

NIS BLONG YUMI EVRIWAN

TOURISM IS EVERYBODY'S BUSINESS

Vanuatu Klaemet Infomesen Blong Redy, Adapt Mo Protekt (Van-KIRAP)

Tourism and Climate Information Services (CIS):
Policy Review, Action and Communication Plan





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The Pacific environment, sustaining our livelihoods and natural heritage in harmony with our cultures

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Acronyms

APCC	APEC Climate Centre
AWS	Automatic Weather Station
BoM	[Australian] Bureau of Meteorology
CDMS	Climate Data Management System
CIS	Climate Information Services
CLEWS	Climate Early Warning System
ClIDE	Climate Data for the Environment
ClIDesc	Climate Data for the Environment Services Application Client
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
FAO	Food and Agricultural Organization of the United Nations
GCF	Green Climate Fund
GEF-LDCF	Global Environment Facility-Least Developed Countries Fund
GFCS	Global Framework for Climate Services
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (Germany)
NAPA	[Vanuatu] National Adaptation Programme of Action
NCCAS	[Vanuatu] National Climate Change Adaptation Strategy
NIWA	National Institute of Water and Atmospheric Research (New Zealand)
NOAA	National Oceanographic and Atmospheric Administration (USA)
NSDP	National Sustainable Development Plan 2016-2030
PRSCS	Pacific Roadmap for Strengthened Climate Services
SNC	Republic of Vanuatu Second National Communication to the UNFCC (SNC)
SPREP	Secretariat of the Pacific Regional Environment Programme
TAP	[Vanuatu] Tourism Action Plan
UNDP	United Nations Development Programme

Van-KIRAP	Vanuatu Klaemet Infomesen blong redy, adapt mo protekt (formerly known as CISRDP: Climate Information Services for Resilient Development in Vanuatu Project)
VCU	Vanuatu Climate Update
VFCS	Vanuatu Framework for Climate Services
VMGD	Vanuatu Meteorology and Geohazards Department
VMGD SDP	VMGD Strategic Development Plan
VSTAP	Vanuatu Strategic Tourism Action Plan 2014—2018

Executive Summary

The Vanuatu Klaemet Infomesen blong Redy, Adapt mo Protekt (Van-KIRAP) Project is delivering climate science to support decision makers and communities in Vanuatu to prepare for and adapt to climate variability and change. Although Vanuatu has been identified as a carbon sink, it is significantly affected already by changing weather patterns and the start of slow-onset climate change, such as warming oceans.

Assessments of vulnerability to climate change undertaken over the last two decades have identified Vanuatu as highly exposed to climate variability and change, and at risk of impacts, with the country ranked 9th globally under the Climate Risk Index for 1998–2017¹. The Government of Vanuatu and development partners have developed policies and strategies to improve access to reliable climate information and to ensure it is used effectively to minimise impacts. Both these objectives are expensive and difficult to achieve, and so the integration of climate information into planning processes has been slow.

Van-KIRAP will support VGMD to provide five target sectors, including the Department of Tourism and its stakeholders, with climate information ready to be used in current and planned activities. A sector Coordinator in the Department of Tourism will co-ordinate the Tourism and Climate Action and Communication Plan to advance the mainstreaming of climate information services into Tourism policy, planning, design and delivery.

This document reviews existing information on climate variability and change as they affect Vanuatu's tourism sector and summarises current policies, strategies and frameworks. It provides the Tourism Climate Action Plan and Communication Plan developed through a collaboration between the Department of Tourism and the Vanuatu Meteorology and Geohazards Department (VMGD).

1. Background

The Vanuatu Meteorology and Geohazards Department (VMGD) with support from the Secretariat of the Pacific Regional Environment Programme (SPREP) and funded by the Green Climate Fund (GCF) is leading the Vanuatu Climate Information Services (CIS) Project, adapt mo protekt (Van-KIRAP) Project.

Van-KIRAP “will increase the ability of decision makers, development partners, communities and individuals across five target sectors (agriculture, fisheries, infrastructure, tourism and water) to plan for and respond to the long- and short-term impacts of climate change”.

The project will build capacity to harness and manage climate data, develop and deliver practical Climate Information Services (CIS) tools, and support the coordination and dissemination of tailored information. It will enhance CIS related information and technology infrastructure, improve the accessibility of CIS to sectors and communities, and support the application of CIS through real-time development processes.

CIS provides people and organisations with timely, tailored climate-related information and tools that can be used to minimise the impacts of climate variability and change on lives, livelihoods, natural resources, property and infrastructure. CIS supports better policy, planning, and decision-making across sectors, and at national and community scales for both long- and short-term timeframes.

The Project is responding to priorities identified in the Vanuatu Framework for Climate Services (2016) and the VMGD Strategic Development Plan 2014–2023, developed through a national consultation and design process.

Without timely and tailored information about the impacts of climate variability and change, development sectors, governments and communities risk significant losses and damage from extreme events such as drought, heat waves, cyclones and flooding, and from slow onset changes, such as rising temperatures, sea-level rise and ocean acidification.¹

In support of these objectives, Van-KIRAP commissioned the development of sector-specific Climate Information Services (CIS) Action and Communication Plans. This document reflects the requirements of the tourism sector as it relates to CIS in Vanuatu.

2. Climate in Vanuatu

Vanuatu is one of the world’s most vulnerable countries to natural disasters. It experiences droughts, floods, cyclones, volcanic eruptions, landslides, tsunamis and coastal inundation. Its location in the ‘warm pool’ of the South Pacific Convergence Zone (SPCZ) means its population is highly exposed to cyclone activity.

The landscape is characterised by six island groups (Provinces), of mostly mountainous volcanic origin; steep catchments lead to narrow coastal plains vulnerable to flooding. It has a tropical climate, moderated by southeast trade winds from May to October, and moderate rainfall from November to April, often affected by cyclones from December to April. Vanuatu has a population of approximately

¹ SPREP, RFT: Climate Information Services Policy Review, Sector-Action and Communications Plan Consultancy, 2018

278,000 that is concentrated along the coastal environment that plays a vital role in the subsistence and commercial life of ni-Vanuatu.

Increased human activity in this coastal environment is placing greater pressure on sensitive areas such as beaches, coral reefs, seagrass and mangroves. Atolls, low-lying islands, and low-lying coastal areas of Vanuatu are particularly vulnerable to climate change consequences. Some of these climate related risks include the following:

- by 2040, daily temperatures will increase from 1995 levels by 1.2°C;
- sea level rise will continue and accelerate, so risks of coastal inundation will be high when combined with storm surges and high seas;
- ocean acidification may degrade 80% of coral reefs within 20 years;
- extreme temperatures will reach higher levels and become more frequent;
- extreme weather events, including cyclones and storms, will increase in intensity but not necessarily in frequency; and
- dry periods will last longer and extreme rainfall will be more frequent and intense, so Vanuatu will be susceptible to intensified erosion and flooding.

The economy is based primarily on small-scale agriculture, which provides a living for about two-thirds of the population (and is a particular source of income and livelihood for women). Fishing, offshore financial services, and tourism (with nearly 197,000 visitors in 2008), are other mainstays of the economy. Most of the population does not have access to a reliable supply of potable water, though 94.5% has access to 'improved' water sources, and deforestation exists as a major environmental challenge.

The main climate hazards for Vanuatu include tropical cyclones with high winds and wave energy, heavy rainfall resulting in flooding, extended periods without rain causing drought, rising sea levels threatening coastal environments and property, as well as sea temperature increase and ocean acidification impacting highly valuable coastal ecosystems and resources (including coral reefs, seagrass and fisheries). Pacific region adaptation costs across all vulnerable sectors are estimated to be between US\$158 – 775 million per annum until 2050 to prepare for best to worst case future scenarios (with US\$447 million under business-as-usual) (ADB 2013).²

3. Climate Services in Vanuatu

3.1 Vanuatu Meteorology and Geohazards Department (VMGD)

VMGD's mandate is decreed by the Meteorology, Geological Hazards and Climate Change Act (2016) Act No.25 of 2016. The Act gives the VMGD wide ranging powers with respect to the execution of meteorological, geological and climate change related services.

² SPREP, GCF Funding Proposal: Climate Information Services for Resilient Development in Vanuatu, 2016

VMGD is headed by the Director of VMGD, who is accountable to the Director General of the Ministry of Climate Change, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management. The Director General is also co-chair of the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) which facilitates and endorses the development of new DRR and CC programs, projects, initiatives and activities, acts as a focal point for information-sharing and coordination on CC/DRR, and guides and coordinates the development of national climate finance processes.³

VMGD is responsible for the collection, quality control, processing, storage and retrieval of meteorological and climatological data so that it may be utilised by a wide variety of stakeholders. One of its primary responsibilities is the preparation and publication of seasonal climate forecasts and long-term climate change predictions. VMGD provides technical expertise to the National Disaster Management Office (NDMO) and various climate-sensitive sectors during ENSO events, and disseminates advisories on significant climate events such as El Niño and La Niña. It also pursues climate variability and climate change research in support of national development strategies. In addition, VMGD has an active focus on community engagement, which includes raising awareness of its climate information and services, and how these might be utilised by various end-users.⁴

National climate products from VMGD

1. Vanuatu Climate Update (VCU) – the VCU is produced monthly and is an outlook of expected climate for the upcoming three months. It includes information on seasonal rainfall, tropical cyclones and sea surface temperature. The VCU is disseminated via the VMGD website and email and comes in both English and Bislama.⁵
2. ENSO (El Niño–Southern Oscillation) update
3. Media release – El Niño, or La Niña, TC outlook
4. Tropical Cyclone Outlook – usually released early November
5. Klaod Nausara Animation – explains the impacts of El Niño and La Niña in Bislama
6. Brochures – La Niña and El Niño in English
7. ENSO handbook (DVD, brochures and a games toolkit)
8. Vanuatu Ocean Outlook – in trial
9. Early Alert Rainfall Watch – in trial
10. Rainfall data request – rainfall, temperature, etc.

³ World Meteorological Organization (WMO), Enhancing Early Warning Systems to build greater resilience to hydro and meteorological hazards in Pacific Small Island Developing States (SIDS): National consultation report, Jan 2018

⁴ SPREP, GCF Funding Proposal: Climate Information Services for Resilient Development in Vanuatu, 2016

⁵ SPREP, Vanuatu Framework for Climate Services, 2016

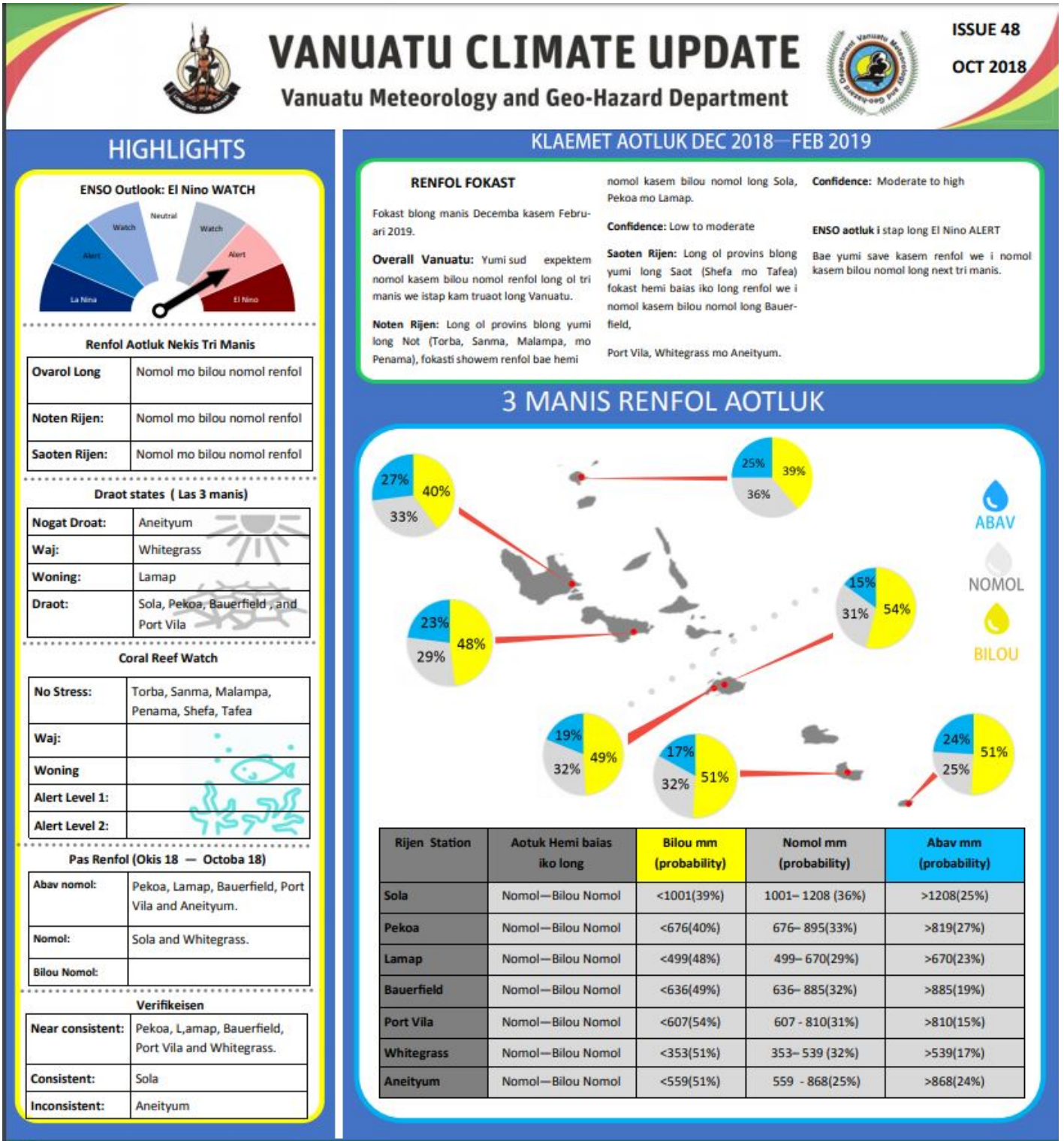


Figure 1: Vanuatu Climate Update (Source: VMGD)

