CREWS PROJECT PROGRESS REPORT (January – June 2021)

1. Project title	Strengthening Hydrometeorological and Early Warning Services	**2. Project reference** CREWS/RProj/04/Pacific
3. Implementing Partners involved in the project	World Meteorological Organization	**4. Regional/National Partners involved in the project** Fiji Meteorological Service/Regional Specialised Meteorological Center in Nadi (FMS/RSMC Nadi)Secretariat of the Pacific Regional Environment Programme (SPREP) The Pacific Community (SPC) MetService New Zealand Hydrologic Research Center (HRC) Asia Disaster Preparedness Center (ADPC)
5. Project Duration/Timeframe	Jan 2017-Dec 2021	
6. Reporting focal point(s)	Lina Sjaavik Lsjaavik@wmo.int	

7. Project overview

Please include synergies, leveraging, key project deliverables and total funding in bullet points. (max 250 words)

The CREWS Pacific SIDS Project is co-funded by the CREWS Initiative (USD 2,500,000) and Environment and Climate Change Canada (ECCC) through the project "Building Resilience to High-Impact Hydro-Meteorological Events through Strengthening MHEWS in Small Island Developing States (SIDS) and South East Asia" (USD 3,100,000)[1].

The project focuses on strengthening the Regional Specialised Meteorological Centre in Nadi (RSMC-Nadi), Fiji and the NMHSs that it serves in the following Pacific SIDS; Cook Islands, Fiji, Kiribati, Nauru, Niue, Tokelau and Tuvalu. Moreover, the project supports the Federated States of Micronesia (FSM), the Republic of Marshall Islands (RMI), Palau, Samoa, Solomon Islands, Tonga, and Vanuatu. The prioritization is based on regional outreach, and other projects under implementation in the region.
The project has three main components based on the three outcomes:

1. Improved governance: strengthened governance structures and mechanisms for regional centres and NMHSs targeted by the project are in place.

2. Enhanced product development and accessibility: enhanced regional and national facilities and capacities of regional centres and NMHSs targeted by the project to produce impact-based forecasts and risk-informed warnings of extreme and high impact hydro-meteorological events, accessing and using global and regional data, products and services.

3. Enhanced service delivery: Regional centres and NMHSs targeted by the project better deliver impact based and risk informed hydro-meteorological data, products and services to MHEWS stakeholders for their decision support.

SPC, SPREP and the MetService New Zealand are implementing subcomponents of the project. The project links closely with other regional initiatives including the Australian Government funded project Climate and Ocean Support Program in the Pacific (COSPPac) implemented through the Australia Bureau of Meteorology (BoM), the Government of Russia funded project "Disaster

[1] The original contribution was USD 2,5 Mn, which was increased due to savings from Covid-restrictions in other regions.

Resilience for Pacific Small Island Developing States" implemented by UNDP, the GEF funded "Tuvalu Coastal Adaptation Project" implemented by UNDP and SPC, and the German Development Bank funded (KfW) initiative "Recovery Support for Tropical Cyclone Pam" implemented by SPC.

8. Progress summary

What has been achieved between January and June 2021? – Please list the most significant and tangible developments?

Improved governance:

Kiribati

Meteorological Service Strategic Plan, National Framework for Weather Climate and Ocean Services and Action Plan

With the leadership of the Director of Kiribati Meteorological Service (KMS) several face-to-face and virtual national and community consultations were organized in Kiribati, assisting, contributing and coordinating with the consultant to develop the Kiribati Meteorological Service Strategic Plan and Framework for Weather, Climate and Ocean services and Action Plan for 2021-2025. The plan and framework finalized and officially launched, both signed by the Secretary of the Kiribati Office of the President. Despite difficulties due to COVID-19 restrictions in the country and travel limitations, all consultations and training were conducted. These virtual events were further complicated by the network and connectivity limitations in some of Kiribati's outer islands. The Strategic Plan is to be printed in booklets.

It is important to note that Kiribati is the first country in the Pacific to develop its Meteorological Service Strategic Plan and National Framework in alignment to the WMO guidelines, and to have it endorsed at a high level.

