



# TONGA METEOROLOGICAL SERVICE COUNTRY REPORT

Reporting on National Priority Actions of the Pacific Islands Meteorological  
Strategy (PIMS) 2017-2026

This Report is presented to the Fifth Pacific Meteorological Council (PMC-5) Meeting held in Apia, Samoa from 7-9 August 2019

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## 1.0 Summary

The report is structured to allow the PMC secretariat to capture the Progress of the Tonga Meteorological Services against the 11 Pacific Key Outcomes (PKO's) of the Pacific Islands Meteorological Strategy (PIMS) 2017-2026. This report will contribute to the following:

- Monitoring the progress of the Tonga Meteorological and Coast Radio Services against the implementation of the PIMS 2017-2026
- Inform the Work Program of the Pacific Met Desk Partnership (PMDP)
- Identify the Tonga Meteorological and Coast Radio Services gaps and needs, potentially some of which will be packaged for projects and presented to the Donors and Partners.

The Tonga Meteorological and Coast Radio Services is one of the departments of the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Communication and Climate Change (MEIDECC). This organizational reform reflected in this report is to better integrate the services that supports disaster preparedness, response and recovery to natural disasters in the context of Multi-Hazard Early Warning Systems with the integration of other key scientific departments of MEIDECC.

Under the Meteorology Portfolio and mandates under the Meteorological Act 2017, the meteorology department will provide accurate, timely and reliable weather, climate, observations and ocean warnings and information services to the people of Tonga. The Tonga Meteorological and Coast Radio Services manages its operations at International, Regional and National levels with 40 staff members and will in the near future reform its structure to cater for the changing scope of meteorology in light of International Organizations such as the World Meteorological Organization, International conventions of Paris Agreement, Sendai Framework for Disaster Risk Reduction and Sustainable Development Goals, and National Development Frameworks such as the Tonga Strategic Development Framework (TSDF II).

Qualification for the TMS staff shows that a majority of the staff in each respective core section holds the Basic Instruction Package for Meteorological Technician, followed by Senior Observer Technician, and all meteorologists have already completed the Meteorologist course (WMO class 1) and have undergone WMO Competency assessments, Higher Post-Graduate degree holders and Certified Coast Radio Operators.

The Tonga Meteorological and Coast Radio Services recognizes its prosperity lies with the capacity and capability of its staff and will continue with capacity building initiatives of staff members as one of main priority and further improve the quality of the product and service provided to our stakeholders and the people of Tonga as well as regional and international collaborations. Furthermore, the Tonga Meteorological and Coast Radio Services will continually progress towards meeting the requirements of WMO, Regional and National Frameworks.



	<i>Contact of the Tonga MET Services</i>	<i>Alternate Contact</i>
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## 2.0

### Background Information

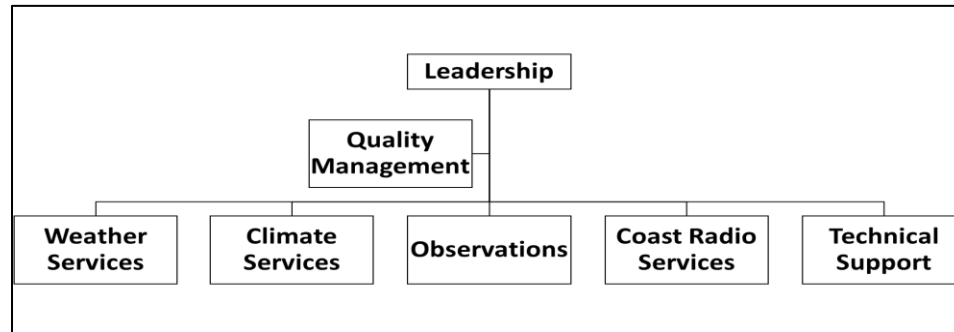
#### 2.1 Institutional Setup

Due to the rapid growth of Tonga's Meteorology Department and the need for more specialized and quality meteorological information in a time where weather and climate related hazards are at a record high. It is the vision and the provision of establishing structural reforms for the Meteorology department under the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Communications and Climate Change (MEIDECC).