National Climate stakeholder liaison by VMGD

1. VMGD Monthly climate briefings – Presentation on the climate summary and outlook information
2. VMGD 3-Monthly climate briefings – Presentation on the climate summary and outlook information
3. VMGD National Climate Outlook Forum
4. Media briefings – Radio talkback monthly.

Regional Climate products supported by partners

SPREP

1. Early Action Rainfall (EAR) Watch (request from VMGD)
2. Traditional Knowledge program (housed at VMGD) – survey form, database system
3. Climate Information Toolkit for the Pacific (<http://clikp.sprep.org/>) (supported by APCC)
4. Pacific Island Countries Advanced Seasonal Outlook (PICASO) – rainfall threshold predictions (<http://clikp.sprep.org/>) (supported by APCC)
5. SCOPIIC/Seasonal Forecasting (in partnership with BoM) – 3 month prediction (<https://www.pacificmet.net/products-and-services/climate-bulletin>)

Australian Bureau of Meteorology (BoM)

1. COSPPac Bulletin (<https://www.pacificmet.net/products-and-services/climate-bulletin>)
2. SCOPIIC/Seasonal Forecasting (in partnership with SPREP) – 3 month prediction (<https://www.pacificmet.net/products-and-services/climate-bulletin>)
3. Drought Monitoring Tool (allows to set thresholds for different water requirements)
4. ENSO Wrap-up (<http://www.bom.gov.au/climate/enso/>)
5. CliDE (climate data for the environment) (and CliDEsc which is supported by NIWA)
6. Sea-level information products (real time data monitoring and tide calendars)
7. Pacific Climate Change Data Portal (<http://www.bom.gov.au/climate/pccsp/>)
8. TC portal (<http://www.bom.gov.au/cyclone/history/tracks/>)
9. ACCESS-S dynamic model (in development) – outlook for season, month, fortnight and week
10. POAMA dynamic model – 3 to 9 month forecasts (SST+, hot spots, bleaching risk etc.)
11. ReefTemp Next Gen – 1 to 14 days SST, SST+, hot spots and bleaching risk maps)
12. Pacific Ocean Portal (now supported by SPC)

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

1. Climatology of Vanuatu: Past, present and future
2. Technical Report and non-technical country brochure
3. Regional Climate Consortium in Asia-Pacific (RCCAP) Portal
4. Websites and portals:
 - www.pacificclimatechangescience.org
 - www.pacificclimatefutures.net
 - www.pacificmet.net/rcc
 - www.rccap.org

Other Organisations

1. Tide Predictions Calendar (<http://www.bom.gov.au/pacific/projects/pslm/>) (SPC)
2. Pacific Ocean Portal (previously BoM)
3. RiskScape – Land-use planning tool that includes sea level, rainfall, elevation (NIWA)
4. Coral Reef Watch – 9-month SST+ and bleaching projections (NOAA & used by VMGD for Ocean Outlook) (<https://coralreefwatch.noaa.gov/satellite/baa.php>)
5. Bleaching Futures – downscaled coral bleaching return interval projections to 2100 for Vanuatu (NOAA/Symbioseas).

4. Tourism in Vanuatu

Vanuatu possesses a number of features that mark it out as an attractive destination for tourists. The country boasts a striking array of natural and cultural attractions – diverse cultural groups, active volcanoes, white and black sand beaches, pristine coral reefs, shipwreck dive-sites and French cuisine – which opens the country both to mainstream tourist markets as well as diverse niche markets and demographics.⁶

The growth in international tourism over the last decade has brought significant economic benefits to Vanuatu, with the sector estimated to have contributed VUV 13,753 million to GDP (17.6 %) and directly employed around 10,500 people (15.3% of total employment) in 2012; whilst the wider contribution of the sector to GDP was estimated to be VUV 39,812 million (50.7% of GDP) in 2012, and the total number of jobs supported by tourism 30,500, representing 44.9 percent of total employment.⁷

Vanuatu has also developed a booming cruise tourism sector. “In terms of cruise ship arrivals, cruise tourism shows an even sharper increase in the past decade than for arrivals by air: by 2006, arrivals by sea surpassed arrivals by air and this trend has continued (see Table 1). Visitors arriving by cruise ship essentially doubled in the four years between 2005 and 2009.”⁸

Table 1: Vanuatu tourism arrival figures by mode of transport 2001 – 2011

⁶ Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

⁷ FAO Sub-Regional Office for the Pacific Islands, *Linking farmers to markets: Improving opportunities for locally produced food on domestic and tourist markets in Vanuatu*, 2014

⁸ Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

Year	Tourist Arrivals (Air)	Tourist Arrivals (Cruise Ships)
2001	53 300	52 758
2002	49 463	45 832
2003	50 430	51 995
2004	60 611	30 961
2005	65 910	61 414
2006	70 250	85 922
2007	81 345	85 737
2008	90 654	106 138
2009	100 652	124 818
2010	97 180	140 468
2011	93 960	124 818

Source: Vanuatu National Statistics Office website (2012).

The annual tourist arrival growth rate of 7.86% between 1999 and 2008, is the second highest in the South Pacific region. Tourism is now more important for the Vanuatu economy than for any other country in the region, with the WTTC noting that Vanuatu ranks 8th globally for contribution of tourism to the national economy (Figure 2).⁹

Travel & Tourism's Direct Contribution to GDP	
	2011 % share
2 Maldives	30.80
4 Seychelles	22.99
8 Vanuatu	19.36
12 Mauritius	14.41
20 Fiji	9.99
World Average	5.12
54 Kiribati	5.07
76 New Zealand	3.82
78 Tonga	3.75
80 Solomon Islands	3.69
90 Australia	3.30

Figure 2: Travel and Tourism's Direct Contribution to GDP (Source: Scheyvens & Russell 2013).

⁹ Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

Australia dominates arrivals to Vanuatu accounting for 66% of the market, followed by New Caledonia (13%), New Zealand (9%), Europe (5%) and then North America (2%). Vanuatu has quite a high level of repeat visitation, an indicator of visitor satisfaction. According to the 2004 Vanuatu Visitor Survey, of those who come on holiday, approximately 29% are repeat visitors. Local residents also travel considerably around the archipelago for a variety of purposes including visiting friends and relatives, business and holidays. The most recent estimate is that domestic tourists number around 67,250, or 22% of the overall market.¹⁰

If tourism visitation continues at a moderate growth scenario, arrivals may exceed 500,000 arrivals a year by 2018. This could have potential impacts on: tourism governance, marketing, infrastructure and transportation, investment, product development and standards, and very significantly, human resource development.¹¹

The benefits accruing from the tourism industry continue to be eroded by high dollar “leakage” rates as a result of heavy reliance on imported goods and services and repatriation of profits. Furthermore, the foreign domination of parts of the sector and lack of backward linkages has, to some extent, constrained opportunities for income generation and job creation particularly in rural areas.¹²

The tourism industry in Vanuatu has been successful in generating foreign investment. However, development has been uneven, partly because of the significant challenge posed by the geographic dispersion of the 83 island archipelago with 278,000 residents and over 120 traditional languages. Tourism has been concentrated around the main island, Efate, and benefits have not reached many other islands. The geographical spread of small islands and the country’s small population prevent greater integration into the global economy. Increasing dependence on tourism as a viable economic growth strategy has occurred in parallel with declines in traditional export sectors.¹³

Furthermore, the increasing dislocation of ni-Vanuatu from their land has generated serious social tensions, and the uncertainty surrounding land issues has both damaged investor confidence, as well as generated conflict between locals and expatriate residents that could potentially spill over into the tourism industry.¹⁴

4.1 Tourism services in Vanuatu

4.1.1 Tourism institutional arrangements relating to climate

The Department of Tourism is the key agency for VMGD to work with. An MOU between the two Departments with SOPs and SLAs is desirable. There is also a Tourism Association that has provincial and area council links.¹⁵

10 Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

11 Government of Vanuatu, 2014; *Vanuatu Tourism Action Plan- 2014-2018*

12 Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

13 Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

14 Regina Scheyvens and Matt Russell, *Sharing the Riches of Tourism in Vanuatu*, 2013

15 SPREP, *Vanuatu Framework for Climate Services*, 2016.

4.1.2 Current use of climate information from VMGD

The Department of Tourism specifically requests Volcanic Alert information from VMGD, and they also disseminate information that they receive from VMGD (e.g. Vanuatu Climate Update).

Provincial Tourism Associations have a Provincial Officer who regularly receives climate information and weather and climate warnings and passes these on to tourism operators.

Provincial Officers hold quarterly meetings, usually in Port Vila. There is an opportunity for VMGD to better engage with the tourism sector by attending these meetings.¹⁶

¹⁶ SPREP, Vanuatu Framework for Climate Services, 2016.3ception Workshop – January 2018r Ac Change Adaptation Strategy 2012-2022, 2011astructural damage and the limitation of transpo

Table 2: Existing use of climate information by tourism operators

Natural disasters	Tools used	Responsible
Tropical cyclone	Cyclone Tracking map, Cyclone Alert information, NDMO Cluster information, Telecommunication, Local TV Network & Traditional Knowledge (TK)	VMGD, NDMO, NDMO cluster groups & Provincial Emergency Operation Centres (PEOC)
El Niño	El Niño bulletin, Cluster information, Telecommunication, Local TV network & TK	VMGD, NDMO, NDMO cluster groups & PEOC
La Niña	La Niña bulletin, Cluster information, Telecommunication, Local TV network & TK	VMGD, NDMO, NDMO cluster groups & PEOC
Sea level rise	Traditional knowledge	Communities
Coral bleaching	Traditional knowledge	Communities
Sea temperature rise	Traditional knowledge	Communities
Flooding	Flooding bulletin, Cluster information, Telecommunication, Local TV Network & TK	VMGD, NDMO, NDMO cluster groups & PEOC

4.2 Main climate impacts on tourism

Climate change is affecting the tourism sector now and will continue to impact tourism around the world at an increasing rate. Climate change will affect the natural attractions of Vanuatu through coral bleaching, sea level rise and coastal inundation. The main climate change issues and vulnerabilities identified by the Republic of Vanuatu as affecting the various provinces of Vanuatu are: 1) Coastal erosion; 2) Tropical Cyclones (TC); 3) Flooding; 4) Salt water intrusion; 5) Scarcity of water resources; 6) El Niño events resulting in drought; 7) Landslides associated with prolonged and intense rainfall; 8) Declining crop production; 9) Changes in temperatures; and 10) Distribution of mosquitos.¹⁷

During El Niño periods, streams and rivers can run low or dry up completely where tourism activities take place (e.g. swimming, waterfalls, rafting etc). Drought also impacts locally-grown vegetables which affects supply to hotels. Impacts tend to be more severe in the outer islands where there is a reliance on natural water sources. Periods of more rainfall-than-normal (e.g. during La Niña periods) can disrupt outdoor tourist activities but are generally not too much of an issue. Major storms, particularly tropical cyclones (such as TC Pam), are a big issue for tourism in Vanuatu and can result in a significant downturn in tourist numbers for many months and even years afterwards.¹⁸

In addition, “adverse environmental impacts of development have occurred in some locations. This also applies to tourism developments, particularly resorts and hotel developments in sensitive coastal areas on Efate. Lack of monitoring capacity and enforcing environmental standards is an issue.”¹⁹

¹⁷ http://epubs.surrey.ac.uk/534351/3/Wong_Climate_Change.pdf

¹⁸ SPREP, Vanuatu Framework for Climate Services, 2016

¹⁹ Government of Vanuatu, Vanuatu Strategic Tourism Action Plan 2014-2018, 2013

5. Stakeholder Consultation Relating to Climate and Water

5.1 VMGD consultation

The VMGD regularly interact with the tourism sector through their 3 monthly climate stakeholder engagement and their annual national climate outlook forum (NCOF).

