



Meteorological and Hydrological Services Bill – Bill No. 4 of 2016

Introduction

Meteorological services are organisations concerned with the study or prediction of weather, and often have a specific focus such as monitoring hurricanes.¹

Hydrological services are organisations concerned with the scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.²

Together, these are called '**hydrometeorological services**'.

About 90 per cent of disasters are caused by hazards related to weather, climate or water such as droughts, tropical cyclones and floods.³ Natural hazards cannot be avoided, but timely, accurate prediction of hydro-climate extremes helps societies to prepare for and mitigate disasters and to reduce losses in infrastructure and productive activities.⁴

The issue of forecasting and disaster management has become even more apposite in the aftermath of Cyclone Winston, which hit Fiji on 20 February 2016.

Meteorological services in Fiji

At present, there are no written laws governing meteorological and hydrological services in Fiji. However, Fiji's meteorological services can be traced to late 19th century. At this time, they provided warnings on tropical cyclones, services to international maritime operation, and to stimulate the development of agriculture under the British colonial administration.

¹ The Bill defines 'meteorological services' as the collection, quality control, analysis of meteorological data and provision of meteorological forecasts for routine bulletins and unexpected meteorological events.

² The Bill defines 'hydrological services' as the collection, analysis and storage of hydrological data and forecasting of unexpected hydrological events including flooding and drought.

³ World Meteorological Organization

⁴ Proceedings from the joint workshop co-organized by: the World Bank, the United Nations International Strategy for Disaster Reduction, and the World Meteorological Organization, 2012:

http://www.unisdr.org/files/27645_webresteroleofhydromet.pdf



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Following the war, civil aviation and the need for tropical cyclone warnings were the main impetus for sustained meteorological services development in the region. This was provided mainly through the Nadi Weather Office under New Zealand administration, and since 1975 its successor, the Fiji Meteorological Service (FMS), under an independent Fiji.

The Fiji Meteorological Service functions as a Department under the Fiji Government, and provides regional and national:

- climate information;
- weather forecasting; and
- tropical cyclone warning services.

National meteorological and hydrological services (NHMSs)

The **World Meteorological Organization** (WMO) is the authoritative voice of the United Nations on weather, climate and water. It facilitates cooperation between the National Meteorological and Hydrological Services (NMHSs) of its 191 members, which include Fiji.

National legislative, governance and organizational structures for disaster risk reduction establish the context within which NMHSs make their contributions to safety of life and property.

According to a World Meteorological Organization 2006 survey⁵ to which 155 countries' NMHSs responded (including Fiji), **nearly 70 percent of countries require new or revised disaster risk reduction (DRR) policies and legislation to clarify the role of the NMHS.**

Relating specifically to the south-west Pacific, the WMO survey found:

Over three quarters of South-West Pacific (RA V) NMHSs who contributed to the survey (77% or 10 of 13) reported that **disaster reduction activities were coordinated at the national level**, in most instances (64% or 9 of 14) under the direct line authority of the head of government.

The **organization of these activities was governed by legislation in most countries (79% or 11 of 14)**. In slightly over half (57% or 8 of 14), coordination was centred under one ministry.

At the same time, a **sizeable minority of respondents (43% or 6 of 14) considered that a lack of clear legislation or policies regarding the role of their NMHS (e.g. as the sole issuer of hydrometeorological hazard warnings) limited their contributions to disaster risk reduction.**⁶

⁵ First Coordinated Capacity Assessment of National Meteorological and Hydrological Services (NMHSs) in Support of Disaster Risk Reduction (2006): http://www.wmo.int/pages/prog/drr/natRegCap_en.html

⁶ First Coordinated Capacity Assessment of National Meteorological and Hydrological Services (NMHSs) in Support of Disaster Risk Reduction (2006): chapter 8: http://www.wmo.int/pages/prog/drr/documents/CR/CH_08.pdf

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Disaster risk reduction

The World Meteorology Organization's (WMO) **disaster risk reduction (DDR) project** aims to strengthen institutional capacities and partnerships for provision of meteorological, hydrological and climate services. The aim is to risk reduction within socio-economic sectors for protection of lives, livelihoods and property and contributing to sustainable development.

