CREWS PROJECT PROGRESS REPORT

(July - December 2023)

1. Project title	Strengthening Hydro-Meteorological and Early Warning Systems in the Pacific (**CREWS Pacific SIDS 2.0**)	**2. Project reference** CREWS/RProj/05/Additional Financing Pacific
3. Implementing Partners involved in the project	World Meteorological Organization (WMO); World Bank Global Facility for Disaster Reduction and Recovery (WB GFDRR); United Nations Office for Disaster Risk Reduction (UNDRR)	**4. Operational Partners involved in the project** Secretariat of the Pacific Regional Environment Programme (SPREP); The Pacific Community (SPC); Australian Bureau of Meteorology (BoM)
5. Project Duration/Timeframe **(from year – to year)**	Jan 2021-Dec 2024	**6. Total Funding Approved by Steering Committee (in US dollars), including fees** **7.** USD 4,799,000
8. Reporting focal point(s) from Implementing Partners	**WMO**: Guilherme Varro gvarro@wmo.int **WB GFDRR**: Jian Vun jvun@worldbank.org Simone Esler sesler@worldbank.org Andrew Hurley ahurley@worldbank.org **UNDRR**: Nazgul Borkosheva Nazgul.borkosheva@un.org Stefanie Dannenmann-Di Palma dannenmann@un.org	
9. Project overview	**Please include objectives, key project deliverables, leveraging, contextual information/statistics, significant events during the reporting period in bullet points. (max 250 words)** CREWS Pacific SIDS 2.0 builds upon the CREWS Pacific SIDS project (2017-2022) and aims to upscale its efforts in the Pacific region. The project will enhance regional and national capacity and systems for risk informed services related to extreme and high impact hydro-meteorological events in the Cook Islands,	

	Federated States of Micronesia (FSM), Fiji, Kiribati, Nauru, Niue, Republic of Marshall Islands (RMI), Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. The project has five main outcomes that strengthen integrated and inclusive early warning systems that are part of the region's stronger and more comprehensive human security and resilience agenda: 1. Improved governance; 2. Enhanced product development and accessibility; 3. Enhanced service delivery; 4. Enhanced communication and awareness programmes on Early Warning Systems (EWS); and 5. Improved integration of gender including people living with disabilities across the EWS chain. **Leveraging** The project links closely with the following regional initiatives (leveraging of approximately USD 65M): • Climate and Oceans Support Program in the Pacific (COSPPac) • Tuvalu Coastal Adaptation Project • Recovery Support for Tropical Cyclone Pam • Intra-ACP Climate Services and Related Applications Programme (ClimSA) • ISLANDS: Pacific Regional Project (unep.org) • Pacific Resilience Program (PREP)

	Key events during reporting period Sixth Meeting of the Pacific Meteorological Council (PMC-6) was held in Fiji from 14-16 August 2023 which brought together Heads of the Pacific National Meteorological and Hydrological Services (NMHS) and National Disaster Management Offices. The meeting was followed by the Third Pacific Meteorological Ministers Meeting on Friday 17 August, and the Donor Roundtable on Thursday 16 August 2023.
10. Progress summary	**What has been achieved during this reporting period? – Please list in bullet points the most significant and tangible outcomes? (max 250 words)** • Sub-season to seasonal climate prediction and training on tropical cyclone seasonal forecasts – WMO/BoM - National training on use of WMO Global Producing Centres for Long-Range Forecasts (WMO GPC LRFs) sub-season to seasonal climate prediction products from ACCESS-S has been delivered to staff of the Cook Islands Meteorological Services (CIMS) in August 2023 and Vanuatu Meteorology and Geo-Hazards Department (VMGD) in October 2023. The training was focused on key climate drivers in the Pacific (El Niño-Southern Oscillation, with emphasis on El Niño which was fully established in the Pacific in 2023; criteria to declare an El Niño event, etc.); ACCESS-S Model Outputs such as air temperature, precipitation, sea surface temperatures and sea surface heights; and ACCESS-S on the web (products at global, regional and national level available through the WMO GPC LRFs portal). CIMS and VMGD staff evaluated the training as useful. - National and regional training on tropical cyclone seasonal prediction were conducted in the Cook Islands in August - September 2023, and in Vanuatu and Fiji/RSMC-Nadi (in collaboration with the COSPAC and CLIMSA projects) in October 2023, and resulted in preparing background information for developing a national tropical cyclone seasonal outlook for 2023-2024. • Development of a hydrology database for Samoa Water Resources Division (WRD) - A Meteorology, Climatology, and Hydrology (MCH) database management system has been installed and configured in late October 2023 at the premises of the Samoa WRD in Apia. In