These reforms are necessary for the Meteorology Department to perform its functions under the Meteorology Act of 2017 as well as implement multi-million dollar projects in multi-hazard early warning systems. These reforms are also in line with the organizational reform of World Meteorological Organization (WMO). An initiative necessary for better resource mobilization and service development. This reform is necessary due to the following:

- Increased scope of activities expected of the MET Service to support resilient development priorities of Government in response to weather and climate
- Reform to be in line with the WMO reform with more emphasis on user focused services and better use of in-house resources
- Organizational restructuring is needed to have the capacity to deal with the large number of projects that the Met Service is engaged in e.g. NEWS, CRSP, PREP, COSPPAC, RESPAC, WMO CREWS etc.
- Special consideration of customer needs for improved quality of services
- Requirement to operationalize the science, (turning science into services) and carry out research on specific areas of interest for development that will end up in strengthened services.
- Requirement for upgrades to systems (e.g. Automatic Weather Stations) and communications to meet capacity needs of the Met Service.
- Structural reform is required to establish the career paths that will facilitate and enhance the growth of the MET Office. There is also a need to upgrade the MET OIC positions in all the outer islands to reflect the functions of NEMO that are carried out by the MET OIC in those islands. Particularly for 'Eua and the Niuaas.
- To enable the MET Service to carry out its legal functions under the Meteorology Act.