H.E Taneti Mamau launching the KMS Strategic Plan and Framework for weather, climate and ocean services 2021-2025

Meteorology Bill

A consultant was recruited in Q4 2020 to draft a Meteorology Bill for Kiribati. This activity officially started in Q1 2021 with an introductory meeting and discussion on how the activity will be coordinated and carried out with the help of Director of KMS and his team. To date, a draft of the Meteorology Bill has been produced and is being taken to the communities and outer Islands of Kiribati for consultations, as instructed by the Kiribati Cabinet, before the next round of revision. The Kiribati Cabinet has also informed the Director of KMS that a first reading of the Meteorology Bill is scheduled for the August 2021 Parliament Session, and that the inputs from the consultations, both from the Outer Islands and Members of Parliament, are to be incorporated into the final version before the second parliamentary reading. The activity is ongoing.

Fiji

Meteorological Service Strategic Plan and Action Plan

After the conclusion of consultations with national stakeholders in 2020, the consultant has completed the drafting of the Fiji Meteorological Service's 2021-2024 Strategic Plan and its Implementation Plan. All consultations with stakeholders were conducted virtually, via Zoom and Teams. FMS's vision is to be people-focused, centre of excellence for weather, climate, hydrological and ocean services and this has driven the work around completing this strategic plan and implementation plan.

Following the recommendation of the Fijian Permanent Secretary, in Q2 2021, improvements were made to the section on hydrological services.

The Plan is now completed and will be presented by the consultant to the national FMS's services users, donor and International organisations that support FMS and the National Government Ministries in Q3 2021. Necessary arrangements are also being made to print the Plan before the presentation. There have some delays in Fiji due to the current lockdown in relation to its COVID-19 response.

Solomon Islands

Draft Policy framework and drafting instruction for legislative reform relating to provision of meteorological services

A consultant was hired in Q1 2021 to draft a policy framework for Solomon Islands Meteorology Service, and to prepare the drafting instructions in the approved form for legislative reforms relating to the provision of meteorology services. A consultation with the Meteorological Service stakeholders was also conducted and the feedback helped framing the final policy framework document as well as the Drafting Instructions. The document has been finalized and has been shared with the Solomon Islands Attorney General Office, responsible for the bill's drafting preparations.

North Pacific – Palau, Republic of Marshall Islands (RMI), Federated States of Micronesia (FSM)

Progress has been with the development of the National Strategic Plan and Framework for Weather, Water and Climate Services in the North Pacific Region. The process has taken longer than originally anticipated due to COVID-19 restrictions, and due to the novelty of developing such national strategy plans for the National Weather Services (NWS) in Palau, RMI and FSM. Furthermore, due to the heavy workload of the Directors, more time is required by the consultant to develop the necessary documentation and activities. The consultant, through his networks has been able to work closely with the country focal points to develop plan and consultation framework.

Palau is now in the process of signing an agreement with WMO for funds to conduct their consultations, planned in Q3 2021. RMI and FSM consultations are also planned for Q3 2021. This activity is ongoing, delays and disruptions may arise due to COVID-19,

Tonga

WMO has signed an agreement with the Tonga Meteorological Service of the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communication to develop the Meteorological Service Strategic Plan and national Framework and complementary Action Plan in Q2 2021. The full activity is planned to start in Q3 2021. The approach taken by Tonga to implement this activity is different to that used in other CREWS Pacific SIDS countries: the development will be led by a national team and directly supervised by the Director of the Meteorological Service.

Tuvalu

WMO has finalized the layout and printing of the Tuvalu Meteorological Strategic Plan and Action Plan. Printed copies of Plans have been sent to Tuvalu.

Enhanced product development and accessibility:

The implementation of a high-resolution Numerical Weather Prediction mesoscale model in Fiji

The implementation of a high-resolution NWP mesoscale model in Fiji is currently ongoing. Following the change of vendor in Q1 2021, the delivery of high-performance computer (HPC) servers to the FMS/RSMC Nadi is expected in the end of August 2021. Delays are to be expected on release of equipment from customs due to the current COVID-19 situation in Fiji. Implementation of high-resolution NWP will be initiated in collaboration with global/regional NWP centres soon after the installation of HPC servers at FMS/RSMC Nadi.

Severe Weather Forecast Training

A letter of agreement (LoA) was signed between WMO and MetService New Zealand in Q1 2020 for the implementation of in-country training for 10 Pacific SIDS in support of Severe Weather Forecasting Programme in the South Pacific. The training events were planned to take place in Q1 2020. However, due to COVID-19 and related travel restrictions, the organization of face-to-face training was not feasible and consequently, the LoA was amended to include the design and development of online training modules to support the remote delivery of the training and enhance the SWFP-South Pacific MetConnect web portal. The modules were completed and delivered in Q2 2021 for the Cook Islands, Niue, Tonga, Fiji, Samoa, Tuvalu, Kiribati, Nauru, Vanuatu and Solomon Islands with a total participation of 28-40 during the training session. Some disruptions were observed during the training in some of the countries due to low-bandwidth causing slow connectivity.