5.2 Vanuatu Coastal Adaptation Project (VCAP)⁶

The Vanuatu Coastal Adaptation Project (VCAP) is a UNDP supported, GEF-LDCF led project which is working to build resilience and improve the quality of life in targeted vulnerable areas in the coastal zone through increased food production, improved infrastructure and sustained livelihoods.

5.3 Van-KIRAP sector consultation

From January to December 2018, several workshops and consultations were held with the Van-KIRAP team and the Tourism sector in which recommendations, actions and communication plans were iterated. The summary section below articulates the outcomes.

5.3.1 Van-KIRAP Inception Workshop – January 2018⁷

The Technical Inception Workshop for Van-KIRAP, funded by the Green Climate Fund (GCF) was held on 22 February 2018 at the Holiday Inn in Port Vila. “Its purpose was to officially launch and commence the project, refresh awareness of the stakeholders about the project, and review project activities, and implementation arrangements.”⁸

One of the outcomes of the workshop was to identify the key project priorities for each sector. The priorities identified by the Tourism sector are listed below:

- Capacity building for government officials and stakeholders at national, provincial and community level, based on sector specific action plans, using the existing structure.
- Conduct awareness activities for the main stakeholders at the national, provincial and community level based on the existing structure.
- Review tourism legislation, strategic plans, action plans, provincial plans, and job descriptions for specific staff within VMGD who will carry out CIS programs/activities.
- Install appropriate equipment at the main tourist centres to enable the collection of data at provincial and community level.
- Deliver climate information through the existing telecommunication and local TV network in a timely manner.
- Review and re-develop a guide for the construction of local bungalows using local materials.
- Develop specific information packages about climate change and major climate events and their impacts, and about climate services information for the tourism sector.
- Promote traditional knowledge of climate as a product for the tourism industry, to be used by local tourist operators.

⁶ GEF, Vanuatu Coastal Adaptation Project: Climate Information and Services, Summary Sector tables, 2017

⁷ SPREP, Inception Report: Climate Information Services for Resilient Development Planning in Vanuatu (Van-CIS-RDP), 2018

⁸ SPREP, Inception Report: Climate Information Services for Resilient Development Planning in Vanuatu (Van-CIS-RDP), 2018

- Climate services should be linked to support the eco-tourism efforts in Vanuatu.
- Support the implementation of agro-tourism strategies with the provision of climate services. The sector coordinator should/will assist to develop specific activities that the tourism and agriculture sector can work on together under the project.

5.3.2 Van-KIRAP Sector Workshops – October 2018

The Vanuatu Meteorological & Geohazard Department, with funding and support from the GCF and the Secretariat of the Pacific Regional Environment Programme (SPREP), organised a Sector Consultation Workshop for Developing Climate Action and Communication Plans Forum from 23 October to 2 November 2018.⁹

The workshop was structured in three parts: the first part was held in Port Vila and the Project Delivery Partners, sectors and other relevant science organisations attended. Sector representatives were supported to draft action and communication plans relating to their use of climate information. The second part of the workshop was held in Santo where provincial sector representatives were asked to review the draft sector action and communication plans written by their Port Vila colleagues. The last part of the workshop was held in Port Vila, where senior sector representatives were asked to review and finalise their draft action and communication plans.

5.3.3 Van-KIRAP Sector Workshops – December 2018

From 3rd to 7th December, Pacific Science Solutions and SPREP conducted follow-up consultations with representatives from four sectors (agriculture, tourism, fisheries and water) to discuss their draft sector plans and seek their respective Directors' preliminary endorsements. The draft plans incorporated the outcomes of the consultation workshops (Section 5.3.2). Infrastructure noted that they were satisfied with their draft plan therefore no meetings were scheduled with Public Works Department (PWD). Further changes and inputs were provided during the follow-up meetings which have been incorporated in this document.

6. Summary of Outcomes for Tourism

The following information comes directly from the policy review and the consultations with VMGD and the Department of Tourism. The tables outline the proposed recommendations for the tourism sector as it relates to climate services. The proposed actions should be undertaken in conjunction with a communication plan to enable effective communication between the tourism sector, its primary stakeholders and VMGD.

6.1 Recommendations

The recommendations from the VFCS and priorities identified at the Van-KIRAP Inception workshop were reviewed, updated and prioritised by officers of the Tourism sector at the Van-KIRAP Sector Consultation workshops. Participants added information and clarity to the recommendations.

⁹ SPREP, Van-KIRAP sector consultation workshop report, 2018

Table 3: The final list of Recommendations

RANK	LEAD GFCS PILLAR	RECOMMENDATION
1	User Interface	Raise awareness of the key stakeholders at the National, Provincial and sub-association level based on the existing structure
2	Capacity Building	Conduct training for government officials and stakeholders at national, provincial and sub-association level based on sector specific action plans using existing structure
3	Climate Services Information System	Incorporate Climate Information Services (CIS) into tourism plans and policies
4	User Interface	Develop Traditional and Cultural Calendars for each of the Provinces
5	Climate Services Information System	Disseminate tailored climate information
6	Climate Services Information System	Investigate video ENSO updates
8	Climate Services Information System	Establish Climate Early Warning System (CLEWS) dashboard
9	Observations and Monitoring	Enable the main tourist centres to collect climate data (sunshine, rainfall, temperature) at Provincial and community level.
10	User Interface	Deliver climate information through the existing telecommunication and local TV network in a timely manner.

6.2 Alignment of recommendations with National and Regional policies and plans

A review of the top six national and regional policies and plans associated with Tourism and Climate were assessed for alignment with the recommendations. The documents reviewed were:

The Strategic Tourism Action Plan (VSTAP) 2014-2018, National Sustainable Development Plan (NSDP) 2016-2030, Vanuatu Framework for Climate Services (VFCS), Republic of Vanuatu Second National Communication to the UNFCCC (SNC), Vanuatu Meteorology and Geohazards Department Strategic Development Plan (VMGD SDP) 2014—2023; and the Pacific Roadmap for Strengthened Climate Services (PRSCS).

Table 4: Recommendations aligned with National and Regional Policies and Plans

RANK	RECOMMENDATION	POLICY & PLAN ALIGNMENT
1	Raise awareness of the key stakeholders at the National, Provincial and sub-association level based on the existing structure	VSTAP: Objective 6: Human Resource Development addresses Recommendation 1 by stating the need for “support for the mentoring of existing and new tourism clients who undertake national, provincial and community-based training, education and awareness programmes”
		NSDP: ENV 3.1 Institutionalise climate change and disaster risk governance, and build institutional capacity and awareness (pg20) ENV 5.5 Increase awareness on biodiversity conservation and environmental protection issues across government and publicly (pg21)
		VFCS: 5. What are the climate-related functions of VMGD? VMGD has an active focus on community engagement, which includes raising awareness of its climate information and services, and how these may be utilised by various end-users. (pg15)
		SNC: The various obstacles include insufficient institutional and financial resources; lack of research data; information management; inadequate human resources and infrastructure. More needs to be done to build awareness both within the Government and amongst the stakeholders about Vanuatu’s vulnerability to climate change and efforts to reduce GHG. (pg13) The capacity building and public awareness program and activities need to be focused and relevant in the local context. Efforts should be focussed on making climate-change information available to a wider audience. (pg119)
		PRSCS: Establish a consultative process for tourism stakeholders [companies, ministries, development partners] and the NMHS to identify and implement required climate services for the tourism sector.
2	Conduct training for government officials and stakeholders at national, provincial and sub-association level based on sector specific action plans using existing structure	VSTAP: Objective 6 also acknowledges Recommendation 2 by calling for the “undertaking and implementation of a Tourism Human Resource Implementation Plan that addresses training needs, current providers, vocational and educational gaps
		NSDP: SOC2.4 Increase higher education opportunities, including technical and vocational training and skills
		VFCS: 11.1 Training should include a component on understanding what influences the climate of Vanuatu, for example ENSO. Such training should be at least every two years (plus regular short refresher courses) and could be done at the same time as training for provisional area secretaries, provincial government sector representatives. (pg39)
		SNC: 5.4 Capacity Building, Education & Training: While GoV is making various efforts and prioritising both climate change mitigation and adaptation as one of the core development issues, it has been observed that same level of awareness and commitment is not shared by many in-country organisations and individuals. The majority of the population including many policy and decision makers within government, private and NGOs in Vanuatu have minimal understanding of the various aspects of global climate change, its implications and ramifications at local and national level. (pg118)
		PRSCS: Include representatives from tourism agencies in national climate outlook forums and regular meetings
3	Incorporate Climate Information Services (CIS) into tourism plans and policies	VSTAP: Recommendation 3 is referred to in Objective 1: Governance, which requires the “development and implementation of a Sustainable Tourism Development Policy that includes environmental management, climate change, eco-tourism cultural tourism and managing social impacts”
		VMGD SDP: Key Outcome 5 under the Administration and Corporate Services Division requires that "communication systems [be] developed for key management information outputs for Ministry requirements; and VMGD staff awareness"
		VFCS: Recommendation 3 of the VFCS operates in the context of the national government and states that "all government strategic policies should be reviewed and if necessary revised to include strategies and actions linked to the provision of climate information from VMGD"
4	Develop Traditional and Cultural Calendars for each of the Provinces	VSTAP: Recommendation 4 is referred to in Objective 1: Governance, which requires the “development and implementation of a Sustainable Tourism Development Policy that includes environmental management, climate change, eco-tourism cultural tourism and managing social impacts”
		NSDP: SOC1.2 Preserve and enhance cultural and traditional knowledge, including appropriate medicines, natural remedies and healing practices. SOC1.4 Strengthen links between traditional and formal governance systems (pg16) ENV 5.3 Support local conservation and protection of endangered, threatened or endemic species and ecosystems including through traditional knowledge and practices (pg21)
		VFCS: Tourism: Development of provincial Traditional Knowledge (TK) crop/plant calendars to include tourism activities; new research on environmental impacts of climate and tourism operations. (pg49)

