

## Template for CREWS Project Presentation Note to the Steering Committee

<b>1</b>	<b>Project Title</b>	<b>Strengthening Hydro-Meteorological and Early Warning Services in the Pacific</b>	
<b>2</b>	<b>Project Reference</b>	CREWS/RegProj/04/Pacific	
<b>3</b>	<b>Geographic coverage</b>	Pacific Islands Countries and Territories (PICTs ) covered by the Regional Specialised Meteorological Centre (RSMC) in Fiji (Fiji, Cook Islands, Kiribati, Nauru, Niue, Tokelau, Tuvalu)	
<b>4</b>	<b>Timeframe</b>	3 years, Jan 2017 – Dec 2019	
<b>5</b>	<b>Total cost of CREW contribution</b>	<b>US\$ 2,175,000</b>	
<b>6</b>	<b>Implementing Partner</b>	<b>WMO</b>	
		a. Allocation Requested for Execution of Project Activities	US\$ 2,060,000
		b. Fees of Implementing Partner:	US\$ 325,000
		c. Co-financing provided by Partner(s)	US\$ 1,000,000 (funds from Canada)
	d. Total requested	US\$ 2,500,000	
<b>7</b>	<b>Additional Implementing Partners</b>	<b>Secretariat of the Pacific Regional Environmental Programme (SPREP), Global Facility for Disaster Risk Reduction and Recovery (GFDRR), United Nations Office for Disaster Risk Reduction (UNISDR)</b>	
<b>8</b>	<b>Total Project Amount</b>	<b>US\$ 3,500,000</b>	
<b>9</b>	<b>Main objective</b>	(i)Strengthen the Regional Specialised Meteorological Centre (RSMC Nadi) within Fiji Meteorological Service ability to support other Pacific Islands receiving services from RSMC Nadi (ii) Enhance Pacific Island Countries and Territories' NMHS' capacity for impact-based forecasts of extreme weather events (such as floods, droughts, cyclones and storms).	
<b>10</b>	<b>Initial state of play - project rationale</b>		
	a. Vulnerability, exposure to risks, disasters impacts (on people and economy)	<p>The Pacific Island Countries and Territories (PICTs) are particularly vulnerable to the adverse impacts of extreme weather events and climate change. The island economies and livelihoods are regularly affected by hydro-meteorological hazards such as tropical cyclones, heavy rains, drought, sea level rise and storm surges. Projected changes to the region's climate are expected to increase the likelihood of hydro-meteorological disasters over the course of this century. These disasters already account for 75% of all reported natural disasters in the region<sup>1</sup>. Along with earthquakes, tropical cyclones are the most prominent natural hazards in the pacific region<sup>2</sup>.</p> <p>Over the last five years, the PICTs covered by this proposal have been subject to the severe impacts of tropical cyclones such as Tropical Cyclone Pam (Fiji, Kiribati, Vanuatu and Tuvalu) in 2015, Tropical Cyclone Ian (Fiji and Tonga) in</p>	

<sup>1</sup> Pacific Community, 2016: Framework for Resilient Development in the Pacific – An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP) 2017-2030

<sup>2</sup> PCRAFI, 2013: Better Risk Information for Smarter Investments, Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), World Bank, Washington DC