The Course was delivered over two separate weeks to accommodate the different time zones. It covered the following topics:

- Familiarisation with MetConnect Pacific (online portal).
- Introduction to Tropical Meteorology.
- Drivers for Severe Tropical Weather.
- Impact Warnings and Communication Uncertainty.

- Verifications and Case Studies.
- Global NWP on MetConnect.
- Emsemble Forecasting.
- Introduction to Satellite RGB.
- Microwave imagery and the TOA Lightning Detection Network.
- Convection Forecasting.
- Wave Forecasting.

A full report on this training is available with the evaluation and recommendation results. The MetService New Zealand, as their next step, will be updating the website MetConnect Pacific based on the recommendations made by the participating countries.

Impact-based coastal inundation forecasting in Kiribati and Tuvalu

SPC has finalised the Kiribati Wave and Inundation Forecast System, which is currently in testing mode and being refined and monitored. The same has been done in Tuvalu, with an additional capitalization of the state of the art bathymetry/topography data available. Their inundation prediction tool, developed for Nanumea, Nunamaga and Funafuti, will provide 2D inundation forecast products. These models are being turned into fast prediction tools through the development of meta-models.

The Kiribati Meteorological Service deployed their very first wave-buoy in collaboration with the country's Fisheries Division. This deployment was a great achievement for Kiribati. It required thorough assessments on where the buoy would be deployed. With guidance from SPC and collaboration from national counterparts, KMS was able to conduct this deployment on their own. The wave buoy is located on the western side of the Tarawa Lagoon and is designed to provide KMS, its stakeholders, and local communities potentially threatened by westerly waves, with real-time wave data.

In Tuvalu, the new wave buoy deployment sites have been selected and a proposal has been submitted to the national Cabinet for government approval. SPC will also be providing technical and coordination support to Tuvalu in the establishment of a partnership with Tuvalu Maritime and Fisheries stakeholders behind the successful establishment of Tuvalu's new wave monitoring service.

The first draft of the CREWS forecast Graphical User Interface (GUI) was developed to compliment Tuvalu Meteorological Service and Kiribati Meteorological Service new ocean prediction and monitoring services. It is based on the latest technology (latest THREDD

server release permitting the display and interaction with flexible mesh model output) and will provide users with an interactive experience. This is still in refinement stage internally at SPC, and is planned to be shared with the NMHSs in Q3 2021.

SPC has procured two high end forecast computers for Tuvalu and Kiribati. These are planned to be deployed in both countries, as well as in Fiji, at the Fiji Meteorological Service. Arrangements on public access are currently in discussion and to be finalised soon.

Enhanced service delivery:

Samoa

The Samoa Red Cross Society, in collaboration with Samoa Fire Emergency Services Authority (FESA), Samoa Met and NDMO under the SPREP CREWS CB-EWS Component, conducted a First Aid, Search and Rescue Training in five villages on the Island of Upolu (Southwest Coast). The training was aimed at upskilling Community Emergency Response Teams (CERT) through a 3-day workshop covering First Aid, Search and Rescue, Disaster Management, Climate and Geological Hazards and Community-based early warning systems. The workshop concluded with a disaster simulation where CERT teams put learning into action and evaluated participants' understanding of their roles and responsibilities in their village response plans. The practical simulation exercise is a requirement of the training to assess the level of competency for trainees to become certified First Aiders. The training is an accredited training programme by the Samoa Qualifications Authority (SQA) . To ensure the sustainability of the program, records from the community-trained first aiders will be kept by the Samoa Red Cross Society, who may call on them to assist in the continuity of the program in both times of peace and disasters.

Trained participants included young men and women, as well as adults ranging from 16 to 68 years of age. Over 200 participants attended the theory and practical sessions. This activity is in line with the Community Disaster and Climate Risks Management Program (CDCRM) activities rolled out by the Government of Samoa as part of enhancing community resilience and developing disaster response plans. The CDCRM toolkit is also currently in review. One extra training is expected to be completed in Q3 2021.

Two billboards have been installed to warn travelers of dense fog and landslide prone areas in this reporting period. Further six billboards are planned to be installed in Q3 2021.