RANK	RECOMMENDATION	POLICY & PLAN ALIGNMENT
5	Disseminate tailored climate information	VSTAP: The dissemination of tailored climate information (Recommendation 5) is addressed as it is stated that “there are several climate change projects...[that] target adaptation and disaster risk reduction, and are coordinated by the National Advisory Board on Climate Change and Disaster Risk Reduction, which is within the VMGD”
		VMGD SDP: KO 5 under the Administration and Corporate Services Division requires that "communication systems [be] developed for key management information outputs for Ministry requirements"
		VFCS: Recommendation 4 states that "provincial government should work with the VMGD to tailor climate information so that it best meets their needs and directly informs their action and response plans".
		PRSCS: Identify through workshops and other consultative processes the climate and ocean services that will address the specific needs of Pacific tourism sector
6	Investigate video ENSO updates	VMGD SDP: SO5.1 Information and communications products and services from the Climate Division are routinely produced according to VMGD policy guidelines and quality management standards (pg38)
		VFCS: 8.1 What products are being produced? Further climate information produced includes an ENSO update, brochures, posters and fact sheets. . This directive outlines the response process to ENSO events, and includes the monitoring and subsequent dissemination of ENSO information to networks, clients and communities as well as collection of observed impacts during ENSO events. (pg11)
7	Fact Sheets on El Niño and La Niña impacts on tourism	VMGD SDP: KO5 Drought information, forecasts, services and warning are developed and routinely improved. SO5.1 Information and communications products and services from the Climate Division are routinely produced according to VMGD policy guidelines and quality management standards (pg38) KO 6 Communication and outreach programmes for VMGD and its portfolio developed and delivered (pg32)
		VFCS: 8.1 What products are being produced? Further climate information produced includes an ENSO update, brochures, posters and fact sheets. VMGD participate in a radio talkback show once a month to discuss climate, weather and tropical cyclones. Media releases and television segments are also produced as required, usually prior to significant climate events. (pg 25). This directive outlines the response process to ENSO events, and includes the monitoring and subsequent dissemination of ENSO information to networks, clients and communities as well as collection of observed impacts during ENSO events. (pg11)
8	Establish Climate Early Warning System (CLEWS) dashboard	VSTAP: VSTAP mentions Recommendation 8 by recognising that “lack of monitoring capacity and enforcing environmental standards is an issue” in the context of “adverse environmental impacts of development in Vanuatu [that]...also [apply] to tourism developments, particularly resorts and hotel developments in sensitive coastal areas on Efate”
		NSDP: ENV 3.2. Improve monitoring and early warning systems
		VMGD SDP: KO 4 under the Climate Division calls for "monthly to seasonal climate information, forecasts, services and warnings [to be] continually developed and routinely improved".
		VFCS: RECOMMENDATION 9: As part of an operational Climate Early Warning System (CLEWS), tailored climate bulletins issued to specific end users and mobile phone apps should be developed. (pg32)
9	Enable the main tourist centres to collect climate data (sunshine, rainfall, temperature) at Provincial and community level.	PRSCS: Establish a climate early warning system for tourism.
		VSTAP: Recommendation 9 is partially addressed in Objective 1, which calls for "strengthening the role of the Provincial Tourism Councils".
		NSDP: ECO 3.1 Promote broad-based growth by strengthening linkages between tourism, infrastructure, agriculture and industry in rural areas and diversify the rural economy. ECO 3.2 Deepen the integration of the tourism sector into the rural economy to spread opportunities to rural communities (pg23)
		VMGD SDP: KO 7 Climate division is provided access to relevant external datasets. SO 7.1 VMGD has agreements and partnerships with other government agencies in place to enable the Climate Division with access to external holdings of relevant climate and hydrology data (pg38)
10	Deliver climate information through the existing telecommunication and local TV network in a timely manner.	NSDP: SOC6.7 Guarantee the public's right to information(pg18). ECO 2.9 Increase use of and access to information and communications technologies, including on-line government services(pg23)
		VMGD SDP: KO 6 Communication and outreach programmes for VMGD and its portfolio developed and delivered (pg32)
		VFCS: 8.2 How is climate information currently being used? The media (e.g. FM 107) are active users of climate information, and publicise weather forecasts, warnings and climate outlook information regularly. During the NSCCS it was noted that individual farmers and mariners typically make an effort to listen to weather and climate information over the radio, but it is not known if they are applying this climate information to their activities. (pg. 26)

6.3 Documents relating to climate and tourism

6.3.1 Provincial Tourism Plans

The provinces of Malampa, Penama, Sanma and Shefa have “been selected by the Department of Tourism (DoT) to pilot a new approach to the development of tourism via preparation of a ‘Provincial Tourism Plan’. The plan has been developed to ‘complement’ the Priorities and Actions Agenda (2006) the Vanuatu National Development Master Plan (2003) or the more recent Vanuatu Tourism Action Program (2008) and to work as an extension of the existing Provincial REDI programme.

The Provincial Tourism Plans make little to no mention of climate variability or climate change. The Malampa, Penama and Shefa tourism situational analyses (SWOT) identify rising sea levels, caused by climate change, as a threat towards their tourism sector. The Sanma Provincial Tourism Plan makes no mention of climate change or climate variability as being an issue for consideration with regards to their tourism sector.

6.3.2 Climate Change Adaptation in the Pacific Island Tourism Sector: Analysing the Policy Environment in Vanuatu

The Climate Change Adaptation in the Pacific Island Tourism Sector document examines the policy environment in Vanuatu for “its conduciveness to climate change adaptation. The objectives of the policy analysis were: 1) to create an inventory of policies pertinent to PIC tourism climate adaptation; 2) to examine the policy-making environment; 3) to examine the policy-making mechanisms and implementation; 4) to identify policy gaps; and to provide input into the evaluation of adaptive capacity of the tourism sector.”²⁴

The document found that there were no tourism policies that explicitly dealt with climate change adaptation. However, a number of generic climate change policies did address the tourism sector’s adaptation to climate change. Furthermore, a number of other sector policies and tourism plans may assist the tourism sector in addressing climate change.²⁵

6.3.3 Vanuatu Strategic Tourism Action Plan 2014—2018

This Vanuatu Strategic Tourism Action Plan 2014—2018 (VSTAP) has been developed by and for the tourism stakeholders of Vanuatu. The aim is to increase investment, benefit more ni-Vanuatu and to spread tourism benefits throughout the country.²⁶

According to the VSTAP there are several climate change projects supported by development partners in Vanuatu. These projects target adaptation and disaster risk reduction and are coordinated by the National Advisory Board on Climate Change and Disaster Risk Reduction, which is within the VMGD.

6.3.4 Vanuatu Tourism Action Program (TAP)

The TAP “has been developed in response to a requirement to establish a more coordinated approach to the planning and development of the tourism sector in the country... The major theme for the TAP

24 http://epubs.surrey.ac.uk/534351/3/Wong_Climate_Change.pdf

25 http://epubs.surrey.ac.uk/534351/3/Wong_Climate_Change.pdf

26 Government of Vanuatu, Vanuatu Sustainable Tourism Action Plan 2014-2018, 2013

which provided the basis for the consultation was *'Building Tourism Today, For Tomorrow'*, which reflected the importance of tourism in the development of Vanuatu and the requirement for a more coordinated and programmatic approach to tourism planning and development."²⁷

The TAP makes only one reference to climate, in which it identifies global warming and climate change impacts as an external influence that will impact upon the tourism sector.

6.3.5 Vanuatu National Climate Change Adaptation Strategy (NCCAS)

The National Climate Change Adaptation Strategy (NCCAS) is designed to guide the implementation of efficient and effective activities to manage climate change impacts on the land-based resource sectors in Vanuatu. The NCCAS sets out a systematic, long-term approach for embedding climate change adaptation into core sectoral functional activities. Sector specific action plans detail substantive interventions to address adaptation needs and specify the allocation of responsibilities and definitive implementation timelines.²⁸

The NCCAS notes that based on the IPCC predictions: there will be reduced attractions for coastal tourism: sea-level rise and increased sea water temperatures are projected to accelerate beach erosion, cause degradation of natural coastal defences such as mangroves and coral reefs and result in the loss of cultural heritage on coasts affected by inundation and flooding. It proposes ecotourism as a driving force for environmental protection and biodiversity conservation and outlines in detail the impact on sectors and specific adaptation strategies against several disaster types (i.e. droughts, floods, heat stress etc).

6.3.6 Vanuatu Meteorology and Geohazards Department Strategic Development Plan (VMGD SDP) 2014—2023

The VMGD SDP "sets the strategic context and direction for strengthening the capacity of the VMGD, with emphasis on developing and supporting "...state of the art technical services..." collectively through enhanced capacity, coordination and partnerships. The Strategy focuses on the following priorities (amongst others):

- Improved weather, climate and climate change services (including across multiple hazards, stakeholders and time frames)
- Improved observations and associated monitoring networks, and
- Enhanced capacity for both administrative/project management and research and development, outreach and communications.

The Strategy summarises the current situation (capacity, activities, products and services) for the relevant Divisions of the VMGD including Weather Forecasting and Services, Climate, Climate Change and Disaster Risk Reduction, Observations, and Information Communication Technology and Engineering.²⁹

²⁷ Government of Vanuatu, Vanuatu Tourism Action Plan (VTAP), 2008

²⁸ Government of the Republic of Vanuatu, National Climate Change Adaptation Strategy 2012-2022, 2011

²⁹ SPREP, GCF Funding Proposal: Climate Information Services for Resilient Development in Vanuatu, 2016

The VMGD SDP under the Climate Division section has specific Key Outcomes (KO) that are relevant for tourism, relating to improved quality of environmental datasets, monthly to seasonal forecasts, drought information, VMGD accessing external datasets and climate services developing research.

6.3.7 Vanuatu Framework for Climate Services (VFCS)

“The VFCS is principally guided by the five pillars of the Global Framework for Climate Services, the VMGD Strategic Development Plan and by various national level stakeholder consultations. The stated goal of the VFCS is to “...ensure climate services for Vanuatu are of world-class standard, sustainable, are reaching all end-users, and are effectively helping people manage and adapt to climate variability and change in Vanuatu” (SPREP 2016). This Framework identifies the most pressing needs as:

- The development, through key stakeholder consultation, of tailored climate products (including training on their use), and
- Improvements to and formalisation of mechanisms for communicating and disseminating climate information.

The Framework makes 18 specific recommendations, based around the five pillars and associated structure of the GFCS, as priority actions to be implemented as part of a Vanuatu Climate Services Roadmap designed to strengthen climate information development, provision, understanding and use throughout Vanuatu. The Framework, in combination with priorities of the VMGD Strategic Development Plan variously refers to aspects of:

- Capacity of both providers and receivers (source and Next/End-Users) of climate services
- The interface platforms and networks used for dissemination of climate information and its value
- The kind of products that can be produced and tailored to user needs
- The research gaps that still require filling, and
- The requirement for high quality climate observations fundamental to all services.³⁰

The VFCS identifies the most pressing needs as tailored climate products and formalisation of mechanisms for communicating and disseminating climate information. It makes three recommendations as regards the tourism sector. Firstly, that the top priority for the Department of Tourism is to work with VMGD to develop Traditional Calendars for each of the provinces which would enable tourism operators to really utilise attractions. Secondly that research on the environmental impacts of tourism operations is needed, which will lead to improved standards and lastly that there is an interest in receiving tailored climate bulletins that show the status and forecasts of temperature, rainfall, coral bleaching and SST indicators.

³⁰ SPREP, Vanuatu Framework for Climate Services, 2016

6.3.8 Vanuatu National Adaptation Programme of Action (NAPA)

The NAPA “outlines the most urgent and immediate needs with respect to climate change and identified several priority sectors (Agriculture/Food Security, Coastal Zones and Marine Ecosystems, Water Resources and Public Health) for action.”³¹

The NAPA had one adaptation strategy related to Tourism—sustainable tourism, identified for development of a project concept. Its goal was enhanced adaptation to climate change in the tourism sector for Vanuatu.

Three objectives were proposed:

- Objective 1: Strengthen the capacity of the tourism sector and other key players for adaptation policy, planning and implementation.
- Objective 2: Demonstrate how climate change adaptation by the tourism sector contributes to national sustainable development, including through sound management of the environment and natural resources.
- Objective 3: Contribute to wider national and international understanding of climate change adaptation policies and measures by documenting and disseminating the success factors, lessons learned and barriers, as well as good practice guidelines for replication and upscaling.³²

6.3.9 Republic of Vanuatu Second National Communication to the UNFCC (SNC)

The Second National Communication (SNC) highlights Vanuatu’s greenhouse gas (GHG) inventory as a baseline for the country to measure its progress towards reduction of greenhouse gases. The inventory for the base year 2000 and subsequent years 2005 and 2010 indicates that Vanuatu is a net sink for CO₂ emissions.

Vanuatu’s SNC also generates and updates information about how projected climate change, climate variability and extreme events may affect Vanuatu’s economic and social sectors as part of its vulnerability and adaptation assessment. Climate change and changing weather patterns are already having a negative impact on all the priority sectors – namely agricultural production, fisheries, human health, tourism and well-being. There is the indication that climatic change has consequences for decreasing national income and increasing key social and infrastructure costs.³³

The SNC notes that Tourism (cruise-ships, hotels) is one of the sectors most vulnerable to climate change given that the ecosystems on which most tourism activity is based will be impacted by climate change and that much of the attractive features for tourists are situated in the coastal sector. It also notes that apart from the impacts on tourism supply there will also be issues with tourism demand,

31 World Meteorological Organization (WMO), Enhancing Early Warning Systems to build greater resilience to hydro and meteorological hazards in Pacific Small Island Developing States (SIDS): National consultation report, Jan 2018

32 Government of the Republic of Vanuatu, National Adaptation Programme for Action (NAPA), 2007

33 World Meteorological Organization (WMO), Enhancing Early Warning Systems to build greater resilience to hydro and meteorological hazards in Pacific Small Island Developing States (SIDS): National consultation report, Jan 2018

as carbon pricing increases travel costs, especially for long haul travel, and ethical concerns arise regarding air transport.³⁴

6.3.10 Republic of Vanuatu National Climate Change and DRR Policy 2016—2030

The Republic of Vanuatu National Climate Change and Disaster Risk Reduction Policy “provides the overall vision, principles, strategic goals, priorities and strategies for climate change and disaster risk reduction. Vanuatu’s strategic goal for climate change and disaster risk reduction is resilient development.