		<p>2014, Tropical Cyclone Evan in 2012 (Samoa and Fiji). As a result of their geographical position in the tropical cyclone belt, some of these PICTs experience on average one tropical cyclone per year<sup>3</sup>.</p> <p>The Framework for Resilient Development in the Pacific (2016) identifies “Strengthened disaster preparedness, response and recovery” as its third goal. The framework prioritizes to strengthen effective multi-hazard early warning systems and use science and technology to inform the risk management of the upcoming situation. This includes ensuring that early warning messages are communicated to managers and decision-makers, civil society and communities in a language that is accessible.</p> <p>Women, children and disabled people are the most vulnerable to natural disasters<sup>4</sup> and it is of utmost importance that their perspective is included in the community level workshops. Different groups in society access and interpret information about hydro-meteorological events differently, and the lack of actionable information that takes into consideration the various contexts and roles these groups hold in society put these groups at higher risk of becoming victims of hydro-meteorological extreme events.</p>
	<p>b. Status of the EWS, DRM agencies and NHMSs, actors / players present</p>	<p>Fiji Meteorological Service (FMS) is designated as a WMO Regional Specialised Meteorological Centre (RSMC), specialised in tropical cyclones. In addition to serving the citizens of Fiji, the RSMC also serves another six Pacific Island Countries and Territories (Cook Islands, Kiribati, Nauru, Niue, Tokelau and Tuvalu). Furthermore, the RSMC is special advisor to Samoa, Tonga and Vanuatu.</p> <p>The RSMC is embedded within FMS and does not have any additional human or financial resources to support its operations, therefore the limited resources are shared between FMS and the RSMC. At the same time, the geographical area that the RSMC is serving is extensive and the workload related to serving as RSMC significant.</p> <p>NMHS are key providers of weather and climate information and services. Together with National Disaster Management Offices (NDMOs), emergency response agencies, media services, NGOs and other humanitarian organisations, they contribute to the operationalisation of national EWSs. They are supported in their role by international development agencies including WMO and the World Bank as well as regional partners such as the Secretariat of the Pacific Regional Environment Programme (SPREP), Commonwealth Scientific and Industrial Research Organisation (CSIRO), New Zealand National Institute of Water and Atmosphere (NIWA), Pacific Community (SPC) Bureau of Meteorology /Australia (BoM), etc.</p> <p>With regards to EWS for hydrometeorological hazards, which remain the trigger of most natural disaster events, significant advances have been made in predicting weather, water, and climate extremes. Notwithstanding these advances, much remains to be done. A stocktake of EWSs in the Pacific commissioned by the Australian Government Department of Foreign Affairs and Trade highlighted capacity gaps in the region. Although capacity level varies across the PICTs, there is a need to strengthen all components of EWSs including hazard identification, analysis, warning dissemination and community preparedness and response. Institutional set up required for the smooth coordination of operations and sustainability of EWSs remain also a</p>

<sup>3</sup> PCRAFI, 2015: Country Note Fiji, Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), World Bank, Washington DC

<sup>4</sup> UNESCAP, 2015: Overview of Natural Disasters and their Impacts in Asia and the Pacific, 1970-2014,

		<p>challenge.</p> <p>More specifically, NMHSs and NDMOs need support to develop, issue and communicate scientifically-sound warnings. Moreover, warnings are not effectively communicated especially to remote islands and communities, or they are poorly understood. In some cases, systems that lead to effective action by communities are not in place even if the warnings are received. It is therefore critical to enhance the capacity of communities to participate in the development of warnings that suit their needs, to understand them and to develop effective action plans.</p> <p>Regional cooperation in the Pacific is strong and the role of regional centres is particularly important for operational support to PICTs and for technical assistance. The strategy of the Secretariat of the Pacific Regional Environmental Programme (SPREP)<sup>5</sup> aims to enhance and build capacity for applied research, foster meteorological and oceanic observation and monitoring programs to improve understanding, and develop targeted responses to climate change and related disaster risk reduction.</p>
c. Projects and programs dealing with EWS and hydromet under implementation or preparation		<p>Several projects and programmes for EWS for PICTs are on-going or in the pipeline, however, this project brings in a regional aspect due to its focus on RSMC-Nadi as well as through the country level support from the NMHS.</p> <p>The Government of Canada is making a CREWS aligned contribution through WMO that will have a SIDS component including Pacific SIDS that will compliment this activities and replicate some of the actions in other PICs not included under this proposal.</p> <p>The <i>World Bank Pacific Resilience Programme (PREP)</i> is currently under implementation. The participating countries for Phase one of this programme are Samoa, Tonga, the Republic of Marshall Islands and Vanuatu. PREP aims to strengthen (i) early warning and preparedness, (ii) risk reduction and resilient investments, and (iii) disaster risk financing in participating countries. A Phase 2 is envisaged which will include additional investments and for Phase 1 countries. This project will link to and learn from the PREP experience.</p> <p>SPREP has also submitted a proposal to the GCF on behalf of Vanuatu on Climate Information Services for resilient Development. The objective of this project is to strengthen climate resilience in Vanuatu and focuses on climate information system to support resilience development in water, infrastructure, tourism, agriculture and fisheries.</p> <p>WMO is also preparing a GCF proposal for EWS to address the major infrastructure needs (AWS, radars etc) of Melanesian Countries in support of its EWS (Fiji, Papua New Guinea, Solomon Islands, Timor-Leste and Vanuatu). These infrastructure needs are not covered in this proposal.</p>
d. Positioning of CREWS support: complementarity and synergies with the existing programs		<p><i>WMO Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP)</i> for the South Pacific Islands represents a systematic approach for building capacity and for transferring through a cascading approach, knowledge and skills to operational weather forecasting teams across the NMHSs community.</p> <p><i>WMO Coastal Inundation Forecasting Demonstration Project in Fiji</i> funded by</p>

