CREWS PROJECT STATUS REPORT

1. Project title	*Strengthening Hydro-Meteorological and Early Warning Systems in the Pacific (CREWS Pacific SIDS)*	**2. Project reference** *CREWS/RegProj/04/Pacific*
3. Lead IP	**WMO**	**4. Other Implementing Partners**
5. Reporting period	**December 2018 – June 2019**	
6. Reporting focal point	**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 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 2,500,000). The project focuses on strengthening the Regional Specialised Meteorological Centre in Nadi (RSMC-Nadi), Fiji and the NMHS that it serves in the following countries and territory; Cook Islands, Fiji, Kiribati, Nauru, Niue, Tokelau, and Tuvalu. Moreover, the project supports the Federated States of Micronesia, Marshall Islands, 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: Improved governance: strengthened governance structures and mechanisms for regional centres and NMHSs targeted by the project are in place.	

	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. 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. Moreover, the project is closely coordinating with the Australian Government funded project Climate and Ocean Support Program in the Pacific (COSPPAC), the UNDP "Disaster Resilience for Pacific Small Island Developing States (RESPAC) Project, UNDP Tuvalu Coastal Adaptation Project (TCAP) supporting high resolution baseline collection of data for all island of Tuvalu, and the German Development Bank (KfW) Recovery Support for Tropical Cyclone in Tuvalu.
8. Progress summary	**What has been achieved between December to June? – Please list the most significant and tangible developments?** The reporting period has seen significant progress highlighting the following: Improved governance: - The strategic plans and meteorological bill for Tuvalu are currently under development, while the strategic plan for Kiribati has been postponed to August at the request of the NMHS; - WMO is currently working with Tokelau and Tonga to finalize the Terms of Reference (ToRs) for the strategic plans for the NMS (Tokelau) and meteorological and hydrological services (separate plans, Tonga). Enhanced product development and accessibility: - The technical specifications for the High-Performance Computer (HPC) for the Fiji Meteorological Service (FMS) have been developed and agreed upon by experts from the Meteorological, Climatological and Geophysical Agency of Indonesia (BMKG) and FMS. Based on these technical specifications, the procurement process will now be initiated;

	- The Fiji Flash Flood Guidance System (FFGS) is progressing according to plans, with ingestion of weather radar data and on-going online training modules. - The Impact-based coastal inundation forecasting in Kiribati and Tuvalu is progressing according to plans: Inception workshops have been in which the project components, activities and deliverables have been discussed and agreed upon with relevant stakeholders. The procurement process for 6 wave buoys and 10 pressure sensors is completed, and the project team at the Pacific Community (SPC) is currently designing the mooring system for the wave buoys to be deployed into the countries. SPC has been working with FUGRO, a world leading Lidar data company, in partnership with UNDP under the UNDP TCAP, to support the high resolution baseline data collection for all Tuvalu islands. This state of the art baseline data information will be the baseline of Tuvalu's inundation forecast system. The full dataset is expected to be delivered in September 2019. Once available, SPC will be able to work on high resolution wave and inundation modelling for Tuvalu. <u>Enhanced service delivery</u> - Through the Secretariat for the Pacific Regional Environmental Programme (SPREP) the web page of the Cook Islands' NMHS has been updated. Another three NMHS will get new web pages through the project; - The Tonga National Climate Outlook Forum (NCOF) and capacity building on preparation and delivery of climate services took place in Tonga 18-28 March 2019; - The initial activities under the community-based EWS (CBEWS) took place in Q1 and Q2, 2019. Kick-off meetings introducing the CBEWS, including training on traditional knowledge and community-engagement have taken place in Niue, Marshall Islands and Palau. Furthermore this event allowed the countries to their national work plans. The kick-off meeting in the Federated States of Micronesia is planned for Q3 2019. - WMO is working closely with Tokelau to finalze TORs to conduct a feasibility study setting up of FM Radio in Tokelau.

