PMC Pacific Hydrological Services (PHS) Panel Workplan 2018-2026

The PHS workplan was developed in consultation with selected countries from the hydrology and meteorology communities of practice. Consultation was held on 14-15 August 2018 at Tanoa International Hotel Fiji. This initiative was supported by SPREP, SPC, UNESCO, UNDP and other technical partners and member countries. Updated by the PHS panel at PMC 5 on 5th August 2019

Pacific Key Outcome (PKO) 7

Objective: *Strengthen collaboration between meteorological and hydrological services in order to better manage water resources and reduce the impact of water related hazards*

Overall Outcome:

Better understanding on likely impacts of climate variability and climate change on water resources to better inform decision making at the national and regional level.

Output 1:

Impacts of climate variability and climate change on water resources better identified and quantified

Indicators

1. Number of research/reports on impacts of climate variability and climate change on water resources
2. Status of water resources and implications of climate change and climate variability both at the regional and national level

NATIONAL & REGIONAL ACTIVITIES	KEY PERFORMANCE INDICATORS	IMPLEMENTING AGENCIES	NOTES
Activity 1.1.: Incorporate downscaled climate models for impact assessment of water resources. • Identify capacity needs to fully utilize existing and new downscaled models available including clear understanding on end-to end user needs and requirements;	Number of downscaled regional climate models made available to	SPREP, SPC, WMO, UNESCO	The Panel is not involved with the actual downscaling of the models but will facilitate the distribution and encourage the

• Identify climate models compatibility to extract the relevant information for water sector use in each of the countries. • Downscaling process to be regionally process and the outcome be given to countries for water resources management use	NMHS for decision making Number of research/reports on the impacts of climate variability and climate change on the status of water resources both at the regional and national level.		development and training on these important products, so as to improve national level implementation.
Activity 1.2: Increase and improve the practical application of numerical models to water resource management needs. • Conduct feasibility study in countries to understand needs and capacity of models to address these needs; • Translate climate model outcomes into water resources management needs and tools.			
Activity 1.3: Climate change vulnerability assessment on water resources integrated with other sectors • Support the development of integrated water resources Climate Change vulnerability and needs assessments;		SPREP, SPC National Hydrological Services	Number of countries with updated status reports on water resources in the last five years
<u>Output 2:</u> **Improved collection, management and use of hydrometric and meteorological data.** **<u>Indicators:</u>** **1.** Pacific Island Countries have a centralized database that collects, manages and uses all relevant data, and is used by both hydrological and meteorological users.			
Activity 2.1: Build robust hydrological database systems compatible with climate and disaster databases • Support the development of national database model (similar to CLide or other databases) to facilitate data compatibility across the region; • Maintain a record of data type requests to better identify current and future needs. • Develop and support projects which aim to address needs on:	Number of Pacific Island Countries with centralized database systems that collects, manages and uses all relevant data, by both hydrological and meteorological users.	PHS Panel, SPC, SPREP, WMO, National Hydrological Services	The Panel will in all opportunities try to lobby for projects to upgrade national hydrological databases and their uses, as well as facilitate systems integration in line

✓ Develop methods to allow transfer or compatibility of climate and hydrology databases; ✓ Maintain and improve population of datasets into database (time-series and spatial extent); ✓ Establish protocols to facilitate data sharing with users where applicable; ✓ Review existing datasets (current and historical) that could be incorporated into a national database, capturing relevant metadata ✓ Review existing needs of all users (hydro, met, and other potential uses such as Ministry of Health, Statistics, Infrastructure, etc) ✓ Consider end users' needs (i.e. what will the community need, in what format, received in what communications medium) ✓ Design and deliver appropriate capacity building programs to ensure all staff and users of the database have the appropriate skills to use and benefit from the database			with national interests.
Activity 2.2: Identify and share approaches to hydrometric data successfully implemented at the national level, in order to support replication and up scaling. • Document and share best practice guidelines for hydrometric data collection, storage and analysis for all countries. • Setup an inventory or conduct an assessment of current hydrological resources and capabilities at the national and regional level; • Improve hydrological monitoring networks and identify means to standardization data collection processes;	Report on current status, gaps and needs assessment of the region's national hydrological services. Number of countries with	PHS Panel, SPC, SPREP, WMO, UNESCO, National Hydrological Services	

• Develop standard operating procedures couple with training and adoption of standardized technologies and maintenance; • Ensure exit strategies for projects are developed to maintain project activities and up keeping of infrastructure once the projects are completed. • Complete water resource assessments at the National level for inhabited islands • Compile standardized water resource status reports for critical water sources • Explore smart groundwater management systems using real time telemetry-based network. •	updated status reports on water resources during each PHS Panel meetings Adoption of national level data standards Number of countries increasing development of suitable hydrological products for different stakeholders Adoption of national level data standards		
Activity 2.3: Support the joint application of hydrometric and meteorological data to support water resource management decision making at the national and community levels. • Ensure data is in an understandable format at the community level.			
Activity 2.4: NMHSs pursue certification in hydrological QMS. • Compatibility to be improved by data standardization for monitoring and storage; • Investigate possible use/adoption (if not already) of WMO standards for hydrological data; • Build capacity / expertise of hydrological staff in the region in accordance with international standards; • Contact with International Hydrological Partnership (IHP) to identify regional points of contact for hydrological networking.			