<sup>5</sup> Secretariat of the Pacific Regional Environment Programme (SPREP) 2011: Strategic Plan 2011-2015

	<p>Korean Meteorological Administration is on-going until late 2017.</p> <p>Others projects relevant to severe weather forecasting, climate prediction services and sea-level rise monitoring include the Climate and Oceans Support Program in the Pacific (COSPPac), Pacific Climate Change Programme (PCCSP) and Pacific Climate Change Science Program (PACCSAP) with the support of BoM and CSIRO.</p>
11	Project design
	<p>a. Project Outputs (<b><i>Bold italic items represent activities with contribution of CREWS financing</i></b>)</p> <p><b>Component A - Institutional strengthening of FMS, RSMC Nadi and Pacific Islands' NMHS</b></p> <p>This component aims to strengthen governance structures within RSMC Nadi and within the participating Pacific Islands' NMHS' (see section 3) involved in the project including Samoa and Tonga. The component will further strengthen communication, coordination and consultation processes between the RSMC, the NMHS and DRM agencies.</p> <p><b>Component B - Capacity building</b></p> <p><b>Component B.1. Capacity building and implementation support of FMS, RSMC Nadi and Fiji DRM Agency</b></p> <p>This component will build technical and operational capacity to use high resolution regional NWP products to generate impact-based forecast and warning services.</p> <p><b>Component B.2. Capacity building and implementation support for impact-based forecasts and warnings at country level</b></p> <p>This component will strengthen the abilities of the participating Pacific Island Countries' NMHSs on country level (i) to disseminate impact-based forecasts and warnings. This applies to Pacific Islands' NMHS' (Cook Islands, Fiji, Kiribati, Nauru, Niue, Tokelau and Tuvalu) receiving impact-based forecasts and warning services from FMS/RSMC Nadi, and (ii) to use NWP products, guidance and advisories provided by the RSMC Nadi to analyse, interpret, produce, and disseminate impact-based forecasts and warning products. The capacity of Pacific Islands' NMHSs to access impact-based forecasts and warning services from FMS/RSMC Nadi NMHSs will be improved through making appropriate tools to access this service. The capacity to use NWP model guidance within the NMHSs will be improved through making available the appropriate tools to access this guidance.</p> <p>The countries covered by the FMS/RSMC Nadi are on different levels in capacity and this activity will take place following an assessment of country specific needs for impact-based forecasting and warning.</p> <p><b>Component C – Forecasting facilities</b></p> <p><b>Component C.1. Modernization of forecasting facilities of FMS/RSMC Nadi</b></p> <p>Upgrade the facilities available at the FMS/RSMC Nadi to provide high-resolution regional NWP guidance and include the access to high performance computing, numerical weather prediction models and support tools. The component will also include the establishment of an on-going verification programme to contribute to the advancement of the forecasting system, improving the quality of NWP guidance and strengthening the confidence level of the forecasters in issuing forecasts and warnings.</p> <p><b>Component C.2. Modernization of forecasting capabilities of Pacific Islands' NMHSs in the project, including Samoa and Tonga</b></p>

		<p>This component will upgrade the forecasting capabilities of Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Tuvalu and Vanuatu including Samoa and Tonga to (i) access impact-based forecasts and warning services from FMS/RSMC Nadi (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Tokelau and Tuvalu); (ii) to access high resolution regional NWP guidance provided by FMS/RSMC and to access high performance computing numerical weather prediction models and support tools from other developed centers and RSMCs (Fiji, Samoa, Solomon Islands, Tonga and Vanuatu).</p> <p><b>Component D. Improvement of meteorological and hydrological service delivery</b></p> <p>This component will focus on impact-based forecast and warning services by translating weather forecasts and warnings into actionable information to support decision makers.</p> <p>The component will furthermore establish integrated IT Platform Networks to facilitate the exchange of weather information in order to generate and disseminate meteorological and hydrological early warning data and information alerts both within and amongst the participating countries.</p> <p>This will require an understanding of vulnerability to be able to forecast impacts. A common approach to warning services would also include an Integrated Web-Platform for MHEWS in the Pacific Region, which would include colour-coding similar to the system developed by Météo-France and used in New Caledonia, and MeteoAlarm in Europe.</p> <p><b>Component E: Community-Based Early Warning System Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tuvalu and Vanuatu</b></p> <p>This will focus on working with local communities including women, children and disabled people to develop response plans, to enable them to prepare and respond appropriately to the impact-based forecasts and warnings issued by their respective NMHSs and DRM agencies.</p> <p><b>Component F: Project Management</b></p> <p>The project will contribute partial salary of a project manager responsible for coordinating project activities including monitoring and evaluation. The project manager will report to the project steering committee and follow the development of the project.</p>
	b. Implementing time frame	See <b>Attachment 1</b>
	c. Contribution to CREWS Programming Framework	<p>This project will contribute to achieve the following outputs in the CREWS Programming framework:</p> <ul style="list-style-type: none"> <li>▪ Regional ( cascading) weather and climate monitoring and prediction products with facilitated access for crews project countries;</li> <li>▪ Pooled (regional) trainings for high impact sectors (disaster risk management, health, agriculture);</li> <li>▪ Regional monitoring, forecasting and warning products for extreme events (flood, drought, extreme heat, other weather events);</li> <li>▪ Regional risk analysis products and monitoring of high risk countries, cities and vulnerable populations;</li> </ul>