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 rate of expenditure has increased significantly since the last reporting period, and is now on track with a total expenditure of 1,200,662 CHF (50%) from CREWS.	Overall, the delivery is on track, and the regional partners, SPREP and SPC are moving forward according to plans. There have been some delays on the assessments, and on the training activities under the Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP). However, following close coordination with the MetService New Zealand, the training plan is moving forward and training workshops for Niue, Cook Islands, Solomon Islands, Vanuatu and Nauru are scheduled for Q3 and Q4 2019.	The project remains aligned to its original objectives.

10. Risk Management Status

Risk Status	What is the current risk status as compared to what was identified in the project proposal? The overall risk remains low
Measures to address	What mitigation measures have been developed to address the risk status? Risks are being mitigated through close cooperation with the regional partners SPC and SPREP, and through close coordination between the beneficiary NMHSs and WMO. The appointment of an Associate Project Officer in the Apia, Samoa office has also allowed for closer monitoring of the ongoing activities and risk status.

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 Dec 2018**	**Progress by June 2019**
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**	**0 regional assessment**	**ToRs in place. Assessment to commence Q3 2019**
1.2 In-country assessments of NMHS capacity (under strategic planning process)	**8 in-country assessments**	**2 in-country assessments**	**0 assessments**	**1. in-country (Tuvalu) assessment is initiated.**

				2.second (Kiribati) is due to commence in August at NMHS's request.
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.	**1 Regional workshop**	**0 Regional workshop**	**0 Regional workshop**	**0 regional workshop**
1.4 Development of long-term strategic plans for targeted NMHSs	**8 Strategic Plans**	**2 strategic plans**	**0**	**1 strategic plan initiated (Tuvalu), 1 due to commence in August 2019 at NMHS's request (Kiribati).**
1.5 Development of Meteorological Bills for targeted NMHS	**1 Meteorological bill**	**1 Meteorological Bill**	**0**	**1 Meteorological bill under development (Tuvalu)**

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

Output 1.2:

- Assessments of the national capacities of NMHSs are incorporated under the development of the strategic plans (Output 1.5).
- Assessment of the national capacities of NMHSs are carried out through consultations at the national and local levels.

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 2018**	**Progress by June 2019**
2.1 Implementation of Fiji Flash Flood Guidance System (FFGS)	Operational FFGS in Fiji	Required historical data to the Hydrologic Research Center (HRC) for system development Catchment delineation shapefile in place Online training	Initial meeting completed Weather radar data ingestion conducted	HRC received historical data and is archiving radar data Real-time data collection is ongoing Catchment delineation shapefile in place 9 staff from Fiji registered and completed on-line training course in hydrology by June 2019
2.2 Impact-based coastal inundation forecasting in Tuvalu and Kiribati	Coastal Inundation forecasting operational for 3	Kick-off meetings conducted, and relevant	Activities commenced in January 2019	Amended LoA signed March 2019.

	sites	procurement processes completed		Inception workshop on Tarawa, Kiribati, 27-28 March 2019. Completed procurement of 6 wave buoys and 10 pressure sensors with co-funding support from KfW Project to support the CREWS project. SPC received two new high end computers (~USD 40,000) to support the high computational tasks to be undertaken under the CREWS project, co-financed by KfW Project.

				Completed procurement of satellite derived bathymetry vendor, TCARTA, work on the development of a high resolution bathymetry map for Tarawa initated, and delivery date of data in mid-June. This information will be used as baseline into the forecasting system (wave and inundation models). Monitoring the behavior of the existing offshore wave forecast for Tuvalu (co-finance by the KfW Project,

				SPC identified series of improvement needed to strengthen capability of the wave model. SPC has been working on improving the country scale and sub-regional scale wave model for Tuvalu over the last couple of month. The SPC team has been working with FUGRO, a world leading Lidar data company, in partnership with UNDP under UNDP TCAP, to support the high resolution baseline data collection for all

				islands of Tuvalu. This state of the art baseline data information will be the baseline of Tuvalu's inundation forecast system. The full dataset is expected to be delivered in September 2019. Once available, SPC will be able to work on high resolution wave and inundation modelling for Tuvalu. SPC Team hosted and worked with a researcher, Dr. Ana Rueda, from the University of Cantabria in