**Current Organization Structure of the Meteorology Department**



**Proposed Organization Structure of the Meteorology Department**

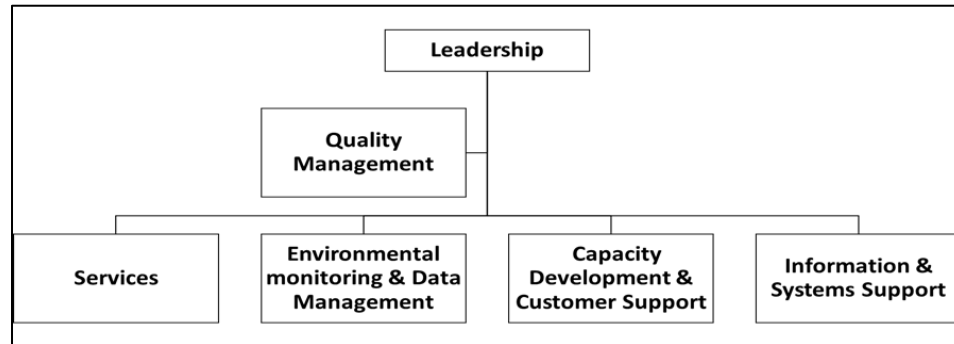
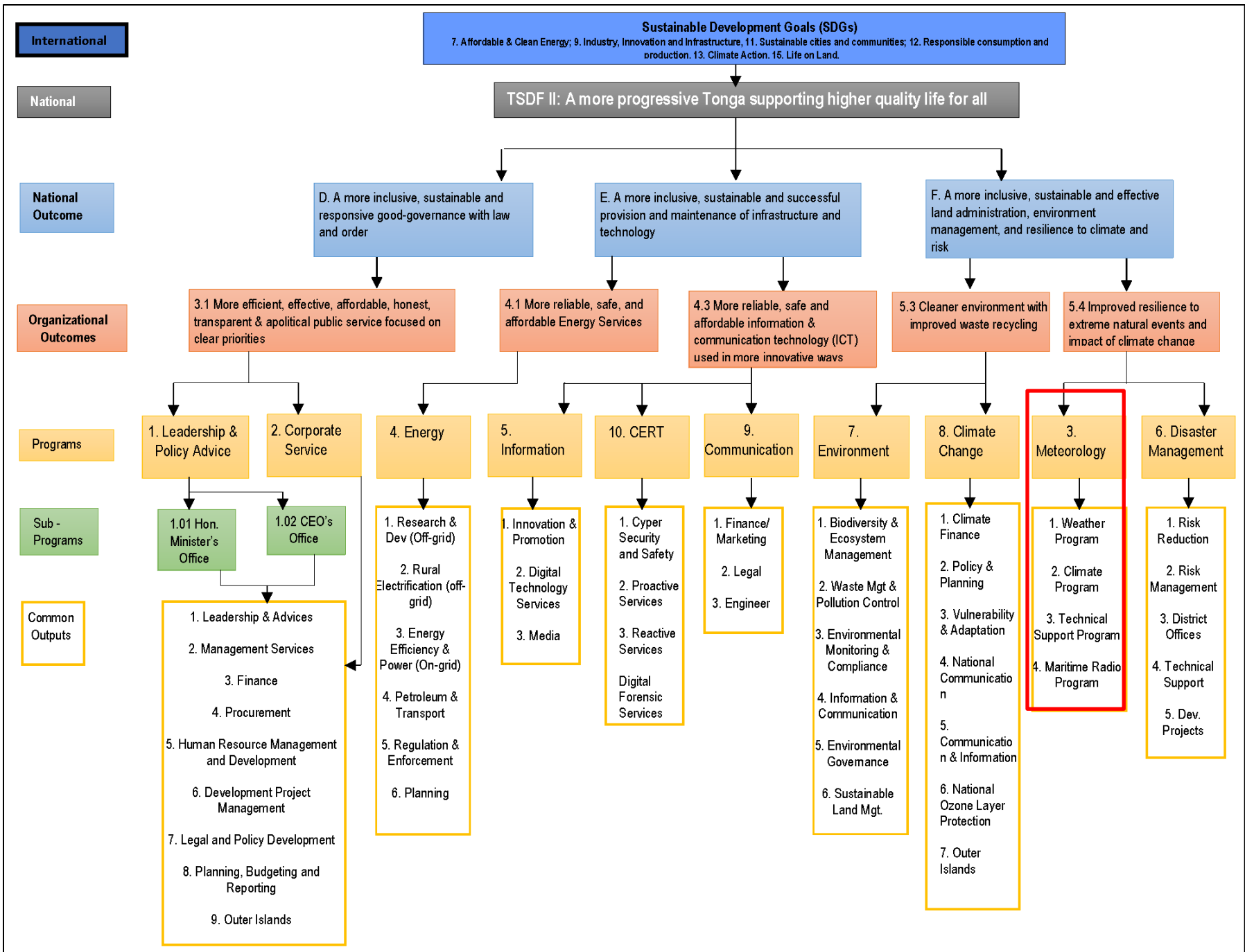


Figure1: The current institutional set up and the proposed new reforms of TMS.