The Early Childhood Education (ECE) program has started rolling out in Savaii and learning from this activity will assist in the design of a new Samoa ECE toolkit in Q3 2021.

Teleconference equipment for 10 NMS's were procured and distributed in Q1 2021 (Samoa, Tuvalu, Fiji, Niue, Cook Islands, FSM, RMI, Palau, Tonga, Solomon Islands).

Palau
The Palau Meteorology Office has completed the development of their Traditional Knowledge Glossary, albeit delayed due to COVID-19 restrictions. The revisions of the State Disaster Risk Management Plan for each state are ongoing and to be completed in Q3 2021.

Republic of the Marshall Islands
Efforts in RMI are ongoing. Some slight delays experienced due to the current COVID-19 restrictions have put some in-country activities on hold.

Niue
Niue Met Service, in collaboration with the Niue Boys and Girls Brigade, has completed their activities under the CBEWS component, including training on weather, climate and climate change for officers; training for new brigade members; creation of billboards on disaster readiness and awareness to be spread around the island; building of a ramp for increased accessibility for peoples with disabilities to evacuation shelters; and climate traditional knowledge monitoring programme.

Tokelau
The procurement process for identifying and contracting a consultant for the feasibility study for the establishment of FM Radio in Tokelau was launched in May 2021 and completed in June 2021. The study is expected to be completed in early Q4 2021.

9. 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 2,324,354** Following the no-cost extension granted by the CREWS Steering Committee in November 2020, the project is on track to be completed by 31 December 2021.	Despite COVID-19 and related travel restrictions, the CREWS Pacific SIDS project has been able to conduct and complete several activities including consultancies to develop National Strategic Plans and Framework for Weather, Water and Climate Services, Meteorology Bills. Nevertheless, certain activities have been significantly delayed by COVID – Coastal Inundation Forecasting in Tuvalu and Kiribati and Community-Based Early Warning Systems in Niue, Palau, Samoa and the Republic of the Marshall Islands. A third activity that has been once again delayed during this reporting period is the	The project remains aligned to the objectives.

		delivery of HPC Servers to FMS, due to COVID-19 restrictions and difficult delivery into the country.	

10. Risk Management 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.
Measures to address	What mitigation measures have been developed to address the risk status? To mitigate the risks identified the project team remains in close and regular dialogue with the beneficiary NMHSs and regional implementing agencies.

11. Contributions to CREWS Output(s)s

11.1 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	Target for reporting period	Progress by December 2020	Progress by June 2021
1.1 Regional assessment of public and private capacities, gaps and needs with respect to MHEWS governance, product generation and service delivery.	1 Regional Assessment	1 Regional Assessment	1 Regional Assessment	1 Regional Assessment
1.2 In-country assessments of NMHS capacity (Reported under 1.4 under strategic planning).	-	-	-	-
1.3 Regional workshops to increase awareness of national MHEWSs and regional/global support mechanisms, and the understanding by MHEWS stakeholders of their respective roles and responsibilities (Link to 1.1).	1 Regional Workshop	1 Regional Workshop	0 Regional Workshop	1 Regional Workshop
1.4 Development of long-term strategic plans for targeted NMHSs (Link to 1.2).	8 Strategic Plans	4 Strategic Plans	2 Strategic Plans	3 Strategic Plans completed 3 Strategic Plans ongoing 2 pipeline

1.5 Development of Meteorological Bills for targeted NMHSs.	1 Meteorological Bill	0 Meteorological Bills	1 Meteorological Bill	1 Final Draft Meteorological Bill Completed and with Parliament for its approval, 1 approved and enacted, 1 Ongoing Bill to be developed and completed. 1 Drafting Instructions for Bill Completed

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

1.1 The assessment has been completed, with all consultations undertaken online. A final report of the assessment is available. This assessment was done is parallel with the Weather Ready Pacific Scoping Exercise and Decadal Program of Investment supported through the Australia Bureau of Meteorology, SPREP, WMO and NMHSs.

1.2 The assessment took place as part of the development of the NS-FWCS for the Kiribati Meteorological Service during this reporting period. A second assessment is planned for Tonga Met Service through the development of its NS-FWCS.

1.3 Due to the COVID-19 the regional in-country workshops had to be cancelled. Instead, ADPC has conducted virtual workshops and consultations with the selected countries.