Strategic priorities are categorised under systems and themes. Systems include governance, finance, and knowledge and information. Strategic priorities that are categorised as themes include climate change adaptation and disaster risk reduction, low carbon development, and response and recovery.³⁵

The document does not discuss tourism in detail, but it does note under low carbon development that sustainable tourism and other green development activities can bring substantially higher social, economic and environmental benefit and resilience than high carbon developments.

6.3.11 National Sustainable Development Plan (SDP) 2016—2030

The National Sustainable Development Plan “charts the vision and overarching policy framework for achieving a stable, sustainable and prosperous Vanuatu within the next fifteen years. It sets out the national priorities and context for the implementation of the Sustainable Development goals over the same period.³⁶ Vanuatu’s development priorities are classed under the three pillars of society, environment and economy.

The SDP has, under its environmental pillar, several goals and policy objectives. Two of the environmental goals ENV3: Climate and Disaster Resilience; and ENV5: Ecosystems and biodiversity; have tourism related policy objectives. Under the Economy pillar, two goals ECO3: Strengthen rural communities and ECO4: Create jobs and business opportunities have tourism related policy objectives.

6.3.12 Pacific Roadmap for Strengthened Climate Services (PRSCS)

The Pacific Roadmap for Strengthened Climate Services (PRSCS) prioritises key actions identified for implanting the GFCS that are relevant to the Pacific. The Roadmap focuses on the needs of both climate service providers and the key sectors that rely on their information and advice to inform planning and decision-making. It provides a guiding framework for the development of national and regional climate services targeting the Pacific priority areas.³⁷ Pacific Island Countries and Territories have adopted the five priority areas of GFCS and added a further two priorities: tourism, and fisheries and aquaculture.

34 Government of the Republic of Vanuatu, Second national communication to the United Nations Framework Convention on Climate Change (UNFCCC), 2014

35 World Meteorological Organization, Enhancing Early Warning Systems to build greater resilience to hydro and meteorological hazards in Pacific Small Island Developing States (SIDS): National consultation report, Jan 2018

36 Government of the Republic of Vanuatu, Vanuatu 2030 The people’s plan: National sustainable development plan 2016 - 2030, 2015

37 SPREP, Pacific Roadmap for Strengthened Climate Services, 2017

The PRSCS provides a regional overview of the tourism sector. It notes that tourism is multifaceted and complex, as climate represents both a vital resource to be exploited and an important limiting factor that poses risks to be managed by the tourism industry and tourists alike. All tourism destinations and operators are climate-sensitive to a degree and climate is a key influence on travel planning and the travel experience³⁸. The section ends with some recommended actions which can be undertaken under the GFCS pillars to enhance Climate Information Services for tourism. Some relevant examples are listed below:

Table 5: Recommended Actions for Tourism sector in PRSCS

NUMBER	LEAD GFCS PILLAR	ACTION	NATIONAL ACTIVITY / REGIONAL ACTIVITY
1	User Interface	Establish a consultative process for tourism stakeholders [companies, ministries, development partners] and the NMHS to identify and implement required climate services for the tourism sector	Regional and National
2	User Interface	Include representatives from tourism agencies in national climate outlook forums and regular meetings.	National
3	Climate Services Information System	Establish a Climate EWS for tourism.	National
4	Capacity Building	Identify through workshops and other consultative processes the climate and ocean services that will address the specific needs of Pacific tourism sector.	Regional and National

6.3.13 Global Framework for Climate Services (GFCS)

The Global Framework for Climate Services (GFCS), formed as the principal outcome of the 2009 World Climate Conference 3. The GFCS provides a worldwide mechanism for coordinated actions to enhance the quality, quantity and application of climate services. The five priority areas under GFCS are: Agriculture and Food Security; Disaster Risk Reduction; Energy; Health; and Water. The Framework is built through user–provider partnerships that include all stakeholders.

The GFCS is built upon the following five components, or pillars (see Figure 5 below):

- i. **User Interface Platform (UIP):** a structured means for users, climate researchers and climate information providers to interact at all levels;
- ii. **Climate Services Information System (CSIS):** the mechanism through which information about climate (past, present and future) is routinely collected, stored and processed to generate products and services that inform often complex decision-making across a wide range of climate-sensitive activities and enterprises;

38 Weather and Climate Information for Tourism, D. Scott and C. Lemieux. World Climate Conference 2010, Procedia Environmental Sciences Volume 1, 2010, Pages 146-183

- iii. **Observations and Monitoring (O&M):** to ensure that climate observations and other data necessary to meet the needs of end-users are collected, managed and disseminated and are supported by relevant metadata;
- iv. **Research, Modelling and Prediction (RMP):** to foster research towards continually improving the scientific quality of climate information, providing an evidence base for the impacts of climate change and variability and for the cost-effectiveness of using climate information;
- v. **Capacity Development (CD):** to address the particular capacity development requirements identified in the other pillars and, more broadly, the basic requirements for enabling any Framework-related activities to occur.”

The primary focus of the GFCS is to enable better access and use of climate information by users.

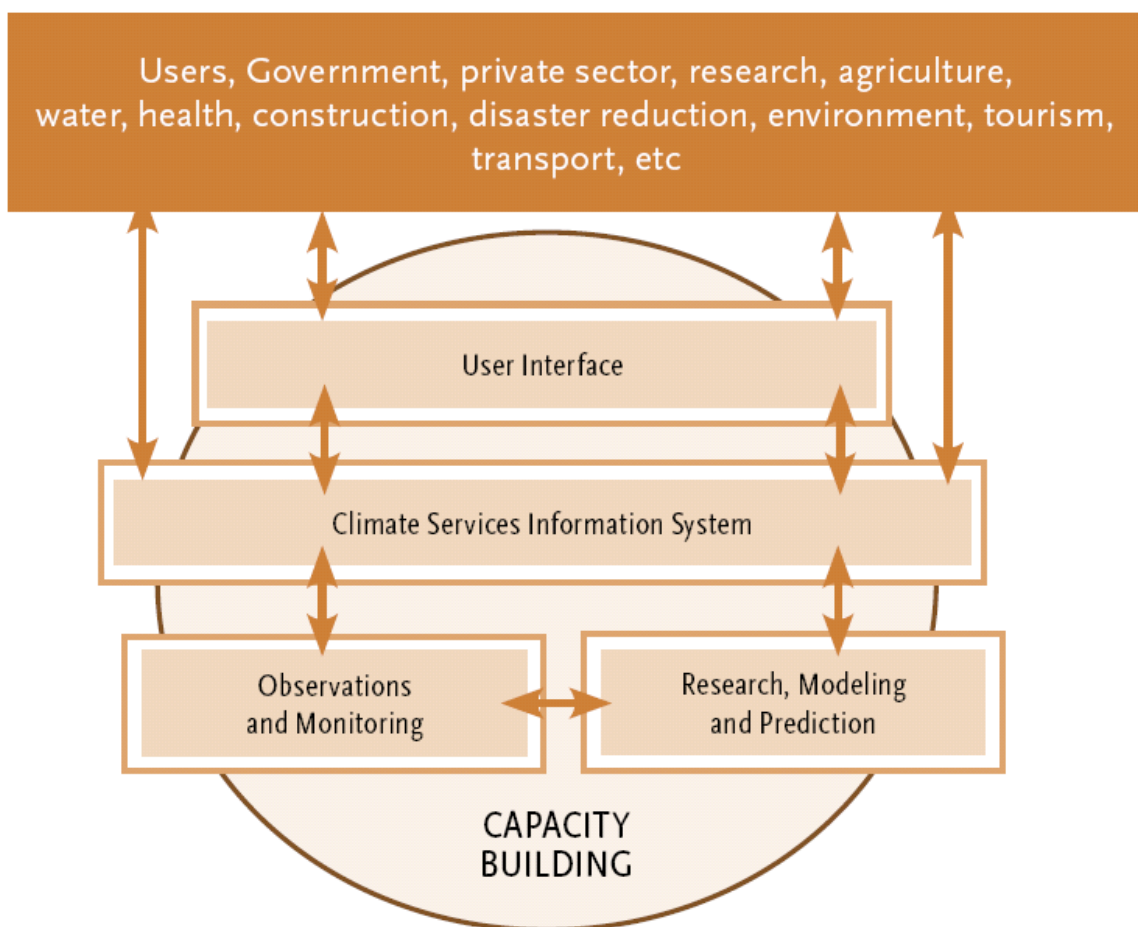


Figure 3: A schematic depicting the functional components of the GFCS (Source: WMO)

6.4 Climate Information Services (CIS) Action Plan

Based on the final recommendations (Section 6.1), officers from the Department of Tourism developed the CIS Action Plan and the Communication Plan at the Van-KIRAP Sector Consultation workshops. The participants identified short-term, mid-term and long-term actions and sub-actions for each recommendation: short-term for periods of up to 6 months, mid-term ranging from 6 months to 2 years, and long-term ranging from 2 to 4 years. Required resources and budget implications are included but they will need to be revised and the actual cost estimated through further consultations amongst the key stakeholders. The following table outlines high level actions and sub-actions: a detailed workplan with costing and timeline will be agreed before the implementation of each recommendation. A Monitoring and Evaluation Plan will help to ensure successful implementation of the actions.

The key objectives of the Action Plan are:

1. To ensure Department of Tourism personnel and stakeholders are aware of and understand climate information and products; and
2. To enable them to readily access and effectively use this climate information for planning and decision-making at local and national levels.

Table 6: The Action Plan for Tourism sector

Rank	Recommendation	Proposed Action	Proposed Sub-action	Timing (ST, MT, LT)	Responsible Parties	Resources Required	Training Required	Budget Implication	Assumption/Comments
1	Raise awareness of the key stakeholders at the National, Provincial and sub-association level based on the existing structure	Conduct Awareness Program on Climate Information Services (CIS)	Identify locations and type of information to deliver	ST	Department of Tourism, Tourism Association, Tourism Operators and VMGD	Printed materials, posters, brochures, mobile phones, laptop, website content development expertise	Training of Tourism Product owner	Funding for material development, travel, DSA, awareness workshops	Possible funding from Van-KIRAP Activity 1.4.1
			Conduct awareness on communication tools to access CIS	MT, LT					
			Develop relevant awareness materials	MT, LT					
			Provide a list that summarises in plain English VMGD's products and services	ST					
			Enable people to subscribe to climate products on the website	ST					
2	Conduct training for government officials and stakeholders at national, provincial and sub-association level based on sector specific action plans using existing structure	Training on CIS interpretation and application	Identify and Select relevant participant within sector	MT	Department of Tourism, VMGD, sector coordinator	Facilitator/trainers, expertise to develop training material	Familiarization trip and workshop, meeting and forum and onsite training	Funding for training workshops, travel, DSA, funding for material development expertise and trainers may be required	Possible funding from Van-KIRAP Activities 1.2.2, 1.2.3 and 1.4.1
			Align training with Vanuatu Sustainable Tourism Action Plan						
			Trained personnel to receive a certificate of completion						
3	Incorporate Climate Information Services (CIS) into tourism plans and policies	Include requirements for climate variability and climate change information in all tourism plans and policies		ST, MT, LT	VMGD, DOT	Technical Expertise		Funding for technical expertise may be required	
4	Develop Traditional and Cultural Calendars for each of the Provinces	Formulate Traditional Knowledge (TK) Calendars, matching tourism events with climate	Sign MOU with Cultural and council of chief of each provincial areas.	MT, LT	Department of Tourism, VMGD and VKS	Staffing, TK expertise		Funding for publication, technical expertise, travel, DSA	Possible funding from Van-KIRAP Activity 2.1.3. This proposed action can be built upon the outcomes of the COSPPac/SPREP TK project
			Link TK with tourism calendar for each province						
			Include TK information for land jumping (nanggol)						
			Develop and publish the calendars and inclusion in Vanuatu Sustainable Tourism Action Plan						
5	Disseminate tailored climate information	Develop tailored climate bulletin for tourism	Determine the content for the bulletin	MT	VMGD, DOT	staffing, subject matter expertise	Training on how to access and use the bulletin	Funding for material development, translation and publication. Funding for training workshops, travel, DSA. Funding for technical expertise may be	
			Translate the information in Bislama						
			Link the bulletin to DOT website						
		Develop a web-based Information Hub for Tourism	Determine the content for the Tourism Information Hub	MT, LT	VMGD, DOT and Information Centre	Website content development expertise, laptop, Internet connection, solar power panel/generators, mobile phone	Training on how to use the system	Funding for web content developer, Internet cost, solar panels/generators	
6	Investigate video ENSO updates	Develop regular video updates	Develop animation tool	LT	ABM, VMGD & DOT	Software developer, subject matter expertise	Training on how to access and download climate videos	Funding for training (maybe online), software development	
7	Fact Sheets on El Niño and La Niña impacts on tourism	Develop Fact Sheets on El Niño and La Niña impacts on tourism	Identify impacts on tourism	LT	VMGD, DOT	Staffing, subject matter expertise	Training on how to interpret and analyse the information	Funding for publication, training/awareness workshops, travel, DSA	
8	Establish Climate Early Warning System (CLEWS) dashboard	Establish a CLEWS dashboard/website	Consultation with Tourism Stakeholders to capture Tourism relevant information and insert in the dashboard	LT	VMGD, DOT	Software/website content developer, Internet access, subject matter expertise	Training on analysing and use of information on CLEWS dashboard.	Funding for technical expertise	Proposed actions for Recommendations 5 and 8 can be integrated
9	Enable the main tourist centres to collect climate data (sunshine, rainfall, temperature) at Provincial and community level.	Install appropriate climate observation equipment at Provincial Tourism Offices & Sub offices	Identify the new data collection sites	MT, LT	VMGD, DOT	Climate observation equipment (rain gauges, thermometers etc)	Training on how to take climate observation and basic equipment maintenance/calibration	Funding for new equipment, installation cost and training	Training and budget implication is based on manual equipment. The cost is likely to be higher for Automatic Weather Stations
			Procure and install new climate observation equipment						
			Train personnel in DOT on data collection and equipment maintenance						
10	Deliver climate information through the existing telecommunication and local TV network in a timely manner.	Establish an agreement with telecommunication companies and local TV network to deliver climate information	Establish an MOU with telecommunication companies and local TV network.	LT	VMGD, DOT, Telecommunication companies & Local TV network	Staffing, content development expertise		Funding for material development maybe required	
			Provide the climate information to relevant telecommunication and TV network to disseminate						