		<ul style="list-style-type: none"> <li>Regional inter-governmental organizations strengthened to support NMHSs and early warning capacities.</li> </ul>
	d. Logical framework with indicators	See <b>Attachment 2</b>
<b>12</b>	<b>Organization and operating procedure</b>	
	a. Institutional framework	<p>The project will be implemented by WMO with Fiji Meteorological Service as main executing partner. Additionally, the NMHS of participating PICs will execute local level activities.</p> <p>A Steering Committee will be established to coordinate project activities and ensure that they are harmonized with related activities of other government stakeholders and the meteorological services of the PICTs involved in the project. The role of the Project Steering Committee will be to provide overall oversight, policy direction on project implementation resolving any policy hurdles or policy conflicts and supporting project risk management. The PSC will be responsible for approving the implementation plan and annual budget, and will meet as often as needed but at least bi-annually to review and follow up on project progress.</p> <p>The committee will include the following members: (i) representative of RSMC Nadi (ii) representatives of the involved PIC NMHS (iii) representatives of disaster risk management offices (as appropriate) (iv) CREWS Implementing Partners (WB-GFDRR and UNISDR) representatives. The Steering Committee will overview progress of the project throughout the implementation period.</p>
	b. Monitoring and evaluation system	<p>The WMO monitoring and evaluation system and the project logical framework will be used to monitor progress and achievements of the project against expected results (outcome and output indicators). Project reviews will take place on an annual and/or bi-annual function and will include reporting of outputs, and maintaining progressive records. The annual reviews will be performed in accordance with the Project Performance Monitoring and Evaluation Framework.</p> <p>Moreover, WMO will organize an internal audit of the project at the halfway mark that will allow to make the necessary adjustments in the case that any problems are identified.</p>
<b>13</b>	<b>Project viability and sustainability</b>	
	a. Main identified risks	<p>Operational risks:</p> <p>Low commitment from participating countries for the project (low): relevant stakeholders in each country to be properly identified and engage in the project development and implementation process in order to get their commitment. It is also critical for ownership of the project by participating countries, to ensure that the project contribute to fill country specific gaps with regard to EWSs.</p> <p>Reluctance from countries to share their data with the Nadi (RSMC) (risk level low to medium). Need to assess country data policies, To mitigate this risk, it will be important to support the establishment of cooperation agreements as appropriate while respecting national policies;</p> <p>Financial risks</p> <p>Low performance of Nadi/RSMC in managing project resources (risk level low)</p>

		<p>to medium): Assessment of financial management systems of the RSMC and gaps to be addressed before or during project implementation;</p> <p>Financial sustainability following completion of the project: This risk will be mitigate through increased ownership and synergy with existing or planned investments in the sector. The project will assess the need to establish a funding mechanism to support activities upon completion.</p>
	b. Critical assumptions	<p>For the project to be successful, the following assumptions are critical:</p> <ul style="list-style-type: none"> <li>▪ Strong political commitment from governments of participating countries;</li> <li>▪ Strong engagement from WMO network of NMHSs , Regional Centres, and partners;</li> <li>▪ Increase public awareness to hydro-meteorological hazards and need to build resilience;</li> <li>▪ Initiative is understood and objectives agreed upon by relevant stakeholders.</li> </ul>
	c. Judgment on the project sustainability	<p>Sustainability aspects will be assessed and addressed during the formulation and planning of the project.</p> <p>Sustainability of the project will be ensured in the long run through:</p> <ul style="list-style-type: none"> <li>▪ Ensuring country ownership during project development and implementation: stakeholders engagement will be an important aspect of the project development and implementation process. The objective is to ensure that the project is driven by the RSMC and participating countries and that their needs are addressed. The project builds on existing institutions and there is a buy-in from country authorities.</li> <li>▪ Mobilization of funding to support EWSs in SIDS through WMO Programme for SIDS and MITs and the CREWS initiative. Efforts will be made to promote and support mobilization of additional funding for resilience building in SIDS ( ODA finance, emerging financiers, international climate and environmental funds, etc).</li> <li>▪ Capacity building in agencies that will continue to receive government support for the foreseeable future (e.g. the NMSs).</li> </ul>