• Evaluate certification needs in terms of skill level, skill sets and number of staff demand per island, country and region.			
Activity 2.5: Provide extended hydrological prediction through the use of seasonal forecasts • Establish agreements with met services on data sharing and tailored products for hydrology and its wider sector users; • Strengthen collaboration with Met services to communicate the science to ensure end-users understand and use forecast products for decision making; • Partner with Met Services to developed hydrological products that meets water sector needs.		PHS Panel, SPC, SPREP, WMO, UNESCO, UNDP, National Hydrological Services and National Meteorological Services	
Activity 2.6: Partnership between technical agencies and communities in the collection, management and use of hydrometric data i.e Involving NHMSs in sector specific consultations, communities acting as unofficial observers etc. • Setup guidelines and standard procedures for data collection, management and use; • Develop policies to enable partnership between communities and technical agencies; • Liaise with other PMC expert panels to ensure coordination of data sharing and products related to hydrology advancement.			
<u>Output 3:</u> **Strengthened capacity of hydrological and meteorological services.** **Indicators:** **1.** Number of partner funded trainings in hydrological and meteorological services			

2. National Training Needs Assessments available and linked to regional frameworks **3.** No. of joint trainings for improved hydrological and meteorological capacity and collaboration implemented **4.** No. of staffs with improved capacity in specific hydrological areas			
Activity 3.1: Utilize available hydrological training framework and request other donors to support further training for hydrological staff. • Strengthen regional collaboration between SPREP, SPC and WMO and its partners to deliver training needs of all member countries; • Align PMC & WMO frameworks to ensure trainings are tailored to suit Pacific islands country needs; • Conduct country capacity mapping exercise to meet job requirements and skills and knowledge needed. Where gaps are identified request regional institutes to provide support and link trainings to key regional frameworks. • Evaluate effectiveness of partner driven trainings	Number of partner funded trainings in hydrological and meteorological services National Training Needs Assessments available and linked to regional frameworks No. of joint trainings for improved hydrological and meteorological capacity and collaboration implemented No. of staffs with improved capacity in specific hydrological areas	PHS Panel, UNDP, UNESCO, SPC, SPREP, WMO, National Hydrological Services	Available hydrological training frameworks and opportunities include the WMO RA V, the Pacific Climate Change Science and Services Research Roadmap, the Pacific Climate Change Centre to name a few.
Activity 3.2: Support the design and delivery of joint training activities at the national and regional levels, targeting key hydrological and meteorological capacity needs. • Identify national and regional training needs and ensure that the training activities or opportunities for shared learnings consider country-specific trainings; • Create an online or face to face medium for knowledge exchange, and face to face training with more hands on exercises; • Improve collaboration and communication with key stakeholders and technical partners using climate products.			

• Conduct post-training evaluation			
<u>Output 4:</u> **Improved hydrological infrastructure, communications and forecasting systems to support hydrological services** **Indicators** **1.** Number of hydrological stations that are well maintained **2.** Improved reliability of telemetered hydrological stations **3.** Increased application of meteorological forecasting into drought and flood risk assessment			
Activity 4.1: Encourage standardization of hydrological and meteorological infrastructure and compatibility of communications for efficiencies and data exchange. • Conduct an infrastructure and communication systems inventory of users and pros and cons of each system e.g for monitoring (compatible gauges, data sharing in real time between agencies); • Define appropriate systems are in place to phase out incompatible systems and infrastructures; • Provide technical advice acknowledging the importance of country context and diversity of needs in PICTs • Schedules developed for regular site maintenance and upgrade. • A library of standardized site designs has been established and is available for all NHMS • Develop a concept note for a coordinated hydro-meterological regional project that delivers on output 4.	Number of hydrological stations that are well maintained Improved reliability of telemetered hydrological stations	PHS Panel, UNESCO, SPC, SPREP, WMO, National Hydrological Services	
Activity 4.2: Improve flood forecasting by investing in research and studies on hydrological modelling • Identify reliable downscaling models for rainfall; • Develop flash flood guidance system to raise awareness and its influence in the Pacific;	Increased application of meteorological forecasting into	PHS Panel, UNDP, UNESCO, SPC, SPREP, National Hydrological Services	

• Carry out hydrological modelling for watershed catchments for decision making and developed toolkits for communities; • Stock take the different approaches for flood forecasting and assess it applicability of run-off models; • Review catchment characteristics and prioritization method of key catchments; • Strengthen in-country capacity to run models and flood prediction; • Deliver community assessment and response mechanisms (including citizen science and traditional knowledge) • Identify appropriate software is available to undertake flood and drought forecasting and verification • Key NHMS have a pathway to access to high resolution rainfall information. • FFGS programme expanded to include at least 2 additional NHMS. • Key staff from at least 2 NHMS successfully complete HRC FFGS training programme. • Donor identified to support development of pilot hydrological modelling programme suited to NHMS • Recommendation report available for PHS review.	drought and flood risk assessment Twinning opportunity for at least 2 National Hydrometric Services with the Fiji FFGS		
Activity 4.3: Develop forecast systems infrastructure and systems for drought impact and monitoring for priority catchments and water sources • Determine thresholds for drought prediction and forecasting and triggers for response actions at the national, sub-national and community level; • Identify key catchments and water sources assessments;			

• Improve integrated data management systems for providing usable products for decision-makers (identify what data sets, including usage and impact data); • Do community assessment and identify response mechanisms (including citizen science and traditional knowledge); • Identify appropriate software is available to undertake flood and drought forecasting and verification • PHS to identify or develop a water resources assessment questionnaire that targets drought indicators in priority catchments.			

Document Control

Organization	**Date**
SPREP (Azarel)	18 July
SPREP (Azarel)	24 July
SPC (Amini)	30 July 2019
PHSP, SPC, SPREP, NIWA (Peter)	6 August 2019