	parallel, WRD staff was also trained in using the system. A hands-on training was conducted to ensure proper accounting of the needs expressed by WRD with respect to their day to day work. A representative from the New Zealand National Institute of Water and Atmospheric Research (NIWA) was invited by WMO to join the training in order to also introduce MCH in detail to NIWA. WMO also was introduced to the existing systems provided by NIWA to Samoa (NIWA Tideda and NEON). A means for automatically importing time series data from NIWA's NEON system into MCH was agreed upon. This will ensure a means to access time series data in near-real time in MCH which are compiled by NEON. • 21st session of the RA V Tropical Cyclone Committee (RA V TCC-21) - Nuku'Alofa, Tonga, from 25 to 28 July 2023 - The 21st session of the RA V Tropical Cyclone Committee (RA V TCC-21) was held in Nuku'Alofa, Tonga, from 25 to 28 July 2023. During the Committee session, a special session on the Early Warning for All Initiative (EW4All) was also organized. Funds from the CREWS Pacific SIDS 2.0 project allowed for the participation of 10 Pacific SIDS in the committee, which counted with overall approximately 40 participants. • Common Alerting Protocol (CAP) Training and Implementation Workshop in the Pacific Region – Port Vila, Vanuatu, from 14 to 16 November 2023. - A CAP training and implementation workshop was organized in Vanuatu with the objective to provide training to Pacific NMHSs to implement, operate and managethe CAP in a sustainable way by integrating it into their standard operating procedures (SOPs), promote its value and adoption with all other alerting authorities, and supportthe global multi-hazard alert system (GMAS) implementation. Approximattely 40 participants from all around the Pacific Region took part in the 2-day training, which also counted with the presence of regional and international partners, including UNDRR, SPREP, GCF/UNEP, BKMG Indonesia, and US NOOA . • Niue Community-based Early Warning Systems – Traditional Knowledge

	- Support is being given to Niue Meteorological Service to implement a traditional knowledge-related training on drought and yam cultivation in order to monitor and better predict cyclones during the El Niño year. This activity is targeted at the Niue Girls Brigade, who are the leading community group in collaboration with the Niue Meteorological Service on the yam monitoring program. In the last 3 years the brigade planted yams to see their responses to cyclones throughout each of the cyclone seasons. The ENSO status has been La Niña in the last three years, thus with the the ENSO status as El Niño, it is important to compare the difference between the two states and add to the forecasting capacity of tropical cyclones in the 2023-2024 season. The results can help the Met Service through early warning and early action. This is an opportunity to provide awareness on drought and their definition and impacts while promoting traditional knowledge passed through generations in Niue. • Anticipatory Action initiatives with a focus on early warnings and risk information (Jul – Dec 2023) - UNDRR supported the development of several anticipatory action (AA) initiatives in the Pacific during the reporting period, including an AA Framework for Fiji, anticipatory parametric insurance and several awareness raising sessions in Fiji and Solomon Islands. UNDRR specifically supported the integration of anticipatory action into the existing early warning systems and development of early warning messages. AA initiatives provide an opportunity to translate early warning messages into early actions and financing to protect/mitigate negative disaster impacts. • Sixth Pacific Meteorological Council (PMC-6) – focus on gender and disability inclusive EWS. - UNDRR jointly with the Pacific Disability Forum and Shifting the Power Coalition organized a plenary session on "**Supporting and Empowering Gender Equality, Disability Social Inclusion**" as well as a side event on **Early Warning for All: Gender- Responsive and Disability Inclusive Early Warning Early Action** at the PMC-6. The session provided an overview of the best practices, lessons learned and challenges of disability and gender inclusive early warning early action. A set of recommendation were made to the Council including scaling up investments, capacity and

	efforts in making the EWS inclusive and people-centered as well as ensuring the governance and implementation of the Weather Ready Pacific – Decadal Programme takes inclusive and participatory approach. • Pacific Resilience Meeting (PRM) 2023 – focus on partnerships for EWS. - UNDRR jointly with IFRC and SPC organized a *Plenary session: The Power of Partnerships for Early Warning, Early Action in the Pacific* during the PRM 2023 and brought together key EWS stakeholders including government, civil society, and local community. The session resulted in developing several recommendations to enhance partnerships for EWS in the Pacific, including leveraging multistakeholder approach for early warning and early action at national and local levels through Pacific Resilience Partnership. • International Day of Persons with Disabilities 2023 - UNDRR supported the local Disability Organization in Fiji to celebrate International Day of Persons with Disabilities through organizing awareness sessions and community visits in several communities. • Technical assignment for Hydrometeorological Risk Analysis, Warning Production Software, Warning Design and Communication for Impact-Based Forecast and Warning Consultancy Service for Samoa and Tonga - The assignment been progressed with support from technical team RED (Risk Engineering and Development). For Tonga and Samoa, task 1 (inception) and task 2 (technical inputs and capacity building) are complete with draft task 3 (completion report highlighting lessons learned) being finalized. • In-country user research conducted in both Samoa and Tonga with support from Samoa Meteorological Division (SMD) and Tonga Meteorological Department (TMD) staff. Stakeholders including government, non government, village, emergency responders.