Governance	Description
MET LEGISLATION: Update on whether or not your country have a stand-alone Meteorology Act or equivalent in place.	New Meteorological Bill endorsed by the Parliament and then granted Royal Assent by His Majesty the King on the 8th February 2017. It is called the <i>Meteorological Act 2017</i> and it is a stand-alone act intended for the Tonga Meteorological Services only.
Do you require for your Act to be reviewed? What support would you require to complete this activity.	Not at the moment, it has been 2 years now since the establishment of our Meteorological Act and it has been going on well. There may be a need to review it but at a later time accordingly to arising circumstances of time.
Strategic Planning	
Does your NMHS have a strategic plan, implementation/operational plan or equivalent(s)?	Yes, Tonga MET Services has strategic plans and operational plans that links to the 11 PIMS key Pacific Outcomes, Tonga Strategic Development Frameworks (TSDF II) and the Ministry of MEIDECC Ministerial deliverables/outputs for Tonga MET Services.
Describe how meteorology (weather) and climatology (climate variability and climate change) are featured in the current national development plan, government ministries corporate and implementation/operational plans.	<p>The meteorology department priorities forms the foundation of the TMS framework which connects to the national development plans.</p> <p><b><u>Meteorology Department Priority Agenda:</u></b></p> <ol style="list-style-type: none"> <li>1. Certification of MET under Civil Aviation Rules Part 174 (Legal requirement)</li> <li>2. Establish Aviation Forecasting Services in lieu of Fiji for issuance of TAFS, SIGMETs and Area Forecasts</li> <li>3. TAF, ARFOR, ROFOR and SIGMET training under PREP Project <ul style="list-style-type: none"> <li>•Automation of warning dissemination (Weather Program) through PREP NEWS Projects</li> <li>•Automation of Observations data into CLIDE database through the of the Meteorological and Ocean monitoring Network under the CRSP Project (Climate Program)</li> <li>•Upgrade of Observations Network under CRSP Project (Observation Program)</li> <li>•Upgrade of Nuku'alofa Maritime Radio through the PREP Project (Maritime Radio Program)</li> <li>•Coast Radio training in NZ for 2 Coast Radio Operators</li> <li>•Maintenance Training of Meteorological Technicians under PREP Project</li> <li>•Development of a Meteorology Development Strategy to meet requirements of the Meteorology Act of 2017 (Management &amp; Planning and development &amp; Resource Mobilization Programs)</li> <li>•Development of a cost recovery scheme (Management &amp; Planning and development &amp; Resource Mobilization Program)</li> <li>•Upgrade of Tonga Met Service Website</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>•Upgrade social media weather information dissemination mechanism</li> <li>•Upgrade Tsunami warning procedures</li> <li>•Establish 24/7 shift guidelines for Meteorology Department</li> <li>•Establish impact based forecasting</li> <li>•Upgrade Office infrastructure in NFO, NFO, HAP, VAV and TBU</li> <li>•Establish Meteorology regulations for QMS, Cost Recovery, and Qualifications of personnel</li> <li>•Refresher training for all Weather Observers under PREP project</li> <li>•Collection of weather and climate traditional knowledge (Russian project)</li> <li>•Implement the NEWS Project</li> <li>•Establish OIC positions in Eua, NFO and NTT for shared NEMO responsibilities</li> </ul>
<p>Describe the process if your NMHSs is reporting against the SDG or its national equivalent</p>	<p>The Meteorology department focus on providing accurate, timely and reliable weather forecast and warnings, marine/ocean weather forecasts and warnings, weather observations, climate data and predictions and coastal maritime information communicated to stakeholders.</p> <p>The Tonga Meteorology Department under the Ministry of MEIDECC makes a significant contribution to three out of the seven TSDF National Outcomes which connects ultimately to the Sustainable Development Goals (SDG):</p> <ul style="list-style-type: none"> <li>• A more inclusive, sustainable and responsive good-governance with law and order</li> <li>• A more inclusive, sustainable and successful provision and maintenance of infrastructure and technology</li> <li>• A more inclusive, sustainable and effective land administration, environment management, and resilience to climate and risk</li> </ul> <p>This implies that Improved national and community resilience to potential disruption and damage to wellbeing, growth and development from extreme natural events and climate change, including extreme weather, climate and ocean events, with a particular focus on the likely increase of such events with climate change are the core responsibilities and mandates of the Tonga Meteorological Services which supports national development plans, government ministries corporate and operational plans. Please refer to the corresponding figure 2 below, which captures the connection of the Meteorology Department to the bigger contextualized framework of Tonga.</p>





## 2.2 Staffing

1	Director	'Ofa Fa'anunu
2	Chief Quality Officer	Moleni Tu'uholoaki
3	Chief Meteorologist	Laitia Fifita
4	Chief Radio Maritime Officer	Sione Tu'ungafasi
5	Meteorologist	Gary Vite
6	Meteorologist	Viliani Fa'anunu
7	Meteorologist	Taniela Takeifanga
8	Meteorologist	Pesa Kuila
9	Meteorologist	Siaosi Palu
10	Meteorologist	Vaiola Vainikolo
11	Meteorologist	Sitamipa Paea
12	Senior Forecaster	Seluvaia Finaulahi
13	Senior Forecaster	'Aisea 'Akau'ola
14	Climatologist	Selusalema Vite
15	Climatologist	Neniasi Havea
16	Technician	'Enisi Maea
17	Coast Radio Operator	Tevita Taufa