According to the WMO:

Vulnerability and exposure to disasters is increasing as more people settle in areas of high risk. Since 1970, the world's population has grown by 87 per cent.

During the same time, the proportion of people living in flood-prone river basins increased by 114 per cent and on cyclone-exposed coastlines by 192 per cent.

More than half of the world's large cities, with populations ranging from 2 to 15 million, are located in areas of high earthquake risk. Since 2000, deaths related to natural hazards have exceeded 1.1 million; over 2.7 billion people have been affected; and economic losses have totaled an estimated US\$ 1.3 trillion.

Climate change is expected to aggravate the risks as it will affect the patterns, severity, and frequency of weather-, climate-, and water-related extremes.⁷

First Pacific Ministerial Meeting on Meteorology

In 2015, the First Pacific Ministerial Meeting on Meteorology held in Nuku'alofa.

The 'Nuku'alofa Ministerial Declaration for Sustainable Weather and Climate Services for a Resilient Pacific' was adopted by Ministers and representatives from American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, the United States of America and Vanuatu.

The statement noted that:

- The Declaration is a statement of the **political will to support the development of weather, climate, water and related environmental services in the Pacific Island Countries and Territories (PICTs)**, fully taking into account national development priorities, regional and global meteorological strategies and other relevant frameworks.
- The Declaration recognizes the vital importance of NMHSs and their mission as stated in the Convention of the World Meteorological Organization (WMO), in **providing meteorological, hydrological and related services in support of relevant national needs**, including protection of life and property, sustainable development and safeguarding the environment.

⁷ WMO Disaster Risk Reduction Programme factsheet, 2013:
http://library.wmo.int/pmb_ged/DRR%20Programme.pdf

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- The Declaration recognizes the importance of **timely and accurate weather and climate information to aviation** to ensure the highest standards for flight safety, reduction of the environmental impacts of aviation and increasing efficiency of all traffic operations.
- The Declaration is a **commitment by the PICTs' NMHSs role in the development of effective methods for the provision of services to aviation to meet International Civil Aviation Organization (ICAO) and WMO requirements including Quality Management System (QMS) implementation**, in line with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and competency standards.
- The Declaration includes calls for support from SPREP, the University of the South Pacific and the Secretariat of the Pacific Community and other regional organizations, WMO and development partners on the **speedy implementation of the Pacific Roadmap on Strengthening Climate Services** in the Pacific region.
- It also calls on the **exploring of possibilities for the establishment and operation of a Regional Climate Centre (RCC), a WMO Regional Training Center (RTC), the development of regional research capacity and the staging of future annual Pacific Island Climate Outlook Forum (PICOF)**.
- The Declaration **acknowledges the support of the Government of Fiji to its Meteorological Service** to perform its function as the WMO designated Regional Specialized Meteorological Centre for Tropical Cyclones and as the Meteorological Watch Office for the Nadi Flight Information Region.⁸

Scope, purpose and intent of the Bill

The main purpose of the Meteorological and Hydrological Services Bill 2016 is to provide for:

- the establishment and functions of the **Fiji Meteorological and Hydrological Service**; and
- to provide for the **efficient management, control, promotion and development of sound meteorological and hydrological services**, to contribute to the protection of life, property and economic development from meteorological and hydrological disasters.

The Bill also provides that the Service is '**solely responsible**' for the promotion, development, management, control or provision of meteorological or hydrological services in Fiji.

Summary of provisions

The Bill comprises of 3 Parts with 12 clauses, and one schedule.

⁸ Reliefweb, The First Pacific Ministerial Meeting on Meteorology adopts 'Nuku'alofa Ministerial Declaration', 25 July 2015: <http://reliefweb.int/report/world/first-pacific-ministerial-meeting-meteorology-adopts-nuku-alofa-ministerial-declaration>

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Clause 1 of the Bill provides for the short title and commencement of the new Act.

If passed by the Parliament of the Republic of Fiji, the new Act may be cited as the Meteorological and Hydrological Services Act 2016 and will come into force on the date or dates appointed by the minister responsible for meteorological and hydrological services by notice in the Gazette.

Clause 2 provides an interpretation section where terms and phrases used throughout the Bill are defined for the purpose of clarity. The definitions used in the Bill are outlined in **Annex A**.