	• User research reports produced for both Samoa and Tonga. Technical recommendations included in areas of access to warnings, warning design, communication, accessibility, dissemination, advice and guidance, training and awareness raising. • Knowledge exchange workshops in Samoa and Tonga during early December 2023 - Items covered included: presentation of user research findings, presentation of risk assessment data and tools from the technical assignment, discussion of recommendastions and next steps from user research, and software recommendations, endorsement of updated impact tables. • Recommendations from the technical assignment for Hydrometeorological Risk Analysis, Warning Production Software, Warning Design and Communication for Impact-Based Forecast and Warning Consultancy Service for Samoa and Tonga have been delivered to the Governments of Samoa and Tonga. • Recommendations on software tools to generate and issue public IBFWS products; technical inputs into the design and communicatgion of impact-based warnings; risk identification for key hazards, including the relationship between hazard magnitude and severity of impacts. • User research completed and resports produced in Samoa and Tonga to identify user needs for impact-based warning services • Support to the Government of Tonga to develop Terms of Reference for a firm to install an integrated forecasting platform to be financed under the Pacific Resilience Program – Tonga Project • Finalised impact tables for Tonga and Samoa. • Technical support and inputs to TMS to develop draft MHEWS Policy for Tonga

11.Project Performance

Interpretation of color coding		
	High	Good progress; on track in most or all aspects of delivery
	Medium	Moderate progress or on track in some aspects of delivery
	Low	Less than moderate or poor progress. Not on track in critical areas of its delivery. Requires remedial attention

	Rate of expenditure	Rate of delivery	Alignment of Objectives
Coding			
Narrative	The total expenditure of the project to date is **USD 2,750,481** of which: WMO: USD 1,653,173 (48%) (USD 548,839 committed / USD 1,104,334 disbursed) WB: USD 637,880 (99%) disbursed and committed UNDRR: USD 459,428 (77%) (committed + actuals)	The rate of delivery is going according to plan.	The project remains aligned to its objectives.

12. Risk Status

Risk Status	What is the current risk status as compared to what was identified in the project proposal? The risk status of the project remains **low** to medium as identified in the project proposal. Other potential risks include the followings: 1. Severe natural hazards, such as tropical cyclones or volcanic eruption that may shift government's priorities from CREWS activities to immediate response actions or hinder communications with countries. 2. Time and availability-related issues by beneficiary NMHSs, NDMOs and other in-country, who may be busy with other commitments and/or priorities. This could affect technical assistance initiatives in place to support CREWS. 3. Change of leadership or directorship of beneficiary NMHSs, NDMOs and other national entities. 4. Time and availability- related issues of technical assistance teams affecting ability of team to fulfil TOR.
Measures to address	What mitigation measures have been developed to address the risk status? **<u>In bullet points</u>** • The project team remains in close and regular dialogue with the beneficiary NMHSs, NDMOs, in-country and regional implementing agencies. • UNDRR continued to engage with key government stakeholders such as NDMOs and NHMS to discuss and plan activities for 2023. • WB GFDRR team continues to engage with the Met organisations through ongoing projects (such as the Pacific Resilience Program (PREP) where investment projects are being implemented in both countries).

	• WB GFDRR team continues to engage regularly with the technical assistance team to ensure team availability and deliverables remain on track. • WB has proposed to WMO/UNDRR to extend current closing date.