18	Quality Assurance Maritime Officer	Falosita Loloa
19	Coast Radio Operator	Heamoni Tukuafu
20	Coast Radio Operator	Unita Vea
21	Assistant Coast Radio Operator	Faingata'a Vaitaki
22	Assistant Forecaster	Filipe Hingano
23	Assistant Forecaster	Sitani Uatahausi
24	Assistant Forecaster	Siutiti Tapu
25	Climate Officer	Mele Lakai
26	Logistic Officer	Uilisoni Filimoehala
27	Forecaster (Vava'u MET Office)	Uili 'Ulingaholo
28	Meteorological Technician Grade 1 (Vava'u MET Office)	'Atonio Kavai
29	Meteorological Technician Grade 1 (Vava'u MET Office)	Metuisela Kuila
30	Meteorological Technician Gr 1 (Vava'u MET Office)	Katilimoni Fonua
31	Assistant Forecaster (Ha'apai MET Office)	Samiu Vaitaki
32	Meteorological Technician Gr 1(Ha'apai MET Office)	Halamehi Taufu'i
33	Meteorological Technician Gr 1(Ha'apai MET Office)	'Amelia Pahulu
34	Meteorological Technician Grade 2 ('Eua MET Office)	Siale Tahaafe

35	Meteorological Technician Grade 2 (Niuatoputapu MET Office)	Viliami Mahe
36	Meteorological Technician Grade 2 (Niuatoputapu MET Office)	Muli Vaoahi
37	Meteorological Technician Grade 2 (Niuafu'ou MET Office)	Tevita Kata
38	Meteorological Technician Grade 2 (Niuafu'ou MET Office)	Mateaki Folau
39	Leading Hand (Niuatoputapu MET Office)	Sione Teukava
40	Senior JICA Volunteer	Jun Suzuki

Table 1: List of TMS Staff and their posts as of 06<sup>th</sup> August, 2019.

## 2.3 Finance

Description	2019/20
	Total Budget (USD)
<i>TMS Staff salary</i>	\$500,000
<i>TMS Operations</i>	\$100,000
<b>Total</b>	<b>\$600,000</b>

### 2.3.1 Projects supporting the NMHSs

Name of Project	Total Project Budget (TOP)	Percentage of how much is provided to the NMHSs	Summary of NMHSs activities covered by the project
<i>WMO CREWS Project</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>RESPAC Project</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>Pacific Resilience Program (PREP): Building new facility for Tonga Met Services &amp; National Emergency Management Office Headquarters</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>Pacific Resilience Program (PREP): Rebuild/Renovation Schools affected by TC Gita</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services and the Ministry of Education
<i>PREP: Vava'u &amp; Ha'apai MET/NEMO Office</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>PREP: Vava'u &amp; Ha'apai Coastal Station</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>PREP: Training and Workshops</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services
<i>Nation Wide Early Warning</i>		100%	Capacity Development of staff and overall operations of Tonga Meteorological Services and the Country
<b>Total (TOP)</b>	<b>\$27,010,000</b>		