1.4 The plans for Fiji, Kiribati, Palau, RMI and FSM were developed remotely with virtual consultations. Kiribati NS-FWCS is completed and launched, Fiji is in the final stages for its Strategic Plan with the final presentation to stakeholders and printed copies distributed in Q3 2021. It is noted that FSM consultations are different from the rest of the countries due to the consideration to its different States and the related costs of travel thus the coordination has taken a longer time to finalize. The challenge is mitigated by seeking support from NOAA and other partners who are working in the same scope to facilitate the consultations going forward. This is still in discussion and will be finalised soon.

1.5 While the project originally had the goal of producing one Meteorological Bill, the project has been requested to support an additional two legal frameworks for Solomon Islands (policy framework and drafting instructions) and Kiribati (Bill) Meteorological Services. Solomon Islands due to its national procedures do not allow external bodies to draft their Bills, this is done only by the Drafting team in the Solomon Islands Attorney Generals Chambers, therefore, the WMO consultant was instructed to only produce a Policy Framework Paper and Drafting Instructions for the Nationals to utilise when drafting the bill. Consultations with the communities and stakeholders was conducted to get their views and recommendations. KMS Bill consultations are ongoing with the aim to have a draft ready for the September Parliament Session.

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**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
2.1 Implementation of Fiji Flash Flood Guidance System (FFGS).	Operational Fiji FFGS	Operational Fiji FFGS	Operational Fiji FFGS	Operational Fiji FFGS
2.2 Impact-based coastal inundation forecasting in Tuvalu and Kiribati.	Coastal Inundation Forecasting Operational for 3 sites	Coastal Inundation Forecasting Operational for 3 sites	Data collection for all sites completed. Wave buoys ready for deployment.	Data collection for all sites completed. System operational for Kiribati (running from SPC). Deployment of one wave buoy in Tarawa Lagoon in Kiribati. Deployment site proposal under approval in Tuvalu.Additional buoys procured to support the sustainability of TMS and KMS real-time ocean monitoring services.
2.3 Regional Climate Outlook Fora	Support for 3 PICOFs	1	4	4
2.4 National Climate Outlook Fora	Support for 5 NCOFs	3 NCOFS	4 NCOFS	4 NCOFS
2.5 National drought consultations.	2 National Drought consultations	N/A	2	2
2.6. In-country training workshops on forecasting and warning services for SWFDP	10 in-country training	5 in-country trainings	0	Online training module developed and delivered to 10 countries

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

2.1 While Fiji FFGS is currently operational, COVID-19 related travel restrictions have delayed the completion of the following training events: (i) IT training; (ii) FFGS Radar Workshop and (iii) Fiji FFGS Step 4 training. While these training events were originally planned as in-person trainings, some of them have taken place remotely (IT training from 26 January to 10 February; Radar Workshop from 12 July

to 23 July), and others are scheduled to take place during Q3 and Q4 2021, including the Step 4 training from 2 – 13 August. FMS requested recently WMO additional FFGS modules which are not currently funded: the Landslide prediction module and Urban FFGS module, for specific cities. All activities related to the FijiFFGS will be completed and forecasters are using the System operationally in their daily work as it helps them to identify potential flash flood risks in a timely manner.

2.2 The Impact-based coastal inundation forecasting in Tuvalu and Kiribati continues to face significant delays as a result of COVID-19. Activities programmed during the reporting period required in-country presence, such as the deployment of four real-time ocean wave buoys. SPC supported Kiribati in the deployment of one wave buoy in Tarawa Lagoon with the second to be deployed in Q3 2021, and a proposal for deployment in Tuvalu is currently seeking approval from cabinet. The reef slope deployments are more complex and should be done under the supervision of SPC technicians but partnership agreements made with Fisheries departments to assist in the deployment with the NMS has made this possible and it has build capacity and ownership in the countries. A draft practical guideline on wave buoy deployment was developed and shared with KMS, which integrates SPC's lessons learnt over the last 4 years. SPC has started the procurement of additional wave buoys for the two participating countries.

2.3 Activity completed in 2020.

2.4 Four NCOFs have taken place, twice in Tonga, Tuvalu, Solomon Islands. Additional NCOFs are planned for Samoa and Fiji in Q3 2021.