6.5 Climate Information Services (CIS) Communication Plan

A communication plan is a policy-driven approach to providing stakeholders with information. The Plan formally defines **who** should be given specified (**what**) information, **when** that information should be delivered and what communication channels (**how**) will be used to deliver the information.³⁹ This section outlines the Communication Plan's objectives, the current status of the communication mechanism, and the content of the Plan. The Plan should be regularly reviewed and updated.

6.5.1 The Objectives of the Communication Plan for the Department of Tourism

- To ensure that Tourism personnel and contractors are receiving timely and relevant climate information and products for planning and decision-making at local and national levels.
- To ensure an effective and efficient channel for communication and information dissemination exists between VMDG and PWD, and within the tourism sector.

6.5.2 Linking climate information and products to sector specific operations

The following table outlines the types of climate information required for specific operational or decision-making processes within the Tourism sector. This information feeds into the Communication Plan (Table 7).

Table 7: Climate Information required for Tourism operation and decision-making processes

Sector operation or decision-making process	Information/Product/Tool	Responsible parties
Standard Accommodation	Cyclone forecast, rainfall bulletin, evacuation route, safe shelter	Sector Coordinator/Principal Outer Island Officer
Scuba Diving/Snorkelling Business	Temperature, tide calendar, wind pressure, marine forecast, current	
Waterfall Tour Business	Rainfall forecast, drought,	
Hiking Business	Rainfall forecast/bulletin, cyclone, temperature	
Game Fishing Business	Marine forecast, cyclone bulletin, sea surface temperature, current	
Bush Trekking Tour	Weather forecast, cyclone bulletin,	
Kayaking Business	Weather forecast, tide calendar, wind pressure, current	
Water Skiing Business	Ocean outlook, Cyclone, current	
Yacht/Cruising Business	Cyclone Forecast, Wind bulletin, current	
Surfing Business	Cyclone Forecast, Wind bulletin, tide Calendar, current	
Canoe Race	Cyclone Forecast, Wind bulletin, tide Calendar, current	

39 <https://whatis.techtarget.com/definition/communication-plan>

Sector operation or decision-making process	Information/Product/Tool	Responsible parties
Conservation areas for tour attraction	Rainfall Bulletin, Cyclone forecast,	
Horse riding	Weather forecast	
River Tour Business	Weather forecast, Rainfall bulletin	
Cycling Tour	Weather forecast, Cyclone forecast	
Caving/Spelunking/Canyon Climbing	Weather forecast, cyclone forecast, marine forecast, tidal information	
Cultural Activities	Weather forecast	

6.5.3 The current situation in the Tourism Sector

- The Department of Tourism specifically requests Volcanic Alert info from VMGD, and they also disseminate information that they receive from VMGD (e.g. Vanuatu Climate Update).
- Provincial Tourism Associations have a Provincial Officer who regularly receives climate information and weather and climate warnings and passes these on to tourism operators.
- Provincial Officers hold quarterly meetings, usually in Port Vila. There is an opportunity for VMGD to better engage with the tourism sector by attending these meetings.

6.5.4 Table Description

Responsibility: Nominates or delegates the personnel or agency responsible for sending the identified information or products to the intended audience.

Audiences/Receiver: Personnel or parties who should receive the information or the products. The diagram below outlines the flow of climate information dissemination from VMGD to various personnel within Tourism sector.

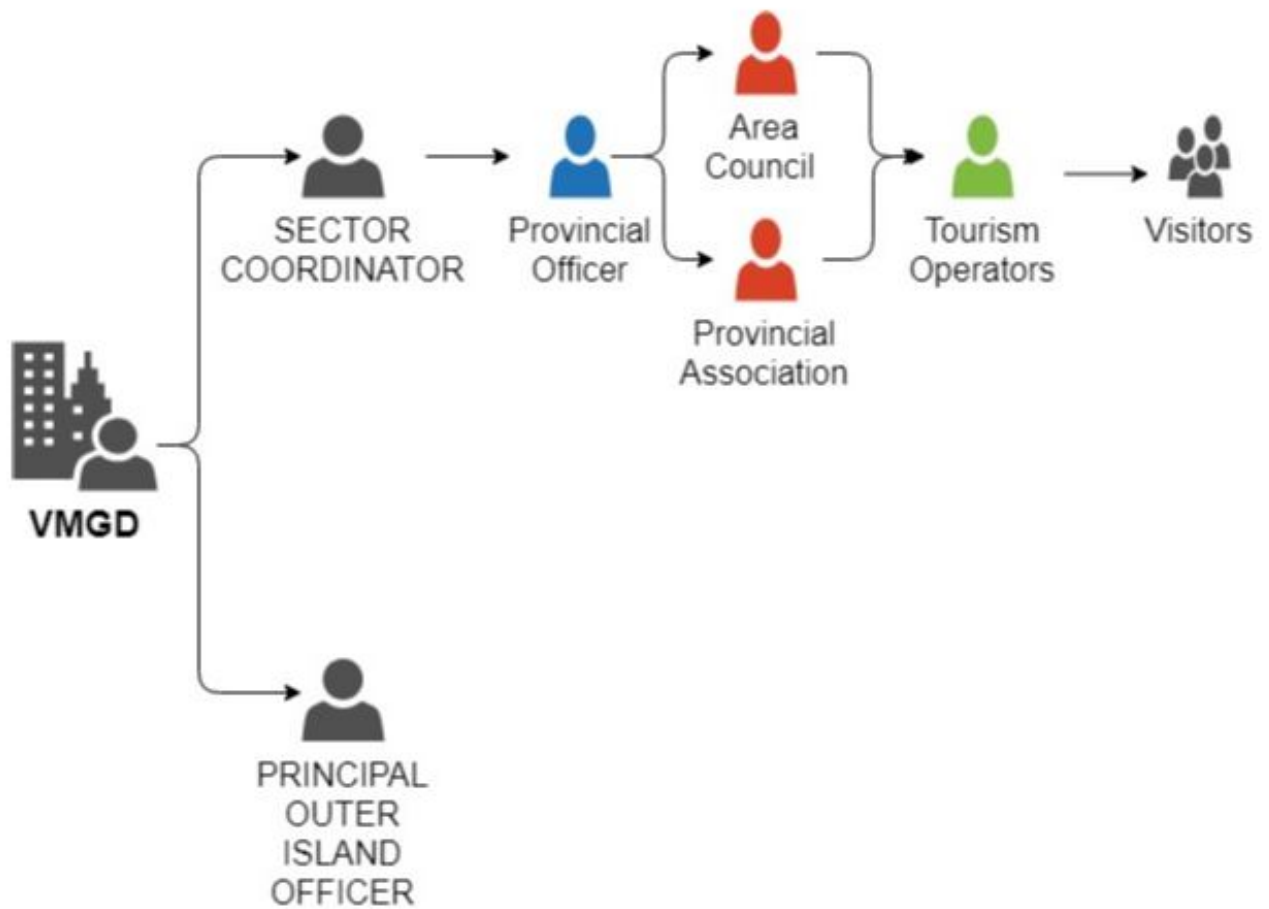


Figure 4: Climate information and products dissemination structure

Mode of Information Dissemination: Effective channels or communication medium that can be used to disseminate the information and the products. This may include: email, phone, Internet/webpage, social media (FaceBook), face to face meetings, print etc.

Other Information: Describes the format (e.g. bulletin, brief summary, Excel etc.) and the most appropriate language (i.e. Bislama, English or French) for information or products.

Frequency and timing: frequency indicates how often the information is required or disseminated (i.e. weekly, fortnightly, monthly or annually). Timing indicates when in a defined period the information is required or made available (e.g. Vanuatu Climate Updates are available by the second week of each month).

Feedback Mechanism:

It is vital to measure results to understand whether objectives have been achieved. The regular evaluation process allows managers to make necessary adjustments during implementation in response to unexpected results and changed circumstances. Several feedback mechanisms are suggested for evaluating the effectiveness and the efficiency of the Communication Plan: regular

surveys, feedback forms, follow up via phones, monthly reports, email, and face to face meetings. The timing and the mechanism for feedback can be mutually determined by the Responsible Party and the Audience. Feedback may be scheduled quarterly, six-monthly or yearly.

6.5.6 Updating the Communication Plan

During the life of Van-KIRAP, the Sector Coordinator will be responsible for:

- Initiating and scheduling feedback sessions with VMGD;
- Initiating and following-up on feedback sessions for other Responsible Parties, and providing feedback to VMGD
- Negotiating changes and incorporating agreed changes in the Plan; and
- Circulating the Plan to all Responsible Parties and Audience after each update

After the Van-KIRAP, it is recommended that this responsibility be taken up another relevant officer in Tourism if the Sector Coordinator position no longer exists. This can be the Communication Officer.

Table 8: A detailed Communication Plan for Tourism sector

Responsibility (sender)	Audience (receiver)	Type of Information/product	Language	Mode of information dissemination	Frequency	Timing	Feedback mechanism
VMGD	Sector Coordinator/Principal Outer Island Officer	Vanuatu Climate Update (Bislama), cyclone warning and natural hazard warning (as required - English, Bislama)	Bislama, English	Email, face to face, phone call, website, social media, proposed App, community boards (around Efate currently)	Monthly Regular update via website	2nd-3rd week of the month, As available	Regular survey, feedback forms, follow up (extension officers/phone calls), email requested feedback
Sector Coordinator/Principal Outer Island Officer	Provincial Officer						
Provincial Officer	Area Councils/Sub association (Provincial association)						
Area Councils/Sub association (Provincial association)	Tourism Operators						
Tourism Operators	Visitors	Vanuatu Climate Update (Bislama), cyclone warning and natural hazard warning (as required - English, Bislama)	English	Radio, electronic and social media	Monthly Regular update via website	2nd-3rd week of the month, As available	Social Media and Vanuatu Tourism website

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8. Annexes

Climate Change Adaptation in the Pacific Island Tourism Sector: Analysing the Policy Environment in Vanuatu

Impact of Climate change on PICs and Vanuatu's tourism sector:

Tourism represents a significant economic sector. Vanuatu – an archipelago of 83 islands – offers great tourism attractiveness in the form of different cultures, volcanoes, pristine beaches and underwater environments. From 1995 to 2008, the tourism sector has seen an annual average growth of 6.45% with the total visitor arrivals reaching 196 795 in 2008. Tourism represents the key foreign exchange earner in Vanuatu. In 2007, it represented 15.3% of the country's GDP and employed directly 14.1% of the country's population.

The climate is a key factor taken into account in the decision process of destination choice, which is particularly the case in Vanuatu. In the 2004 Vanuatu Visitor Survey Report 2, climate ranks as the second highest decision-making factor. Further, the most common type of activity engaged in by visitors while in Vanuatu is snorkelling. Thus, any changes to the climate may impact on the visitor numbers in Vanuatu.