				April 2019, on the implementation of her recent findings related to the development of a meta-model to estimate run-up on reef fronted shoreline (published in 2018).
2.3 Regional Climate Outlook Fora	Support for 3 PICOFS	0	Support for 3 participants to PICOF-4 (Nadi, Fiji 12-13 Oct 2018)	
2.4 National Climate Outlook Fora	Support for 5 NCOFs	1 NCOF	0 NCOFS	1 NCOF (Tonga)
2.5 National Drought consultations	4 National drought consultations	0	2 National drought consultations (2017)	0
2.6 In-country training workshops on forecasting and warning services for SWFDDP	10 national training workshops	0	0	0 (first series of trainings planned for Q3-4 2019)
2.7 Other capacity building initiatives for NMHS	Needs based		3 participants from Fiji, Tonga and Vanuatu supported for the 9th	Two fellowships supported from

			International Workshop on Tropical Cyclones in Honolulu, Hawaii, United States, 3-7 December 2018	FMS/RSMC Nadi to attend the Advanced Meteorological Training Course (BIP-M) in India (September 2018-September 2019)

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

Output 2.6:
The in-country training workshops have been delayed due to the difficulty in finding qualified and available trainers. Following discussions with MetService New Zealand, the first series of trainings including Niue, Cook Islands, Vanuatu, Solomon Islands and Nauru will take place in September-October 2019.

Output 2.7
The training visit from Vanuatu to BMKG (Indonesia) planned under output 2.7 has been rescheduled to September 2019.

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 2018**	**Progress by June 2019**

3.1 Upgraded webpage of 4 NMHS	4 webpages	1 web page	0	LoA signed with SPREP. 1 webpage developed (https://www.met.gov.ck/)
3.2 Regional training on IT Technologies	2 Regional trainings	0	0	LoA signed with SPREP
3.3 Procurement and installation of HPC for implementation of NWP LAM in Fiji Meteorological Service/RSMC Nadi	Operational HPC in RSMC Nadi	Technical specifications developed and approved	Draft technical specifications	FMS and BMKG (Indonesia) experts have approved the technical specifications for the HPC and are ready to move to procurement
3.4 Feasibility study conducted for FM Radio in Tokelau	1 feasibility study	0	0	ToRs developed
3.5 Common Alert Protocol (CAP) Jumpstart Workshops	CAP Jumpstart workshops in 7 countries	0	7 completed (2017)	7 completed (2017)
3.6 CAP online training module developed	1 training module	1 training module	0	Training module completed
3.7 In-country and regional workshops on dissemination pathways and enhancement of communication	Needs based	0	1 TV workshop in Fiji (2017)	0
Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)				

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 2018**	**Progress by June 2019**
4.1 Regional workshops to initiate impact-based forecasting with relevant stakeholders and implement the WMO Strategy for Service Delivery	1 regional workshop	1 regional workshop	0	0
4.2 National workshops on impact-based forecasting	4 workshops	0	0	0
4.3 Community-based early warning services (CBEWS) in Niue, Federated States of Micronesia and The Republic of the Marshall Islands	4 CBEWS in place	Selection of sites in 4 countries Jump start workshops in 4 countries	0	LoA signed between WMO and SPREP for the implementation of CBEWS; Sites have been selected Jump start workshops in 3 countries (Marshall Islands, Niue and Palau)

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

<u>Output 4.1</u>

Regional workshop to initiate impact-based forecasting was postponed due to political unrest just prior to the scheduled event. New dates have been identified (16-20 September). National workshops are scheduled to follow the regional workshops

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 2018	Progress by June 2019
Eg*:*				
Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)				

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 2018	Progress by June 2019
Female staff in targeted NMHS have been trained on women in leadership	1 women in leadership workshop	0	0	0
Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)				

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 2018**	**Progress by June 2019**
R.1 Development of long-term strategic plan for FMS/RSMC Nadi	1 strategic plan	N/A	Activity completed September 2017	Activity completed September 2017
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	No training planned for reporting period	Roadmap for implementation of high-resolution NWP developed June 2018 BMKG (Indonesia) constructed and tested Weather Research and Forecasting Models (WRF) for Fiji end of Nov. 2018, and display can be accessed by signature.bmkg.go.id. Training on downloading global and regional NWP data and developing value-added products in Fiji took place Nov 2018	1 roadmap for NWP implementation 1 Training on downloading global and regional NWP data and developing value-added products conducted (Nov 2018)