2.5 Activity completed in 2017.

2.6 The agreement for in-country trainings were signed with MetService New Zealand in March 2020. Due to the COVID-19 pandemic, the agreement with MetService New Zealand was amended and an online training module was created to develop capacity of the NMHSs of 10 Pacific SIDS on NWP interpretation, use of RSMC Wellington guidance product and impact-based forecast and warning services (IBFWS). The module was delivered in Q2 2021 with a total participation of 28-40 people during the training session in 10 NMSs.

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

State Project Output(s) in this section	**Overall Project Target**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
3.1 Upgraded webpage of 4 NMHSs	4 webpages	3 webpages	3 completed not yet launched	2 completed with handover scheduled in Q3 and 2 to be updated and 1 to be developed in Q3,
3.2 Regional training on IT.	2 regional trainings	1	1	SPREP is looking at possible online options to deliver IT training due to the travel restrictions. This is envisioned through a moodle and canvas platforms to deliver to the countries, To be completed in Q3-Q4 2021
3.3 Procurement and installation of HPC for implementation of NWP LAM in FMS/RSMC Nadi	Installation of HPC servers	HPC servers installed and in use	Activity Delayed	Activity Delayed. Estimated arrival of HPC in Fiji in the end of August 2021.
3.4 Feasibility study conducted for FM Radio in Tokelau.	1 Feasibility Study	1	At Procurement evaluation process	Procurement process completed; start of feasibility study in Q3 2021.
3.5 CAP Jumpstart Workshops	CAP Jumpstart Workshops in 7 countries	N/A	7	7
3.6 CAP online training module developed	1 Training Module	N/A	1	1
3.7 In-country and regional workshops on dissemination pathways and enhancement of communication.	Needs-based		2	2

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

3.1 SPREP has completed the development and launch for the Cook Islands' Meteorological Service website in 2018. New websites have completed development and are to be handed over and launched in Q3 in Kiribati and Nauru. Niue Website development works to start in Q3 2021. All the 4 websites now developed will be upgraded to Drupal 9.0.

3.2 The IT Capacity Development workshop planned for July 2020 has been postponed due to COVID-19. SPREP have purchased video conferencing equipment for all the Met Services before the IT training can be delivered. These were procured and shipment was completed in Q1 2021. Further to supporting the IT Training, the equipment will support the NHMSs doing business online. SPREP is also working on a platform to deliver trainings for the NMHSs and are looking to work with Moodle and Canvas.

3.3 Delays in the delivery of the HPC for implementation of NWP LAM in FMS/RSMC Nadi remain due to COVID-19 travel restrictions in the Pacific region. The HPC is to be sent by ship from Sydney, Australia to Fiji on July 28th to and is expected to arrive and be cleared by Fijian customs by the end of August 2021.

3.4 The procurement process for identifying and contracting a consultant for the feasibility study for the establishment of FM Radio in Tokelau was launched in May 2021 and completed in June 2021. The study is expected to be completed by Q3 2021.

3.5 Completed in 2017.

3.6 Completed in 2018.

3.7 Workshop took place in 2017 (Fiji) and 2019 (Regional workshop in Samoa).

CREWS Output(s) 4: Preparedness and response plans with operational procedures that outline early warning dissemination processes developed and accessible

State Project Output(s) in this section	**Overall Project Target**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
4.1 Regional workshops to initiate impact-based forecasting with relevant stakeholders and implement the WMO Strategy for Service Delivery.	1 Regional Workshop	N/A	1	1

4.2 National workshops on impact-based forecasting.	4	1	1	1
4.3 Community-based early warning services (CBEWS) in Niue, Palau, Samoa and RMI.	4 CBEWS in place	4 CBEWS in place	4 Ongoing	3 Ongoing. Completed activities in Niue.

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them.

4.1. Regional Workshop took place in 2019
4.2. The target for national workshops has been revised and only one national workshop will take place. The workshop took place in Solomon Islands in October 2020. Due to travel restrictions, the entire workshop was arranged with remote connections for international experts.
4.3. Activities continue to be rolled out for Samoa which includes installation of additional six billboards in both Savaii and Upolu; Fire Risk associated with drought and weather conditions will target 10 communities to roll out in Q2 2021; Early Childhood Education programs to be conducted in Q3-Q4 2021; Community weather products; MET Service Tropical Cyclone and COVID Response plan and SOP will also be completed in Q3-Q4 2021. The review of the first community-based activity conducted in Samoa four years ago will also be initiated, and will inform how the programme will be rolled out.
This is in the Lefagaoalii CDCRM and lessons learned from this will inform the review of the CDCRM as well.
Communication and teleconference support for Hydrology and DMO in Samoa as well as information booklets/package to be developed and distributed as in the pipeline.