Inventory of policies that are pertinent to climate change adaptation:

From the analysis, it was found that there were no tourism policies that explicitly dealt with climate change adaptation. However, a number of generic climate change policies did address the tourism sector's adaptation to climate change. Furthermore, a number of other sector policies and tourism plans may assist the tourism sector in addressing climate change.

The 4 explicit climate change policies identified in Vanuatu are: 1) A Climate Change Policy and Implementation Strategy Discussion Paper for Vanuatu (hereafter named Climate Change Policy); 2) National Adaptation Programme for Action (NAPA) 2007; 3) Pacific Adaptation to Climate Change (PACC) 2009; and 4) Pacific Islands Framework for Action on Climate Change 2006–2015. The latter policy is a regional policy, whereas the Climate Change Policy, the NAPA and the PACC are national policies of Vanuatu. The Pacific Islands Framework for Action on Climate Change 2006–2015 provides a guiding model for Vanuatu in acting on climate change, whereas the national policies will help the country walk the talk. There are 23 implicit policies with components that will help the tourism sector in Vanuatu address climate change.

Environment and disaster risk management policies also impact on the tourism sector. Seven implicit policies are identified within the environment and disaster risk management policy area that are conducive to assisting adaptation to climate change in the tourism sector. The Disaster Risk Reduction and Disaster Management National Action Plan 2006–2016 entails technical, business management and policy types of adaptation by, for example, facilitating the implementation of early warning systems which can reduce the vulnerability of the tourism sector to climate change induced risks like cyclones and storm surges.

There are six implicit policies identified under the environment. One policy is regional, two are national, and the remaining three are provincial/local. As an example, the Environmental Management and Conservation Act 2002 provided technical, policy, and research and education adaptation types whereby, for example, establishment of conservation areas protects Vanuatu's natural resources, which provide future tourism attractions, thus making tourism less vulnerable to climate change induced ecosystem damage.⁴⁰

Vanuatu Sustainable Tourism Action Plan 2014-2018

Climate change issues are a focus of the Government of Vanuatu and there are several climate change projects supported by development partners. These projects target adaptation and disaster risk reduction and are coordinated by the National Advisory Board on Climate Change and Disaster Risk Reduction within the Vanuatu Meteorology and Geohazards Department. There are two major World Bank funded climate change projects currently being implemented in Vanuatu.⁴¹

3.1.1 Governance				
Goal: To strengthen the role of the Vanuatu Tourism Office and the Department of Tourism				
ACTION	PRIORITY	KEY AGENCIES	BUDGET	KPI
1.1 Establish a Steering Committee and Project Management Unit within the Ministry of Tourism to implement the Vanuatu Strategic Tourism Action Plan 2014-2018	HIGH 2014	MTTCNVB	50 million vatu p.a.	TAPSC established TPIU established and operating
1.2 Review the respective roles of the Vanuatu Tourism Office and the Department of Tourism to provide clarity on responsibilities and eliminate any duplication	HIGH/MEDIUM 2014	MTTCNVB	5 million vatu p.a.	Review of roles completed
1.3 Strengthen the capacity of Ministry of Tourism, Corporate Services Unit to effectively coordinate policy and manage implementation of tourism projects	LOW 2014	MTTCNVB	Operational budget	Support services developed and implemented
1.4 Develop and implement a Sustainable Tourism Development Policy that includes Environmental Management, Climate Change, Eco-Tourism Cultural Tourism and Managing social impacts	MEDIUM 2014	MTTCNVB DEPC VKS NABCC	In TPIU budget	Policy developed and implemented
1.5 Support provincial tourism associations and industry associations with capacity building in association planning	HIGH 2014	DOT Industry	10 million vatu p.a.	Support services provided
1.6 Strengthen the role of the Provincial Tourism Councils	HIGH 2014	DOT PG	TPIU budget	Support services provided
1.7 Develop destination management plans for the international gateways of Santo and Tanna and incorporate a review of the Provincial Tourism Plans as part of the	HIGH 2015	DOT PG	40 million vatu in total	1 - Provincial Plans reviewed 2 - Destination Management Plans

40 http://epubs.surrey.ac.uk/534351/3/Wong_Climate_Change.pdf

41 Government of Vanuatu, Vanuatu Sustainable Tourism Action Plan 2014-2018, 2013

Strategy Four: Infrastructure and Access					
Increase destination accessibility and infrastructure use and viability through strategic investment, maintenance and market development					
Action	Priority	Responsibility	KPI	STATUS	REMARKS
4.12 Develop town beautification schemes for Luganville and Port Vila, based on improvements to public space and tourist attractions, including public toilets and landscaping in key locations	Medium	Municipalities/PWD	Town beautification and maintenance programs implemented	Progressing	<ul style="list-style-type: none"> Government has released a Beautification Plan for Port Vila (that includes the proposals developed by BECA for the Vanuatu Tourism Infrastructure Project) Currently looking for donor support for implementation. Need to prepare a Beautification Plan for Luganville.
4.13 Promote rural electrification, renewable energy and telecommunications to support tourism investment	Medium	Mol/Utility Providers	Increase in proportion of tourism operators covered by rural electrification, renewable energy and telecommunications		<ul style="list-style-type: none"> Currently managed by the Energy Department of the Department of the Environment. Projects being undertaken by Climate Change office.
4.14 Undertake a comprehensive reform of land transport including standards for taxis and public transport operators and regulations for tour operators	Medium	Min of Transport/LTB	Reform undertaken and new regulations implemented.	Progressing	<ul style="list-style-type: none"> Department of Tourism have had the TCV Bill passed which includes minimum standards and compulsory accreditation for tourism businesses. Standards committee established 2013 which will review the legislation / regulations. NZAid funding an "Ambassadors Programme" to provide training for public transport operators.

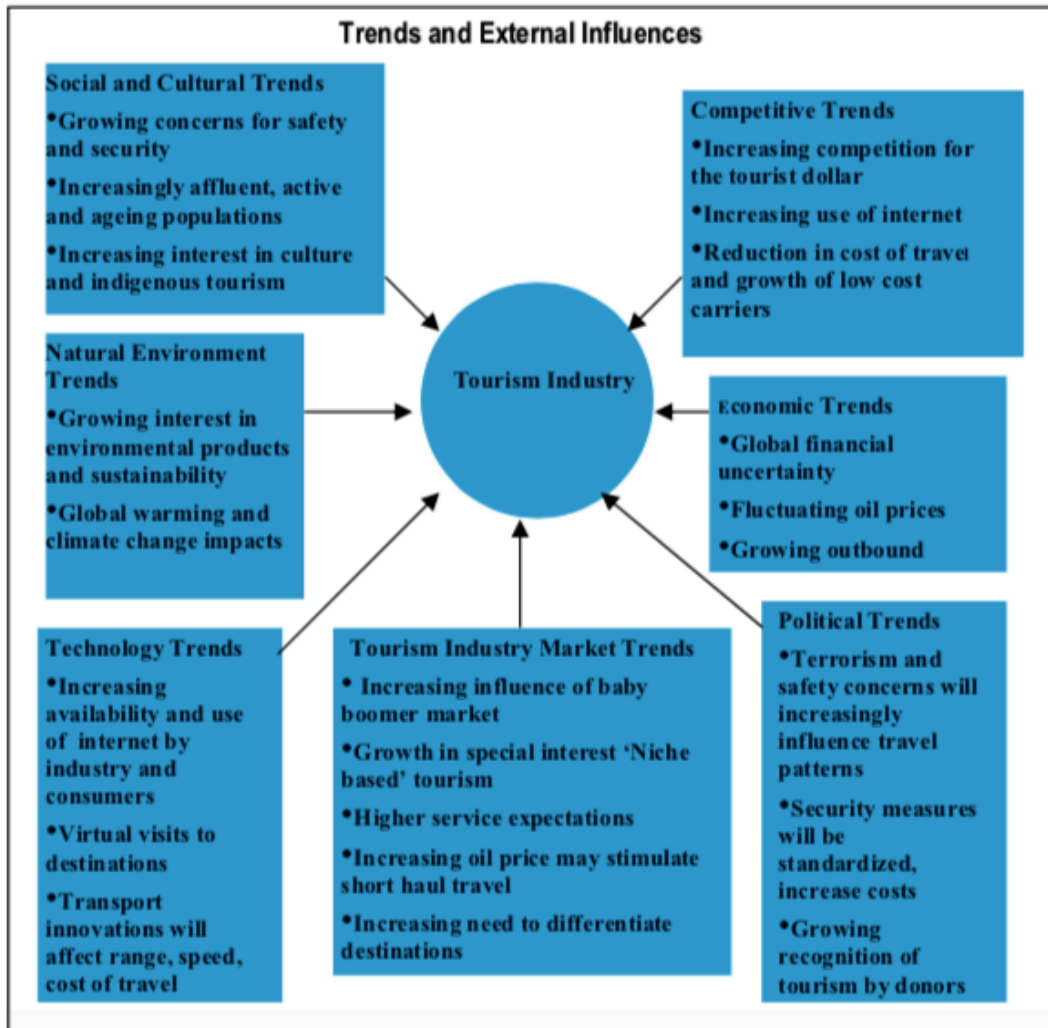
Vanuatu Tourism Action Plan (VTAP)

Internal and External Influences on Tourism Development:

This document provides a framework to support investment and tourism development through sustainable growth. Sector policy needs to reflect the current context and internal and external parameters within which tourism development takes places. A review of these internal and external influences has been undertaken as part of the development of the TAP and these are highlighted in more detail below.

The VTAP makes one reference to climate, whereby it identifies global warming and climate change impacts as an external influence that will impact upon the tourism sector.⁴²

⁴² Republic of Vanuatu, Vanuatu Tourism Action Plan (VTAP), 2008



Vanuatu National Climate Change Adaptation Strategy (NCCAS)

The NCCAS identifies a number of strategies to overcome the risk of flooding, which results in a decline in tourist numbers. Flooding will cause the cancellation of tourist activities, the increase of mosquito pests, flu and other sicknesses, infrastructural damage and the limitation of transport options. A series of adaptation strategies were discussed, which include:

- Planning and promoting forest eco-tourism for dryer areas during prolonged rainy periods
- Designing forest tourism activities that are rain-proof
- Making personal pesticides available to tourists in mosquito prevalent areas
- Construct tourism facilities (bungalows) with durable non-weathering timber species that are not likely to rot due to extreme water exposure
- Advise tourism operators on differing weathering properties of various forest products.⁴³

Vanuatu Meteorology and Geohazards Division Strategic Development Plan: 2014-2023

Of particular importance under the Climate Division are the following Key Outcomes (KO), Strategic Outputs (SO) and Key Performance Indicators (KPI):

- KO 2. Improved and sustained quality of meteorological, hydrological and other related environmental datasets on the VMGD Headquarters server
- KO 4. Monthly to seasonal climate information, forecasts, services and warnings are continuously developed and routinely improved.
- KO 5. Drought information, forecasts, services and warnings are developed and routinely improved.
- KO 7. Climate Division is provided access to relevant external datasets
- KO 8. Climate services related research capacity and priorities are developed
 - SO 5.1 Climate Division has prioritised a set of research topics to deliver results on annually.

Vanuatu Framework for Climate Services (VFCS)

Main Climatic Impacts:

During El Niño periods, streams and rivers can run low or dry up completely where tourism activities take place (e.g. swimming, waterfalls, rafting etc). Drought also impacts locally-grown vegetables which affects supply to hotels. Impacts tend to be more severe in the outer islands where there is a reliance on natural water sources. Periods of more rainfall-than-normal (e.g. during La Niña's) can disrupt outdoor tourist activities, but are generally not too much of an issue. Major storms, particularly tropical cyclones (such as TC Pam), are a big issue for tourism in Vanuatu and can result in a significant downturn in tourist numbers for many months and even years afterwards.

Current Use of Climate Information from VMGD

The Department of Tourism specifically requests Volcanic Alert information from VMGD, and they also disseminate information that they receive from VMGD (e.g. Vanuatu Climate Update).

Provincial Tourism Associations have a Provincial Officer who regularly receives climate information and weather and climate warnings and passes these on to tourism operators.

Provincial Officers hold quarterly meetings, usually in Port Vila. There is an opportunity for VMGD to better engage with the tourism sector by attending these meetings.

Climate Information Needs

The top priority for the Department of Tourism is to work with VMGD to develop Traditional Calendars for each of the provinces which would enable tourism operators to really utilise attractions. Cultural events occur in conjunction with specific weather/climate events, so Traditional Calendars could be used to identify when and where these cultural events typically occur. VMGD climate information could be used to inform potential shifts in the timing of these events.