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 for 2019 and 2020	0	0
R.4 RSMC Nadi website and portal upgraded	1 upgrade of website and portal	0	0	0 (activity scheduled 2020)

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

R.1
The FMSStrategic Plan will be revised again during Q3 2019 following the request of the new director. This is in line with national priorities to align all strategic planning with the Sendai Framework and the Sustainable Development Goals (SDGs). The revision is also necessary as FMS has since the development of the previous version of the strategic plan moved from the Ministry of Rural Development to the Ministry of Transport.

R.3
The ECCharts for RSMC Nadi are delayed from ECMWF side, WMO is currently following up with ECMWF.

12. Contributions to Value Propositions

Gender Sensitive	Gender specific indicators have been developed under the sub-projects with SPC and SPREP. Partners are being asked to report on gender, following the WMO Gender Policy, SPREP in its subcomponent has set a target to ensure that participation of female staff and stakeholders is never under 30%. In the assessments of NMHS' capacities and regional assessments, special attention is given to the different ways women and men, girls and boys and vulnerable groups are accessing weather and climate information as well as early warnings. Specific activities to enhance the percentage of Women in management positions are planned (Women in

	Leadership Workshop)
Multiplier	Certain project components are building on existing and/or past successful initiatives such as CBEWS and promoting these in further 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 well as the expansion to countries that were not involved in previous initiatives.
People-centred	The CREWS Pacific SIDS project, has a strong focus on people-centred solutions. These can be highlighted especially through the sub-components implemented by the two regional partners SPREP and SPC. The Community-Based Early Warning System component led by SPREP is focusing on reaching last-mile communities that are not currently well connected with the NMHS. In Niue, CBEWS is focused on youth. Moreover, the SPC-led Coastal inundation forecast systems for communities in Kiribati and Tuvalu assess vulnerabilities of communities' coastal environment. This will allow the communities to take appropriate mitigating actions to ensure their safety and protect their property.
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), and active participation in, and contributing to, the formulation of new proposals including the UNEP GCF Project Proposal currently under development.
Solution-oriented	The project promotes an active dialogue with the beneficiaries, looking to find solution to their identified EWS related problems. In Fiji (FMS), the first ever training on downloading global and regional NWP data and developing value-added products served as an eye-opener to use global and regional NWP model data instead of developing high resolution develop limited area model for Fiji. In addition to these, the training has brought together meteorologist and IT programmers to discuss data and subsequently development of tailored products for Fiji. FijiFFGS planning meeting and the on-line training have further brought together meteorologists, hydrologists,

	climatologists, IT programmers, and Disaster Managers. Additionally, FijiFFGS provides a country-wide monitoring system for potential floods instead for each river basin or catchment.
Unique	The project is unique in combining the strong support to RSMC Nadi, while promoting in-country initiatives across the region.

13. Visibility products

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

- New website for Cook Islands Meteorological Service Press Release Web page Cook Islands
- Community Based Early Warning Services in Niue Press Release
- Early Warning Systems Helping to Build Resilience in Tuvalu Press Release
- First Users' Climate Outlook Forum underway in Nuku'alofa – Tonga Meteorology Department Press Release
- New CREWS Initiative for the Pacific Article in MeteoWorld

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.***

Annex 1 HRC Report Fiji FFGS

Annex 2 Final Report Development and Implementation of the FijiFFGS as part of the Global FFGS Initial Planning Meeting (Nadi, Fiji, 12-13 November 2018) and Initial Collaboration Visit for Inclusion of Weather Radar Data in a Future Phase of the FijiFFGS (Nadi, Fiji, 15-16 November 2018).

Annex 3 Report on NWP Training on Downloading Global and Regional NWP Data and Developing Value Added Products at Fiji Meteorological Service /RSMC Nadi (Nadi, Fiji, 26-30 November 2018).