CREWS Output(s) 5: Knowledge products and awareness programmes on early warnings developed

State Project Output(s) in this section	**Overall Project Target**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
5.1 Information campaign on Tropical Cyclone Forecasting	1 campaign	1 campaign	1 campaign	1 campaign

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

5.1 The information campaign was aimed at the Asia-Pacific Ministerial Conference on Disaster Risk Reduction (APMCDRR) scheduled for 23-26 June 2020. However, due to COVID-19 the Conference was postponed and is due to take place in 2021 in a virtual format.

The main product – a video titled 'Pacific Islands highlight importance of impact-based early warnings for tropical cyclones' is available on YouTube.

Moreover, a media package for TV and radio stations around the Pacific, meant to repeat the key messages in local languages has been made available: 1) Vanuatu sample ; 2) Fiji sample

CREWS Output(s) 6: Gender-sensitive training, capacity building programmes provided

State Project Output(s) in this section	**Overall Project Target**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
6.1 Female staff in targeted NMHS have been trained on women in leadership.	1	N/A	1	1

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

6.1 Workshop took place in August 2019. 35 Women from 13 islands trained in Leadership, representing Meteorology, Hydrology and Climatology. The workshop took place prior to the Fifth Pacific Meteorological Council Meeting in Samoa, in August. The 1.5-day workshop focused on Leadership for women in meteorology and hydrology for Pacific Small Island States in WMO Regional Association V (South West Pacific). The workshop built upon and strengthened participants' leadership skills, with a focus on communication, confidence, and shared strategies for positive change at the national and international level.

11.2 Regional Output(s)s

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**	**Target for reporting period**	**Progress by Dec 2020**	**Progress by July 2021**
R.1 Development of long-term strategic plan for FMS/RSMC Nadi.	1	1	1	1 completed and to be presented to stakeholders in Q3 2021
R.2 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.	HPC Servers Procured.	Procurement ongoing	Procurement completed on Q2 2021. Arrival of HPC to Fiji expected on Q3.
R.3 Access for FMS and RSMC Nadi to high-quality NWP products and relevant tools.	ECCharts for FMS/RSMC Nadi in place.	ECCharts available until September 2022.	ECCharts available until September 2022.	ECCharts available until September 2022.
R.4 RSMC Nadi website and portal upgraded	1 upgrade of website and portal.	1 upgrade of website and portal.	Activity postponed.	Activity postponed.

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words) R.1 Following the request from the Permanent Representative of Fiji, the strategic plan developed in 2017 is currently undergoing a revision to take into consideration the new structure of FMS and align with global frameworks and agreements such as the Paris Agreement, the Sustainable Development Goals and the Sendai Framework. The revised plan has been completed, and an implementation plan has been developed by the FMS. The plan will be presented by the consultant to the national FMS Service Users, Donor and International organisations that support FMS and the National Government Ministries in Q3 2021 R.2 Due to the problems related to the delivery of HPC Servers under output 3.3, the implementation of high resolution NWP in Fiji is delayed. Capacity building will follow the delivery of HPC Servers in Q3 2021. R.3 The license for the ECCharts for FMS/RSMC Nadi was obtained in September 2019, and will give access for FMS/RSMC Nadi to European Centre for Medium-Range Weather Forecasts (ECMWF) products through its ecChart tool until September 2022. R.4 To follow the implementation of high resolution NWP

12. Contributions to Value Propositions

Gender Responsive	For the development of the TORs for the NHMSs Strategic Plan and Framework for Weather, Water and Climate, the specific needs of women women, children and people living with disabilities are considered in the development of the NSPs and NS-FWCS. The end-product will have identified the users of the products produced by the NHMSs , and the different ways they access information making sure that it reaches the full population. The project financed a Women in Leadership workshop in 2019, and requests sex disaggregated data from regional implementing partners where relevant. With the support from the NMHSs and local partners, including women and youth committees, as well as representatives from Ministry of Women Community and Social Development (MWCSD), in Samoa, the project has ensured that the islands' populations and communities are reached, including those in the last