There is also an interest in receiving tailored climate bulletins. These could be linked to a web-based 'Climate and Tourism Dashboard' – showing the status and forecasts of temperature, rainfall, coral bleaching and SST indicators that could be printed and posted on noticeboards at hotels etc.

Research on the environmental impacts of tourism operations is needed, leading to improved standards.

Key Agencies and Networks:

The Department of Tourism is the key agency for VMGD to work with. An MOU between the two Departments with SOPs and SLAs is desirable. There is also a Tourism Association that has provincial and area council links.⁴⁴

Vanuatu National Adaptation Programme of Action (NAPA)

The following table summarises the main climate issues and possible adaptation options:

Climate Issue & Vulnerabilities	Adaptation Options
SANMA Province	
Coastal erosion, cyclones & flooding (prolonged and intense rainfall) threatening, tourism, coastal and other major infrastructure	<ul style="list-style-type: none"> • Develop provincial adaptation plans or incorporate climate change into provincial planning • Relocation of settlements and relevant infrastructure • Demarcation of hazard and risk areas
PENAMA Province	
Coastal erosion, cyclones and flooding (prolonged and intense rainfall) threatening, tourism, coastal and other major infrastructure	<ul style="list-style-type: none"> • Develop provincial adaptation plans or incorporate climate change into provincial planning • Relocation of settlements and relevant infrastructure • Demarcation of hazard and risk areas • Replanting of coastal vegetation to protect coastline • Ban/control sand mining • Establish provincial ICZM plan • Improve climate change understanding at provincial and community levels
TAFEA Province	
West part of Tanna Island experiences prolonged droughts that are affecting agriculture and tourism sectors	<ul style="list-style-type: none"> • Development of improved crop varieties, best agricultural practices and diversification of crops

Part II of the NAPA outlines project concepts in which Tourism is included. It notes the following as regards climate and tourism:

Tourism is increasing in importance as one of the key foreign exchange earners for Vanuatu. Much of the infrastructure, infrastructure support services and the attractive features for the tourist are situated in the coastal sector. Increased sea level rise and coastal degradation is likely to impact severely on this sector. There is an urgent need to implement existing policies and strategies and where necessary, put in place mechanisms, that will not only prevent the effects on the coastal areas but will also encourage the sustainability of the tourism sector.⁴⁵

Tourism is an important source of revenue for Vanuatu and it accounted for 40% of the GDP in 2000. It is concentrated around the two main urban centres (90% of Vanuatu's hotel capacity is focused in Port Vila) but, it is also expanding rapidly into the rural areas (Statistics Office, 2000). Climate change and its various impacts pose a significant risk to tourism, especially in developing countries where tourism is often the single most important industry. Climate change will impact on tourism, the marine and terrestrial biodiversity, and as a consequence on the livelihoods of local communities. Globally, the tourism sector will have to face the risks of climate change, contribute to mitigation of greenhouse emissions, and adapt to unavoidable impacts through careful management of the natural and other resources on which the sector relies. Among all tourist destinations, Small Island Developing States (SIDS) and coastal zones are most vulnerable, and many are already experiencing impacts consistent with climate change. Understanding vulnerabilities, managing risks, building capacity, and implementing adaptation policies and measures is therefore urgently needed in SIDS and will achieve the greatest immediate benefit within the whole tourism sector.⁴⁶

Pacific Roadmap for Strengthened Climate Services (PRSCS)

The tourism sector is one of the largest and fastest growing global industries and as elsewhere is a significant contributor to national and local economies in Pacific Island countries and Territories. The interface between climate and tourism is multifaceted and complex, as climate represents both a vital resource to be exploited and an important limiting factor that poses risks to be managed by the tourism industry and tourists alike. All tourism destinations and operators are climate-sensitive to a degree and climate is a key influence on travel planning and the travel experience.⁴⁷ The tropical and sub-tropical Pacific provides a near ideal base on which to build a tourism industry due to the relatively benign climate. With the exception of tropical cyclones and periods of low rainfall, conditions are generally favourable for tourists year-round. Key variables for the region from both a weather and climate perspective are: sunshine, temperature, rainfall and wind.

Also important are open and sheltered sea conditions for boating, fishing and surfing, and sea temperatures in coral reef zones, which when high can lead to coral bleaching episodes.

⁴⁵ Government of the Republic of Vanuatu, National Adaptation Programme for Action (NAPA), 2007

⁴⁶ National Advisory Committee on Climate Change, Vanuatu National Adaptation Programme for Action

⁴⁷ Weather and Climate Information for Tourism, D. Scott and C. Lemieux. World Climate Conference 2010, *Procedia Environmental Sciences* Volume 1, 2010, Pages 146-183

Given the relatively stable year-round climate when compared to other higher latitude tourist destinations, there may be value in implementing the Climate Index for Tourism (CTI), which considers thermal, aesthetic and physical aspects of weather in relation to beach tourism.

Communicating with the tourism sector with respect to risk assessment for an upcoming season can at times be problematic, due to attendant economic risks to tourism operators and local businesses servicing the industry. An outlook that portends an increased risk of tropical cyclones, for example, has the potential for deterring tourists from visiting a particular country. Close dialogue between the NMHS and tourist operators and service providers are therefore very important whenever such risks are being highlighted.⁴⁸

Republic of Vanuatu Second National Communication to the UNFCC

The economic growth of Vanuatu is mainly driven by the service sector that includes tourism (accommodation and food services) ...Tourism accounts for almost 80% of Vanuatu's services export but faces some serious constraints mainly due to infrastructure and other support services. However, Tourism is one of the most promising economic sectors for Vanuatu's future development and has been mentioned as a priority sector in the "Priority and Action Agenda 2006—2015. The sector offers great potential as a source of foreign exchange as well as for creating employment and fostering development of the outer islands.⁴⁹

According to the 2014 Vanuatu Strategic Tourism Action Plan, "Climate change issues are a focus of the Government in this sector". Tourism contributes to 40% of Vanuatu's GDP. The growth in Vanuatu's economy over the last five years has been largely due to real estate and tourism activities. The diversity of cultures, geologic forms, biological life forms, the world's most accessible wreck dive and proximity makes Vanuatu a preferred destination for Australian and New Zealand visitors. Vanuatu developed the National Tourism Development Mater Plan in 1994 which has resulted in Vanuatu's tourism growth over the last decade, while the new Vanuatu Strategic Tourism Action Plan highlights climate change adaptation priorities.

The most promising export in years to come would continue to be Tourism. Recent academic studies highlight Vanuatu's tourism sector's vulnerability to climate change, emphasizing the fact that the ecosystems on which most tourism activity is based will be impacted by climate change. Much of the infrastructure, infrastructure support services and the attractive features for the tourist are situated in the coastal sector, for example; even modest ocean warming causes coral bleaching. Sea level rise and resultant inundation from storm surge threatens coastal assets. Storms pose a real threat to tourism infrastructure and are projected with very high confidence to increase in intensity.

In addition to the above-mentioned impacts on tourism supply, tourism demand will also be affected by climate change. International action to mitigate Green House Gas (GHG) emissions will increase

48 SPREP, Pacific Roadmap for Enhanced Climate Services, 2017

49 Government of the Republic of Vanuatu, Second national communication to the United Nations Framework Convention on Climate Change (UNFCCC), 2014

travel costs; especially for long haul travel and ethical concerns regarding air transport will affect consumer demand for different destinations, potentially impacting on Vanuatu's tourism.⁵⁰

National Sustainable Development Plan 2016-2030⁵¹

The National Sustainable Development Plan highlights a series of policy objectives that incorporate climate and other sectors into the tourism sector.

- ENV 3 – Climate and Disaster Resilience
 - ENV 3.2 – Improve monitoring and early warning systems.
 - ENV 3.4 – Promote and ensure strengthened resilience and adaptive capacity to climate related, natural and man-made hazards.
- ENV 5 – Ecosystems and Biodiversity
 - ENV 5.6 – Enhance environmental monitoring, evaluation and research with relevant, open and transparent data sharing among relevant agencies
- ECO 3 – Strengthen Rural Communities
 - ECO 3.1 – Promote broad-based growth by strengthening linkages between tourism, infrastructure, agriculture and industry in rural areas and diversify the rural economy
 - ECO 3.2 – Deepen the integration of the tourism sector into the rural economy to spread opportunities to rural communities
- ECO 4 – Create Jobs and Business Opportunities
 - ECO 4.4 – Improve and expand the range of sustainable tourism products and services throughout Vanuatu and strengthen links to local production.

Vanuatu Coastal Adaptation Project (VCAP)

One of the outcomes of VCAP stakeholder engagement was the following information:

Tourism contributed to 45% of GDP in Vanuatu in 2016. Tourism is highly dependent on the climate, for both good weather days, and for the availability of freshwater. The main climatic impacts on tourism in Vanuatu are drought, floods, and extreme events, related to ENSO and tropical cyclones.

The tables starting on the next page describe the weather and climate information that could help manage climatic impacts on the tourism sector as discussed in a sector meeting.

The following were prioritised as the initial needs for climate information:⁵²

⁵⁰ Government of the Republic of Vanuatu, Second national communication to the United Nations Framework Convention on Climate Change (UNFCCC), 2014

⁵¹ Government of the Republic of Vanuatu, Vanuatu 2030 The people's plan: National sustainable development plan 2016 - 2030, 2015

⁵² GEF, Vanuatu Coastal Adaptation Project: Climate Information and Services, Summary Sector tables, 2017

1. Weekly bulletin in PDF of last week's weather and the forecast weather for the coming week

- Rainfall, temperatures, wind speed and direction

2. Monthly bulletin in PDF including the following for each major tourist location:

An update of monthly climate normal conditions:

- Rainfall
- Sunshine hours
- Air temperature
- Sea surface temperature
- Typical dominant seasonal winds and wave conditions
- Seasonal climate outlook:
- Expected average rainfall and air temperatures compared to normal
- Tropical cyclone information and warnings if needed
- ENSO update

Risk or concern	Climate and weather triggers	Whom does it affect? (i.e. government, private sector, and communities)	Why is it a problem? What is the impact (socially, economically and culturally)?	Would early warnings of the climate triggers be helpful?
Sunny conditions	Sunshine hours	Tourism, hotel and travel services, sector and national revenue	Loss of jobs and livelihoods	Yes
Infrastructure damage	High winds, tropical cyclones Floods	Travel and accommodation infrastructure and services	Loss of engagement of communities is tourism services	Yes
Drinking water shortage	Dry periods; above normal temperatures	Tourist services; communities supporting tourism	Economic impacts when tourists cannot come	Yes
Coral reef damage/bleaching	Above normal sea surface temperatures	National image; tourism; marine ecosystems	Economic and cultural adverse impacts	May be useful for planning

Risk or concern (copy from above if early warning would be helpful)	What actions could be taken with early warnings?	What data/ information is needed for the action?	How (i.e. email, text, radio) should the early warnings be communicated and how often?	Who will communicate the warnings and to whom?
Sunny conditions	Advance advertising and planning	Solar radiation update ENSO Rainfall outlook	Daily radio and television broadcasts.	VMGD; Tourism department through regular bulletins
Infrastructure damage	Protection of physical assets provisioned in advance	Wind data ENSO Design wind speeds	General public warnings issued by radio and television	Tourist office; NDMO
Drinking water shortage	Stock up emergency supplies	ENSO Rainfall outlook Design rainfalls and tank storage	Direct communication to hoteliers and other tourist operators	Tourist Office
Coral reef damage/bleaching		Sea surface temperatures	Email seasonal outlooks once a month	VMGD with input from Tourist Office

Sector	What climate data/ information is the priority for early warnings?	In what format (i.e. email, text, radio) should the early warnings be communicated?	How often?	Who will communicate the warnings?	To whom?
Tourism	<p>1. Bulletin of last week's weather and the forecast weather for the coming week, including:</p> <ul style="list-style-type: none"> ▪ Rainfall, temperatures, wind speed and direction 	E-mail .pdf file	Weekly	VMGD to key Tourism reps	Tourism Department to disseminate to the public as required
	<p>2. Bulletin including the following for each major tourist location: An update of monthly climate normal conditions:</p> <ul style="list-style-type: none"> ▪ Rainfall ▪ Sunshine hours ▪ Air temperature ▪ Sea surface temperature ▪ Typical dominant seasonal winds and wave conditions <p>Seasonal climate outlook:</p> <ul style="list-style-type: none"> ▪ Expected average rainfall and air temperatures compared to normal ▪ Tropical cyclone information and warnings if needed ▪ ENSO update 	E-mail .pdf file	Monthly	VMGD to key Tourism reps	Tourism Department to disseminate to the public as required