13. Contributions to CREWS Output(s)s

(use number for activities and products and % for project component completion)

12.1 National Output(s)s

CREWS Output(s) 1: National Meteorological and Hydrological Services service delivery improved, including the development of long-term service delivery strategies and development plans				
State Project Output(s) in this section	**Overall Project Target**	**Progress by June 2023**	**Target for reporting period**	**Progress by December 2023**
1.1 Support the development of bills and legislation for meteorology, hydrology, and disaster management.	3 bills/policies on Met/Hydro and DRM.	A consultant has been contracted to support the revision of the Solomon Islands NDMO review, and discussions with the government are currently ongoing for the arrangement of national consultations. This activity is	N/A	The policy framework draft and the drafting instructions for the Solomon Islands NDMO have been finalized, and are being reviewed by national institutions before final approval.

		expected to be completed by the end of 2023. The ToR for the FMS Cost-Recovery Plan has been validated by FMS and a call for a consultancy is to be launched in mid-July 2023. This activity is expected to be completed by the end of 2023. The procurement process related to the drafting of regulations for Tonga's Meteorological Act of 2017 was finalized early July 2023, and the law firm selected is expected to start its work in August 2023.		A consultant has been hired for the FMS-Cost Recovery Plan and works are expected to start in January 2024. Due to delays and conflicting priorities at the Tonga Meteorological Service, and by request by the Permanent Representative of Tonga to WMO, the work of the law firm responsible for the drafting of regulations for Tonga's Meteorological Act of 2017 is now expected to be completed by June 2024. Technical inputs provided to

				initial draft MHEWS policy produced by TMS
1.2 Socioeconomic assessment of RSMC Nadi/Fiji Meteorological Service (FMS).	Development of socio-economic. assessment	WB has re-established communication with FMS however an action plan is not yet agreed.	N/A	Due to funding limitations under the WB's allocation and the need to prioritize the IBFWS support in Tonga and Samoa, the WB team will further discuss with the FMS on alternative funding sources to support the socioeconomic assessment.
1.3 National Strategic Plans for Meteorological Services inclusive of costed implementation plans and National Framework for Weather, Water and Climate Services (NS-FWCS) for meteorology, hydrology, disaster risk management, and other related environmental disciplines developed for six Pacific SIDS (Nauru, Samoa, Solomon Islands, Tokelau and Vanuatu).	5 NS- NSFWWCOS	NSP/NSFWWCOS for Tokelau and Tonga are completed. The Solomon Islands NS-FWCS is under its final stages of development and	4 NS- NSFWWCOS	4 NSP/NSFWWCOS completed (Tokelau, Tonga, the Solomon Islands and Vanuatu) WMO is still waiting on the

		is currently being validated by government authorities in the Solomon Islands. Work is currently ongoing on the development of Vanuatu's Meteorology and Geo-Hazard Department new strategic plan. A consultant is already working on the development of the document, and national consultations are expected to take place in August 2023. The ToRs for the development of Samoa's NS-FWCS, and Strategy for Groundwater resoures have		draft TOR from Nauru Meteorological Service for the development of their NSP. The development of the NSP/NSFWWCOS for Samoa will be picked up by the ClimSA project. Funds will be re-allocated to complement the development the country's water resource strategy (Activity 1.2.6).

		been developed and are currently being validated by Samoan authorities. Activities are expected to kickstart during Q3 2023. The draft TOR for Nauru has been circulated for inputs from Nauru Met Office.		
1.4 WMO and regional coordination mechanisms for meteorological, hydrological, disaster management, and other related environmental disciplines and services improved.	2 Pacific Meteorological Council (PMC) documents for improved coordination mechanisms developed.	The ToR has been developed and discussed with SPREP. The revised version is now being circulated for endorsement from SPREP before moving to the recruitment process. WMO in partnership with SPREP is organsing the	PPCM finalized and endorsed in PMC.	The Terms of Reference for the PMC/PMDP have been drafted but not yet officially endorsed by SPREP. The Pacific Partner Coordination Framework has been finalized, and a regional dashboard

		Pacific Donor and Partners Coordination meeting in the PMC-6 meeting in August. The outcome of the meeting will finalize the Pacific Partners Coordination Mechanism Framework. At the same meeting WMO will present the findings of the donor and partners data collection campaign through a dashboard that is being developed.		mapping regional stakeholders involved in the EWS has been launched.
1.5 Collaboration between RSMC Nadi/FMS and the Pacific Islands and Territories' Meteorological Services it serves formalized.	8 Agreements (such a Service Letter Agreement (SLAs), Memorandum of Understanding (MoUs) or equivalents) for the service provision	Discussions on this activity are ongoing with FMS. Initial exchanges pointed towards assessing the best approach to formalize these	N/A	Discussions on this activity are ongoing with FMS.

	developed or drafted.	collaborations. Further information on this will be available after the 2023 PMC, scheduled in August 2023.		

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

- *Multiplier* demonstrating the value of the services provided by FMS and RSMC Nadi has the potential to increase future investments in the RSMC; the review of PMC policies and documents will support future resource mobilization for PMC and NMHSs and NDMOs in the region.