Clause 3 establishes the Service. The headquarters of the Service will be based in Nadi with other stations based in strategic locations throughout Fiji.

Clause 4 outlines the functions of the Service. These are to:

- **observe and record meteorological and hydrological data** on a daily basis as required by WMO;
- **forecast weather** and the state of the atmosphere;
- **monitor and issue severe weather warnings** of gales, storms, tropical cyclones, hurricanes and other weather conditions likely to endanger life, property or economic development, including weather conditions likely to give rise to floods or bush fires;
- supply **meteorological and hydrological information for the purpose of national development;**
- **publish meteorological and hydrological reports** and bulletins; research, investigation or by any other means;
- maintain and develop meteorological and hydrological **observation networks;**
- provide meteorological and hydrological **advisory services;**
- co-operate with the authority administering the meteorological or hydrology **service of any other country;**
- **ensure due compliance** with conventions, protocols and any other relevant standards and recommended practices of WMO and the International Civil Aviation Organization;
- **monitor drought** and appropriately advise the National Drought Steering Committee;
- **monitor Fiji's climate**, including climate variability and change;

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- **aid ships in navigation** by the provision of routine marine forecasts and non-routine advisories during severe weather events;
- **support movements of civil aviation aircraft** within the Flight Information Region of states and selected aerodromes in the Southwest Pacific region through the provision of aviation forecasts and advisories;
- establish **core divisions** including—
 - the **National Weather Forecasting Centre** to forecast and issue routine and severe weather bulletins for Fiji;
 - the **Regional Meteorological Forecasting Centre** to forecast and issue routine and severe weather bulletins to such Pacific island countries listed in the Schedule⁹;
 - the **Hydrological Services Division** to collate, analyse and store hydrological data and forecast unexpected hydrological events, including flooding;
 - the **Climatological Services Division** to collate, analyse, store and forecast climate change phenomenon; and
 - the **Regional Specialised Meteorological Centre Nadi – Tropical Cyclone Centre (RSMC Nadi – TCC)** to provide weather forecasts, cyclone and other severe weather warnings and advisory information for WMO RA-V.

This clause also sets out that “a person must not promote, develop, manage, control or provide a meteorological or hydrological service to any other person”. The penalty for this offence will be:

- in the case of a natural person, a fine not exceeding \$1,000 or imprisonment for a term not exceeding 2 years or to both; or
- in the case of a body corporate or unincorporate, a fine not exceeding \$10,000.

Notwithstanding any other provision in any written law, 4(4) states that the Service **is solely responsible** for the promotion, development, management, control or provision of meteorological or hydrological services in Fiji.

Clause 5 provides for a Director of Meteorology to be appointed by the permanent secretary responsible for meteorological and hydrological services with the agreement of the Minister.

⁹ The schedule lists: Cook Islands, Kiribati, Niue, Tokelau, and Tuvalu.

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The Director is responsible for the Service and, subject to the directions of the Permanent Secretary, the general administration of this Act.

Clause 6 outlines the powers of the Director, which are to:

- establish meteorological and hydrological offices and observing stations;
- arrange with any department, authority or person to take and record meteorological and hydrological observations and transmit reports and information;
- arrange for the transmission and reception of meteorological and hydrological reports and information; or
- arrange for the training of staff involved in the provision of meteorological and hydrological services .

Clauses 7 and 8 deal with funding and audits of the Service. The use of funds by the Service will be audited on an annual basis by the Office of the Auditor-General. There will also be regular audits of the service products of the Service to ensure that international benchmarks are maintained.

Clause 9 deals with intellectual property rights. It states that :

- Section 26 of the Copyright Act 1999 applies for any data, meteorological or hydrological advisory service or computer programme generated by the Service in the fulfillment of the functions of the service.
- Any data, information, advisory service or hydrological or meteorological service of the Service provided to a person must not be provided or distributed by that person to another person without the written consent of the Director.
- Any data, information, advisory service or hydrological or meteorological service provided or distributed to another person with the written consent of the Director by way of publication, including radio, television or such other medium, must acknowledge the contribution of the Service.

Clause 10 empowers the Minister to prescribe fees and charges for forecasts, information, advisories or any other matter provided for under the new Act.



