating PICTs to inform development of the project's implementation plans.

- **Flash Flood Guidance System (FFGS):** WMO is leading the coordination and implementation in collaboration with the Hydrologic Research Center (HRC) in 6 PICTs (Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu) with funding support from the USAID/BHA. FFGS is currently operational in 73 countries with another 31 countries to be added as part of the ongoing phase of the project. Fiji has an FFGS that was setup under the Canada CREWS project. As part of the expansion of FFGS in the Pacific, WMO has reached out to the PICTs to gather the requisite data for setting up the system.

- **PREPARE:** The initiative is implemented by the US National Oceanography and Atmosphere Agency (NOAA). The initial pilot PICTs countries include Fiji, Solomon Islands, and Kiribati with plans for expansion region wide. It focuses on climate-based early warning systems development for excessive rainfall probability ranging from 1 week to 4 weeks to seasonal outlooks. These outlooks will be real-time and integrated into bulletins with various impacted sectors i.e. agriculture, tourism, infrastructure, etc. The first phase – kick off workshop and training were completed in July 2024, The project is in the process of obtaining Letters of Commitment from countries, and follow-up training workshops with pilot countries are proposed for early-mid 2025.

- **Weather ready nation (WRN):** The programme is implemented by HRC in 2 PICTs (Fiji and Solomon Islands) with funding support from USAID and NOAA. It will focus on flood warning messaging (impact-based forecasting) and stakeholder and community engagement.

- **Upgrading hydrometeorological services for climate resilient water security in Pacific SIDs:** The WMO Regional Association V (South-West Pacific) HydroSOS implementation plan, approved by the 19th World Meteorological Congress (Cg-19). PMC-6) and PMMM-3) endorsed the mobilization of technical and financial resources to aid the implementation of HydroSOS in the region. Following several discussions, and based on

agreement with all relevant stakeholders, WMO in collaboration with SPREP initiated the process of developing a GCF concept note for HydroSOS implementation in the Pacific. The project will cover six countries, namely, Fiji, Niue, Samoa, Solomon Islands, Tonga and Vanuatu.

- **Integrating flood and drought management and early warning for climate change resilience in the Pacific Islands:** Currently in pre-concept stage and to be re-submitted to Adaptation Fund (AF) Secretariat. It will focus on hydrology infrastructure, data, information, and services. Participating countries are Fiji, Samoa, Solomon Islands and Vanuatu.

**Other Matters**

- The Panel has a new Chair – Tonga, vice chairs voted in were Cook Islands and Fiji. We acknowledge the hard work and efforts of former chair in upscaling and elevating the role of hydrologists in the Pacific.
- SPC is planning a Hydrology Forum for November 2024. The Panel unanimously agreed to utilise 10k USD dedicated to the panel from CREWS 2.0 project under SPREP CCR to contribute to the organisation of this forum.
- New countries requested to be included in the membership of the panel include PNG, Cook Islands, American Samoa and Federated State of Micronesia. It is also noted that the provisions for member countries to join is provided for in the TOR.

**Recommendations:**

The Meeting is invited to:

- **Note** the works and progress of the PHS Panel.
- **Note** the hydrology related regional projects currently under implementation and pipeline projects.
- **Note** the need to support the continued cooperation, coordination and approach between regional and international bodies, national government agencies, civil society organisations to develop and implement regional initiatives related to hydrology; and

- **Encourage** alignment of the regional initiatives related to hydrology with the Weather Ready Pacific and 2050 Strategy for the Blue Pacific Continent.

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