- *Gender responsive & people centered*: The activities to strengthen capacities as well as the legislation and NSPs which outlines action plans for the NMHSs, aim to strengthen EWS in a way that will reach more people - specifically the ones most at risk, and further contribute to the concept of people-centered EWS.

- *Unique:* The production of a Cost-Recovery Plan for Aviation for FMS aims to increase the institutional and operational efficiency of FMS by revisiting existing frameworks on aviation.

CREWS Output(s) 2: Risk Information to guide early warning systems and climate and weather service developed and accessible

State Project Output(s) in this section	Overall Project Target	Progress by July 2023	Target for the reporting period	Progress by December 2023

2.1 Integrated and inclusive operational EWS plan and system to addressing new and existing multi-hazards developed (includes SWFP, FFGS, CIFI).	Existence of operationalized EWS plan / Existence of integrated EWS platform.	Workshop on the implementation of IBFWS in the Solomon Islands has been delivered. Another IBF workshop is being planned in Vanuatu in January 2024. A regional workshop on Common Alerting Protocol is being planned in Vanuatu in Q4 2023. A 10-day technical training and a 3-day stakeholder engagement workshop was devivered in Tuvalu as part of the Coastal Inundation Activities being carried on by SPC.	Coastal Inundation Forecasting Training and stakeholder engagement workshop in Tuvalu.	IBFWS workshop delivered in the Solomon Islands. Another IBF workshop is being organized to be delivered in Q1-Q2 in Vanuatu, dependant on the tropical cyclone season. A Common Alerting Protocol (CAP) Training and Implementation Workshop for the Pacific Region workshop was delivered in November 2024 in Port Vila, Vanuatu, counting with over 23 participants from 12 Pacific SIDS.

		Options for an integrated forecasting platform for TMD, Tonga, being considered.		Technical support to TMD to refine IFP needs. TMD has commenced IFP system procirement process.
2.2 Implementation of a high-resolution NWP mesoscale model in Fiji completed and operational.	1 established verification and validation programme. 2 ECMWF licenses provided. 15 staff trained.	ECMWF ecChart license provided to FMS under CREWS Pacific SIDS until the end of the project. BMKG has been offering online support to FMS ever since the on-site visit late 2022. An implementation plan of future training is being developed by BMKG but depends on a formal letter from FMS requesting this assistance. An LOA between	ECMWF ecChart license provided. Implementation plan of future training by BMKG.	ECMWF ecChart license provided to FMS under CREWS Pacific SIDS until the end of the project. WMO continues discussions with BMKG on support for the training of FMS staff on NWP. Four expert missions from BMKG are expected to take place during 2024 in order to conclude this work.

		WMO and BMKG is envisioned once this request is formalized and activities authorized.		
2.3 Capacities to detect, monitor and forecast severe high impact meteorological, hydrological, and other related environmental hazards' events improved.	25 services with in-country capacity building sessions. 25 capacity building sessions conducted. 25 forecasts produced with input from training.	1 in-country training on ACCESS and tropical cyclone seasonal forecasts was delivered in June 2023 in Vanuatu. Two additional in-country training are being planned in Fiji (RSMC) and the Cook Islands (in view of the El Niño under development in the region)	1 in-country training	2 in-country training on ACCESS and tropical cyclone seasonal forecasts was delivered by the Bureau of Meteorology of Australia in Vanuatu and in the Cook Islands. 2 in-country training on tropical cyclone data and portal; tropical cyclone climatology; and tropical cyclone seasonal forecasts in Vanuatu and in

				the Cook Islands. 1 regional training on on tropical cyclone seasonal prediction delivered in Fiji / RSMC-Nadi for participants from across the Pacific Region. Technical assignment Task 2: Production of risk based decision aid tools for TMS and SMD for key hazards.
2.4 Communities' response to multi-risk information and warnings improved	N/A	Education and awareness raising materials for wind direction	Production of communication awareness for Samoa.	Technical assignment Task 2 completed and Task 3 submitted to

		developed for Samoa. User research completed in Tonga and Samoa. Technical assignment Task 2 draft submitted to Government of Tonga and World Bank for review. Mission to Tonga conducted in June to advance IBF warning design and communication activities. User research in Tonga and Samoa to identify user needs (public and stakeholders) for IBFWS, including effective dissemination channels and	User research completed.	Governments of Tonga and Samoa for final review. Knowledge exchange visits to Tonga and Samoa in December 20023 to further IBFWS design and communication.

		communication methods		
2.5 CB-EWS implemented	2 communities with CBEWS in place. Risk maps developed / updated. Existence of response plans.	The Implementing Arrangement between WMO and SPREP, which includes CBEWS activities, has been signed in July 2023. Activities are expected to start in August 2023.	N/A	Support is given to Niue Meteorological Service to implement a traditional knowledge-related training on drought and yam cultivation in order to monitor and better predict cyclones during the El Niño year.