	mile, informed, and actively engaged in decision making processes. During all training and workshops women's committee in the villages are invited to participate along with the men, youth, and people living with disabilities.
Multiplier	Project components, such as CBEWS are building on existing and/or past successful initiatives and promoting these in in other countries. The components are building on activities first piloted under FINPAC and COSPPAC projects. Through the CREWS Pacific SIDS project, the lessons learned have been taken into consideration, as the component is expanding to countries that were not involved in previous initiatives.
People-centered	The CBEWS component led by SPREP is people-centred, and focuses on reaching communities that are not currently well connected with the NMHSs and is working with National Red Cross Societies (NRCS).The NRCS are the facilitators of the CBEWS component; they lead the consultations in the communities as well as search and rescue trainings that are conducted under the project. In addition, they also they have a role in EWS under the Community Disaster and Climate Risk Management Program (CDCRM), especially in the implementation of activities in 6 of the programme's selected villages. These include leading training with support from Samoa Met-Ministry of Natural Resources and Environment (MNRE), Samoa Fire and Emergency Services Authority (SFESA) and the Adventist Disaster Relief Agency (ADRA). In Niue, CBEWS is focused on youth and elders support through the boys and girls brigade. The choice of countries and communities were based on reaching the last mile. The impact-based coastal inundation forecasting systems for Kiribati and Tuvalu are implemented for specific identified communities and include assessments of these communities' vulnerability to coastal inundation and educating them on the risks associated with coastal inundation.
Promote Coherence	The project is promoting coherence through cooperation with other ongoing projects in the region (including KfW project, UNDP TCAP, UNDP RESPAC, UNDP CLEWS Project, and COSPPac). Recent examples of this is the shared workshops between the CREWS funded ADPC study and the ongoing scoping for the Weather Ready Pacific and the discussions with NOAA on the activities planned for the development of the North Pacific (Republic of the Marshall Islands, Palau and Federated States of Micronesia) Strategic Plans for the Met Services.
Solution-oriented	Under the SPREP CbEWS component, the inclusion of the Samoa National Meteorological Services in the Youth Koko or Cocoa Initiative programme is a significant move towards turning climate science to services that can be tailored to meet the needs of individuals and sectors. SPREP is looking at developing agrobulletins for the youth Cocoa Farmers which allows for them to be conduits of information and utilising climate science in

	agriculture and farming. The partnership between SPREP CbEWS and the Niue Boys and Girls Brigade is another example of the project working with the youth of the country to promote climate science and information as well as develop disaster preparedness plans and activities which allows for awareness as well. This model of working with the youth in the countries is empowering them, and allowing them to share new ideas and methods in disseminating climate and weather information. It is indeed good practice in bringing the youth onboard to deliver specific community activities. Additionally, through the Samoa CbEWS activities piloting in 6 villages the first aid training that looks to capture certified trainees that will assist the country and communities during times of disasters is a step forward and at the same time building capacity and enhancing skills of personnels in villages to support their disaster response plans when it is required of them during disasters. It is an investment in the people for the people. Also, through the project countries with poor access to technology to accommodate the current situation with COVID and the new norm of online meetings, discussion and consultations Kiribati was provided with a full conference system as well as additional 10 countries through the SPREP component with simple camera, mic and speaker to facilitate ongoing project discussions.
Unique	The project through its consultants recruited supported the review of the Tonga Water Resource Bill which was later tabled in parliament and now approved by the King of Tonga, now called the Water Resources Act 2020. Before the Bill was tabled in Parliament, Cabinet instructed the Ministry to have another final series of consultations with the communities, this part was done directly by the counterpart in the Ministry and it was an opportunity for them to talk about the bill and really understand all its components when discussed with the Tonga villages via radio interviews and community consultations. It was the project empowering its staff to push ahead with this Bill that has been in draft since 1983. It is an enormous success for the project especially the people of Tonga and its Water Resources.

13.Visibility products

a. Insert or copy any links to press releases, videos or communication items and/or social media links

https://www.sprep.org/news/pacific-meteorological-council-celebrates-ten-years-of-service-to-the-pacific-region

Kiribati Framework for Weather, Climate and Ocean Services | World Meteorological Organization (wmo.int)

https://nukualofatimes.to/2020/10/20/met-office-and-mafff-team-up-to-prepare-for-national-climate-outlook-forum-for-agriculture/

'Pacific Islands highlight importance of impact-based early warnings for tropical cyclones' is available on YouTube.

Media package for TV and radio stations around the Pacific, meant to repeat the key messages in local languages has been made available: 1) Vanuatu sample ; 2) Fiji sample

14. Supporting documents

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

1. ***New Zealand Met Service Training Report***