### Strengthening Hydro-Meteorological and Early Warning Services in the Pacific – Timeline for implementation

TASK	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<i>Component A – Institutional Strengthening of FMS, RSMC Nadi and Pacific Islands' NMHSs</i>												
<i>(i) Strengthening governance arrangements for the NWP centre within the FMS and RSMC Nadi</i>												
<i>(ii) Strengthening governance arrangements within the Pacific Islands' NMHSs participating in the project</i>												
<i>(iii) Establishment/strengthening of coordination and communication processes between FMS, RSMC Nadi, the Pacific Islands' NMHSs participating in this project and respective national DRM agencies</i>												
<i>Component B Capacity Building</i>												
<i>Component B.1. Capacity building and implementation support of FMS, RSMC Nadi and Fiji DRM agency</i>												
<i>(i) Training and capacity building in the use of high-resolution NWP model products</i>												
<i>(ii) Training and capacity building in developing and producing impact-based forecasts and warning services including a gender perspective</i>												
<i>Component B.2. Capacity building and implementation support for impact-based forecasts and warnings at country level</i>												
<i>(i) Assessment of country specific needs for impact-based forecasting and warning services</i>												
<i>(ii) Access to appropriate tools for impact-based forecasting and warnings</i>												
<i>(iii) Training in impact-based forecasting and warnings including a gender perspective</i>												
<i>Component C Forecasting Facilities</i>												
<i>Component C.1. Modernization of forecasting capabilities of FMS/RSMC Nadi</i>												
<i>(i) Provide access for FMS and RSMC Nadi to high performance computing, numerical weather prediction models and relevant support tools</i>												
<i>(ii) Establishment of on-going verification and validation programme to the advancement of the forecasting and warning system</i>												
<i>(iii) Assessment and upgrading of communication system between RSMC and Pacific Islands</i>												



TASK	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Component C.2.</b> <i>Modernization of forecasting capabilities of Pacific Islands' NMHS participating in the project including Samoa and Tonga</i>												
<i>(i) assessment and upgrading of forecasting capabilities in Pacific Islands' NMHS participating in the project including Samoa and Tonga</i>												
<i>(ii) ensure access to high performance computing numerical weather prediction models and tools</i>												
<b>Component D</b> <i>Improvement of meteorological and hydrological service delivery</i>												
<i>(i) Installation of a common regional approach to display and deliver hydro-meteorological warnings, information and services</i>												
<i>(ii) Regional training on basic information and technology for process, displaying and delivery of warnings</i>												
<i>(iii) Capacity building of NMHSs to produce actionable information for decision-makers</i>												
<i>(iv) Vulnerability assessment to predict impact</i>												
<i>(v) Identification of thresholds for warnings</i>												
<b>Component E</b> <i>Community-based early warning systems</i>												
<i>(i) Workshops with women, children and disabled to develop community based response mechanisms to extreme weather warnings</i>												
<i>(ii) Implement community response mechanisms and activities to prepare and respond to impact-based forecasts and warnings issued by their respective NMHS and DRM agency</i>												
<b>Component F</b> <i>Project Management</i>												

**Strengthening Hydro-Meteorological and Early Warning Services in the Pacific**  
**Concise Logical framework with results and impacts indicators (in line with GCF M&E framework)**