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

Unique The collaboration between BMKG and FMS, with the overall coordination of WMO, showcases a strong partnership within the Asia-Pacific community and South-South cooperation and support.

Multiplier / Promote Coherence Coastal Inundation Forecasting – Tuvalu

The Tuvalu wave and inundation forecast system, originally developed under the first CREWS Pacific SIDS project (2017-2022) is operational and is being further advanced through the UNEP/GCF ECIKS projects. With a high-resolution national-scale wave and inundation forecast based on state of the art bathy/topo data (i.e. Lidar), TMS now provides an unrivalled ocean and warning service for Tuvalu. Such service is bringing new opportunities for public/private partnership in the country. As of last week, TMS started providing tailored ocean forecast products to Hall International, a company contracted to undertake coastal development work (reclamation, wharf, coastal protection) over

the next few years, and across few islands in Tuvalu. Under the ECIKS project, SPC developed a new module in the CREWS-funded ocean forecast system to auto-generate tailored ocean products (designed in partnership with TMS and Hall).

This showcases an exciting outcome, leveraging , and coherence between regional projects (CREWS and ECIKS projects). This is proof that strengthened ocean services and EW capacity can foster opportunity towards income generating activities, especially in Pacific SIDS. It also showcases the need for development work to move from being project-based to programme-based to achieve tangible outcomes.

People-centred, solution-oriented, promote coherence Options for an integrated forecasting platform have considered the needs of TMD and good practice from neighbouring countries and other NMHSs, whilst building on recommendations and relevant software solutions from previous and ongoing projects, such as the System Integrator and SPC

People-centred, unique, gender-sensitive The training on drought and yam cultivation in Niue, as part of the CBEWS and efforts to promote and recognize the importance of traditional knowledge in the EWS, is an unique example of community and women/girls-led activities in community-based early warning systems.

People-centred, solution-oreinted, gender-sensitive, promote coherence The findings from user research in Tonga and Samoa will inform IBFWS design, communication and dissemination, which will improve how warning information is accessed, understood and acted upon by members of the public and stakeholders. The research also provides insights that can be used to inform future projects for developing NMHS capability

People-centred, gender-sensitive User research has collated data to identify user requirements for IBFWS in Tonga and Samoa.

CREWS Output(s) 3: Information and Communication Technology, including common alerting protocol, strengthened

State Project Output(s) in this section	Overall Project Target	Progress by June 2023	Target for the reporting period	Progress by December 2023

3.1 Support development of Regional ICT Strategy that includes WIS to exchange and delivery of meteorology, hydrology, and ocean data and information.	50 % of data sharing between members	Discussions on the assessment of gaps and limitations of the Pacific Region to be WIS compatible, and a workshop to increase understanding of WIS, have been ongoing with WMO technical teams. Concept notes are being prepared and the actual activities are expected to take place in Q1/Q2 2024 due to the busy training schedule in the Pacific Region, and availability of experts. Discussions have been ongoing with NIWA on the development of a regional ICT	N/A	Discussions on the assessment of gaps and limitations of the Pacific Region to be WIS compatible, and a workshop to increase understanding of WIS, have been ongoing with WMO technical teams. Concept notes are being prepared and the actual activities are expected to take place in Q2 2024 due to the busy training schedule in the Pacific Region, and availability of experts. Discussions have been ongoing with NIWA on the development of a regional ICT

		Strategy. A Letter of Agreement between NIWA (the National Institute of Water and Atmospheric Research of New Zealand) and WMO is expected to be signed in Q3 2023 for the implementation of this activity. WMO and the Samoa Water Resources Division are working on the deployment of the Meteorology, Climatology and Hydrology database system (MCH) for Samoa. A mission for WMO staff to Samoa is scheduled for October 2023 to assist with the deployment of		Strategy. Further discussions with NIWA will take place in February 2024. A Meteorology, Climatology and Hydrology database system (MCH) has been installed and configured in late October 2023 at the premises of the Samoa Water Resources Division (WRD). In parallel, WRD staff was trained in using the system. A hands-on training was conducted to ensure proper accounting of the needs expressed by their day to day work.