### 3.0 Progress of the NMHS

#### 3.1. UPDATE on Achievements of the NMHS from 2017-2019

No.	Achievements (Activities) of the NMHS (2015-2017)	1	2	3	4	5	6	7	8	9	10	11
1	Upgrade social media weather information dissemination mechanism	x	x	x	x	x	x	x	x	x	x	x
2	Automation of warning dissemination (Weather Program) through PREP NEWS Projects	x	x	x	x	x	x	x	x	x	x	x
3	Develop an ocean outlook product (Climate Program)	x	x	x	x	x	x	x	x	x	x	x
4	Automation of Observations data into CLIDE database through the upgrade of the Meteorological and Ocean monitoring Network under the CRSP Project (Climate Program)	x	x	x	x	x	x	x	x	x	x	x
5	Upgrade of Observations Network under CRSP Project (Observation Program)	x	x	x	x	x	x	x	x	x	x	x
6	Upgrade of Nuku’alofa Maritime Radio through the PREP Project (Maritime Radio Program)	x	x	x	x	x	x	x	x	x	x	x
7	Development of a Meteorology Development Strategy to meet requirements of the Meteorology Act of 2017 (Management & Planning and Project development & Resource Mobilization Programs)	x	x	x	x	x	x	x	x	x	x	x
8	Modernizing the Forecasting System and Implementing impact-based forecast under PREP (Weather program)	x	x	x	x	x	x	x	x	x	x	x
9	Developing and install automated verification tool to verify aviation products (Weather program and Technical program)	x	x	x	x	x	x	x	x	x	x	x
10	Maintenance Training of Meteorological Technicians under PREP Project	x	x	x	x	x	x	x	x	x	x	x
11	Coast Radio training in NZ for 2 Coast Radio Operators	x	x	x	x	x	x	x	x	x	x	x

12	Upgrade of Tonga Met Service Website	x	x	x	x	x	x	x	x	x	x	x
13	Establish 24/7 shift guidelines for Meteorology Department	x	x	x	x	x	x	x	x	x	x	x
14	Establish impact based forecasting	x	x	x	x	x	x	x	x	x	x	x
15	Refresher training for all Weather Observers under PREP project	x	x	x	x	x	x	x	x	x	x	x
16	Collection of weather and climate traditional knowledge (Russian project: RESPAC and SPREP)	x	x	x	x	x	x	x	x	x	x	x

### 3.2. Proposed Activities to be Carried out in the Future (2019-2020)

No	Proposed Activities to be carried out between 2017-2019	1	2	3	4	5	6	7	8	9	10	11
1	Automation of warning dissemination (Weather Program) through PREP NEWS Projects	x	x	x	x	x	x	x	x	x	x	x
2	Development of a cost recovery scheme (Management & Planning and development & Resource Mobilization Program)	x	x	x	x	x	x	x	x	x	x	x
3	Upgrade Office infrastructure in NFO, NFO, HAP, VAV and TBU	x	x	x	x	x	x	x	x	x	x	x
4	Establish Meteorology regulations for QMS, Cost Recovery, and Qualifications of personnel	x	x	x	x	x	x	x	x	x	x	x
5	Establish OIC positions in Eua, NFO and NTT for shared NEMO responsibilities	x	x	x	x	x	x	x	x	x	x	x
6	TAF, ARFOR, ROFOR and SIGMET training under PREP Project	x	x	x	x	x	x	x	x	x	x	x
7	Modernizing the Forecasting System and Implementing impact-based forecast under PREP (Weather program)	x	x	x	x	x	x	x	x	x	x	x
8	Developing and install automated verification tool to verify aviation products (Weather program and Technical program)	x	x	x	x	x	x	x	x	x	x	x
9	Maintenance Training of Meteorological Technicians under PREP Project	x	x	x	x	x	x	x	x	x	x	x

10	Coast Radio training in NZ for 2 Coast Radio Operators	x	x	x	x	x	x	x	x	x	x	x
11	Upgrade of Tonga Met Service Website	x	x	x	x	x	x	x	x	x	x	x
12	Establish 24/7 shift guidelines for Meteorology Department	x	x	x	x	x	x	x	x	x	x	x
13	Establish impact based forecasting	x	x	x	x	x	x	x	x	x	x	x
14	Capacity development for TMS Staff in all sectors	x	x	x	x	x	x	x	x	x	x	x

#### **4.0. Identify Gaps and Future Needs that would Improve the National Meteorological and Hydrological Services**

- The need establish/recruit more meteorologist to the forecasting section (3)
- Aviation weather services training and capacity development
- Development of Marine forecast and services
- Establishment and encouragement research capacity development
- Establish Meteorology regulations for QMS, Cost Recovery, and Qualifications of personnel
- Enhance Severe Weather and Tropical Cyclone Warnings/Trainings
- Improve Earthquake and Tsunami Standard Operating Procedures.
- Develop and better co-ordinate hydrological services.