Indicator	Means of Verification (MoV)	Baseline	Target	
			Mid-term (if applicable)	Final
A. Coordination and communication mechanism within and between RSMC/Nadi and NMHSs are established	Activity reports	To be determined in cooperation with RSMC Nadi and NMHS		Cooperation and communication mechanisms established and operational
B1 – Availability of regional guidance tools for impact-based forecast and warning services	Meteorological bulletins (etc)	TBD		Regional guidance tools covering the range of extreme weather events in the region are available
B2. % of NMHSs using regional products for impact based forecasting and warning	Radio/TV/Newspaper exerts	TBD		100 % of NMHSs use regional products for impact based forecasting and warning.
C1. % of severe weather events for which timely warnings were communicated by the RSMC/ NMHS to NMHS/DRM agencies	Reports issued by the RSMC Nadi and/or NMHS for early warnings	TBD		100% of severe weather events timely communicated
C2 . Accessibility to numerical weather prediction models by Samoa, Tonga and Vanuatu	Surveys /Reports from NMHSs	TBD		Full accessibility
D. Percentage of population at risk that is able to receive timely and actionable hazard forecast and warnings	Mitigation plans issued by decision makers (ex. Evacuation plans)	TBD		100% of communities at risk covered by the project understand the risk and actions to be taken
E. Number of local communities with emergency response plans	Response plans	TBD		TBD
F. Project well managed	Project reports, report from Steering Committee	TBD		

## Strengthening Hydro-Meteorological Services and Early Warning Systems in the Pacific – Preliminary Budget

Main Components	2017	2018	2019	Total
<b>Component A. Institutional Strengthening of FMS, RSMC Nadi and Pacific Islands' NMHSs.</b>	<b>230,000</b>	<b>130,000</b>		<b>360,000</b>
(i) Strengthening governance arrangements for the NWP centre within the FMS and RSMC Nadi.				
(ii) Strengthening governance arrangements within the Pacific Islands' NMHSs participating in the project.				
(iii) Establishment/strengthening of coordination and communication processes between FMS, RSMC Nad, the Pacific Islands' NMHSs participating in the project and respective national DRM agencies.				
<b>Component B. Capacity Building.</b>	<b>330,000</b>	<b>150,000</b>	<b>170,000</b>	<b>650,000</b>
Component B.1. Capacity building and implementation support of FMS, RSMC Nadi and Fiji DRM agency.				
(i) Training and capacity building in the use of high-resolution NWP model products				
(ii) Training and capacity building in developing and producing impact-based forecasts and warning services				
Component B.2. Capacity building and implementation support for impact-based forecasts and warnings at country level				
(i) Assessment of country specific needs for impact-based forecasting and warning services.				
(ii) Training in impact-based forecasting and warnings.				
<b>Component C. Forecasting Facilities</b>	<b>380,000</b>	<b>380,000</b>	<b>180,000</b>	<b>940,000</b>
Component C.1. Modernization of forecasting capabilities of FMS, and RSMC Nadi.				
(i) Provide access for FMS and RSMC Nadi to high performance computing, numerical weather prediction models and relevant support tools.				
(ii) Establishment of on-going verification and validation programme for forecasting and warning system				
(iii) Assessment and upgrading of communication system between RSMC Nadi and Pacific Islands.				

Component C.2 Modernization of forecasting capabilities of Pacific Islands' NMHSs participating in the project.				
(i) assessment and upgrading of forecasting capabilities in Pacific Islands' NMHSs participating in the project.				
(ii) ensure access to high performance computing numerical weather prediction models and tools				
<b>Component D. Improvement of meteorological and hydrological services delivery</b>	<b>180,000</b>	<b>180,000</b>		<b>360,000</b>
(i) Installation of a common regional approach to display and deliver hydro-meteorological warnings, information and services.				
(ii) Regional training on basic information and technology for process, displaying and delivery of warnings .				
(ii) Capacity building of NMHSs to produce actionable information for decision-makers.				
(iv) Vulnerability assessment to predict impact.				
(v) Identification of thresholds for warnings.				
<b>Component E. Community-based early warning systems</b>	<b>80,000</b>	<b>160,000</b>	<b>160,000</b>	<b>400,000</b>
(i) Workshops with local community groups (women, children and disabled) to develop community based response mechanisms to extreme weather warnings				
(ii) Implement communities response mechanisms and activities to prepare and respond to impact-based forecasts and warnings issued by their respective NMHSs and DRM agencies.				
<b>Component F Project management, Monitoring and Evaluation</b>	<b>100,000</b>	<b>150,000</b>	<b>100,000</b>	<b>350,000</b>
<b>Project Sub-total</b>				<b>3,060,000</b>
<b>WMO Project Support Cost 13%</b>				<b>396,500</b>
<b>Project Total</b>				<b>3,456,500</b>

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