		the database and training for the staff.		
3.2 Communication of early warning Improved.	Number of stakeholder consultations identifying communication channels. Existence of communication strategy. 30% in communities reached for EW.	No activity as pilot has not started	N/A	User research completed and reports produced outlining public and stakeholder needs for IBFWS in Tonga and Samoa. Findings presented to TMS and SMD who are integrating the findings into their developing IBFWS, including the design and communication of warning information across all relevant dissemination channels.
3.3 National and regional platforms for NMHSs to exchange and share meteorological, hydrological, and other related environmental information among stakeholders including those in the socio-economic sectors strengthened.	17 national and regional platforms taken place.	2 NCOFs took place – Solomon Islands and Samoa.	N/A	Due to the change in gorvement in Tokelau, NCOF discussions have

		An introduction to NCOF in Tokelau workshop was held in Apia, Samoa, in April 2023. The first ever NCOF is being planned to take place in Tokelau in October 2023, with the support and partnership with NIWA.		been delayed. This activity is expected to take traction again during 2024.

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

Unique – Discussions with Tokelau on the organization of their first ever NCOF are a direct result of the NSP-FWCS concluded under the CREWS Pacific SIDS 2.0 project. This will be delivered in coordination with NIWA.

Solution Oriented - The Meteorology, Climatology, and Hydrology (MCH) database management system installed in Samoa is a suited time series management solution tailored for small and medium sized National Meteorological and Hydrological Services. It allows to store and manage any kind of time series data in a centralized database. Data are easily accessible and shareable to the entire staff of the service preventing the need to share individual spreadsheets or any other files between the staff members. All data remain accessible to all even if the person in charge is unavailable or left the service. The MCH was customized to the needs of the Samoan Water Resources Division in order to allow to manage groundwater physico-chemical parameters monitoring.

CREWS Output(s) 4: Knowledge products and awareness programmes on early warnings developed

State Project Output(s) in this section	Overall Project Target	Progress by June 2023	Target for the reporting period	Progress by December 2023
4.1 Knowledge products and publications developed	4 knowledge products developed	A scoping study on gender-responsive and disability inclusive EWEA in the Pacific is finalized and planned to be published on PreventionWeb in Q1 of 2023. Awareness raising posters for introducing impact-based warnings to a public audience and the impact from tropical cyclones developed for Samoa.	N/A	The scoping study on gender-responsive and disability inclusive EWEA in the Pacific is finalized and published on PreventionWeb. Awareness raising posters for introducing impact-based warnings to a public audience and the impact from tropical cyclones developed for Samoa.

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

People-centred, solution-oriented Samoa Meteorology Division (SMD) provided user needs requirements for two posters: 1) introduce the concept of IBFWS to the people of Samoa, 2) show the magnitude and impacts cause by Tropical Cyclones in Samoa. WB consulted SMD, and applied good practice from other impact-based warning services and policies, to ensure the imagery and language is suitable for a diverse Samoan audience (people-centred, solution-oriented).

CREWS Output(s) 5: Gender-sensitive training, capacity building programmes provided

State Project Output(s) in this section	Overall Project Target	Progress by June 2023	Target for the reporting period	Progress by December 2023
5.1 Guidance on mainstreaming gender and disability developed.	Existence of Women In Leadership (WIL) Community of Good Practice (CoP). Percentage (to be defined after UNDRR assessment) of women trained under WIL.	A draft guidance/ checklist on mainstreaming gender and disability into EWEA is developed and under review. Expected to be finalized by Q3 2023.	1 checklist and implementation guide on mainstreaming gender and disability into EWEA is developed and under review.	Inclusive Early Warning Early Action: checklist and implementation guide was developed and published.
Additional information: briefly indicate the contributions, with concrete examples, to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). <u>Please list bullet points.</u>				

People-centred The checklist and implementation guide for inclusive early warning and early action was developed as part of the Climate Risk and Early Warning Systems (CREWS) Pacific initiative and seeks to contribute to the implementation of the Executive Action Plan 2023–2027 for the Early Warnings for All (EW4All) initiative by ensuring that early warning systems are people-centered and tailored to the specific needs of various groups. The purpose of the checklist and implementation guide is to ensure that the key elements of early warning systems (governance; disaster risk knowledge; detection, monitoring, analysis, and forecasting; dissemination and communication; and preparedness to respond) are gender-responsive and disability-inclusive. They provide support and direction for systematically integrating and monitoring gender and disability inclusivity across all actions related to warnings. This checklist can be adapted or contextualised as needed. The checklist and implementation guide can be accessed through this link: Inclusive early warning early action: checklist and implementation guide | UNDRR

12.2 Regional Output(s)s (for Regional Projects)

CREWS Regional Output(s): Institutional and human capacities at Regional WMO and Intergovernmental organizations to provide regional climate and weather services to LDCs and SIDS increased				
State Project Output(s) in this section	**Overall Project Target**	**Progress by June 2023**	**Target for the reporting period**	**Progress by December 2023**
R.1 Implementation of a high-resolution NWP mesoscale model in Fiji.	FMS/RSMC Nadi staff have the necessary skill set to implement high resolution NWP model in Fiji.	An implementation plan of future training is being developed by BMKG. An LoA between WMO and BMKG is envisioned once that is complete.	N/A	An implementation plan of future training has been developed by BMKG. Four expert training missions are expected to take place in 2024.