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Clause 11 deals with indemnification from liability. It states that the Service is not liable for any damage, loss or injury sustained or alleged to have been sustained by any person, business or investor as a result of reliance by the person, business or investor on the meteorological or hydrological information provided by the Service.

Clause 12 empowers the Minister to make regulations to give effect to the provisions of the new Act.

The **schedule** provides the list of countries to which the Regional Meteorological Forecasting Centre must forecast and issue routine and severe weather bulletins (in clause 4(o)(ii)).

International legislation on meteorological and hydrological services

Australia

The **Meteorology Act 1955** (<https://www.comlaw.gov.au/Details/C2008C00066>) establishes the statutory position of Director of Meteorology and the Bureau of Meteorology (BOM) as Australia's national weather, climate and water agency. It is an Executive Agency within the Sustainability, Environment, Water, Population and Communities Portfolio of the Australian Government.

The Director of Meteorology is the designated Meteorological Authority for Australia, in accordance with the requirements of the Chicago Convention and BOM is the aeronautical meteorological service provider.

Vanuatu

The **Vanuatu Meteorological Service Act 1989** (<http://www.meteo.gov.vu/VMSLinks/VMSAct/tabid/101/Default.aspx>) provides for the establishment of the Vanuatu Meteorological Service, including the Director and relating functions and powers.

Seychelles

The **Meteorology Act 2000** (<http://www.seylli.org/sc/legislation/consolidated-act/128a-0>) provides for the establishment of a Bureau of Meteorology, which shall be the national authority on weather, climate and flood warning.



Nigeria

The Nigeria Hydrological Services Agency (Establishment) Act, 2010

([http://www.lawnigeria.com/LawsoftheFederation/NIGERIA-HYDROLOGICAL-SERVICES-AGENCY-\(ESTABLISHMENT\)-ACT-2010.html](http://www.lawnigeria.com/LawsoftheFederation/NIGERIA-HYDROLOGICAL-SERVICES-AGENCY-(ESTABLISHMENT)-ACT-2010.html)) establishes the Nigeria Hydrological Services Agency and its Board.

Further information

- United Nations Framework Convention on Climate Change (UNFCCC):
http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf
- The 'Paris Agreement', November 2015, which is an agreement within the framework of the UNFCCC governing greenhouse gases emissions mitigation, adaptation and finance from 2020:
http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english.pdf
- World Meteorological Organization (WMO) presentation on meteorological, hydrological and climate services for disaster risk reduction (DRR) and climate adaptation:
http://unfccc.int/files/adaptation/application/pdf/wmo_maryam_golnaraghi.pdf
- Hyogo Framework for Action (HFA): <http://www.unisdr.org/we/coordinate/hfa>
- United Nations International Strategy for Disaster Reduction (UN-ISDR):
<http://www.unisdr.org/>
- Global Framework for Climate Services (GFCS):
http://www.wmo.int/pages/governance/ec/global-framework-for-climate-services_en.html

Disclaimer

This briefing was prepared to assist consideration of the Bill by Members of Parliament. It has no official status. Although every effort has been made to ensure accuracy, it should not be taken as a complete or authoritative guide to the Bill. Other sources should be consulted to determine the subsequent official status of the Bill.



Annex A- definitions used in the Bill

“**Director**” means the Director of Meteorology;

“**hydrological service**” means the collection, analysis and storage of hydrological data and forecasting of unexpected hydrological events including flooding and drought;

“**meteorological service**” means the collection, quality control, analysis of meteorological data and provision of meteorological forecasts for routine bulletins and unexpected meteorological events;

“**Minister**” means the minister responsible for meteorological and hydrological services;

“**Permanent Secretary**” means the permanent secretary responsible for meteorological and hydrological services;

“**person**” means a natural or legal person, including a company, association or body of persons whether corporate or unincorporate;

“**Service**” means the Fiji Meteorological and Hydrological Service established under section 3;

“**weather forecast**” means the application of science and technology to predict the state of the atmosphere for a given location;

“**WMO**” means the World Meteorological Organization; and

“**WMO RA-V**” means the World Meteorological Organization Regional Association Five, commonly referred to as the South-West Pacific region.