				Additional storage will be purchased under the project to enable FMS/RSMC Nadi to analyse up to one year of data.
R.2 Access for FMS and RSMC Nadi to high-quality NWP products and relevant tools.	ECCharts for FMS/RSMC Nadi in place.	ECCharts for FMS/RSMC Nadi provided until the end of the project timespan.	N/A	ECCharts for FMS/RSMC Nadi provided until the end of the project timespan.
Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). <u>Please list in bullet points.</u> N/A				

14.Certification on Use of Resources

This needs to be provided at the end of the year as part of the submission of the 2nd semester report. Each Implementing Partner to provide a certification of the use of resources signed by their authorized representative.

15. Visibility products

a. ***Insert or copy any links to press releases, videos or communication items and/or social media links <u>produced during the reporting period only</u>***

UNDRR Asia-Pacific on X: "Persons with disabilities are often the most affected by disasters. Our brand-new guide will help ensure that early warning systems are tailored to the specific needs of persons with disabilities.

Vanuatu Meteorology and Geo-hazards Department (VMGD) staff prepare for upcoming Tropical Cyclone season

16. Supporting documents

a. List and annex to the report any documents providing details on project activities conducted during the reporting period such as reports of training sessions, assessment reports, online solutions and tools, manuals, summaries of high-level discussions etc.

Inclusive early warning early action: checklist and implementation guide

Final report of the 21st RA V Tropical Cyclone Committee South Pacific and South-East Indian Ocean

Common alerting protocol (CAP) implementation workshop for Pacific, Port Vila Vanuatu, from 14 to 16 November 2023

Task 2 Technical Report Tonga

Task 2 Technical Report Samoa

User Research Report Tonga

User Research Report Samoa

17. Project History

a. Highlight key achievements since project started in bullet points, include all visibility and supporting documents other than those from the last 12 months

1. NS-FWCS for Tokelau
2. NCOF Samoa and Solomon Islands
3. Appointment of Technical IBFWS Specialist to support CREWS delivery in Tonga and Samoa

4. IBFWS stakeholder awareness raising Tonga and Samoa: An Introduction to IBFWS (paper), Deveoping IBFWS – Key lessons from global IBFWS (workshop), Advice and Action Statements (workshop), Impact Tables (workshop), Product Design and Communication (workshop), IBFWS in Practice (workshop – Samoa only)
5. Appointment of Technical Assistance Team to review and make recommendations on: Hydrometeorological Risk Analysis, Warning Production Software, Warning Design and Communication for Impact-Based Forecast and Warning
6. Initial recommendations from Technical Assistance Team on Hydrometeorological Risk Analysis, Warning Production Software, Warning Design and Communication for Impact-Based Forecast and Warning delivered to the Government of Tonga
7. User research training conducted for SMD and TMD and key stakeholders
8. User research data to identify user needs for IBFWS in Tonga and Samoa collected and collated.
9. Education and awareness raising materials (posters) developed for Samoa for tropical cyclone, introducing IBFWS and wind directions.
10. User research reports produced for Tonga and Samoa outlining key findings and recommendastionbs fro IBFWS in Tonga and Samoa.
11. Updated impact tables produced for Tonga and Samoa
12. Task 1 (inception) and Task 2 (technical inputs and capacity building) activities from TA *Hydrometeorological Risk Analysis, Warning Production Software, Warning Design and Communication for Impact-Based Forecast and Warning complete*. Task 3 in draft.
13. Recommendations and next steps for IBFWS in Tonga and Samoa presented and discussed with TMD and SMD.
14. Final activities to be completed in 2024 include additional training and capacity building for Government of Tonga to operationalize technical outputs produced under the Hydromet Risk Analysis TA; update of the IBFWS short paper to incorporate lessons learned from Samoa and Tonga; and preparation of communication materials to highlight results and outcomes of CREWS activities support under WB.
15. *Pacific Week of Anticipatory Action - Report*
16. *Solomon Islands Impact-based Forecast Workshop Report*
17. *User Research Training Workshop - Samoa*
18. *Draft Task 2 Technical Report Tonga*
19. *Samoa Wind Poster*