

# MINISTRY OF CLIMATE CHANGE ADAPTATION



Vanuatu Meteorology & Geohazards Department

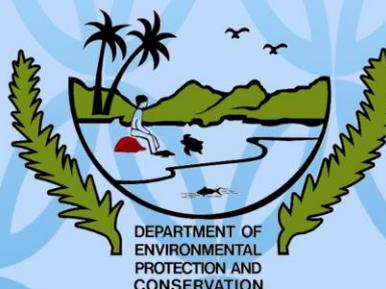


National Disaster Management Office

## 2016 ANNUAL REPORT



Department Of Energy



Department Of Environmental  
Protection & Conservation

## Contents

<b>MINISTER’S STATEMENT .....</b>	<b>4</b>
<b>DIRECTOR GENERAL’S MESSAGE .....</b>	<b>5</b>
<b>CORPORATE SERVICES UNIT .....</b>	<b>7</b>
Overview .....	7
Role.....	8
Challenges in 2016.....	8
Policy, Planning and M&E .....	10
Legislative, Convention & Policy Framework .....	11
Project/Program Funding & Volunteer Support .....	11
Restructures.....	11
Capacity Building .....	12
National Advisory Board on CCDRR (NAB) Secretariat.....	12
CSU Public Awareness .....	15
Challenges .....	15
Conclusion .....	16
<b>DEPARTMENT OF METEOROLOGY AND GEO HAZARDS .....</b>	<b>23</b>
Director’s Message.....	23
Overview .....	24
About Vanuatu Meteorology and Geo-Hazards Department.....	24
Vision .....	24
Mission .....	24
Areas to Achieve .....	24
Principles.....	25
Objectives .....	26
Programs.....	26
Locations.....	27
Outreach within Vanuatu .....	27
Regional and International Connections.....	27
Programs, Functions and Sectors Served.....	27
Structure and Staff .....	28

Performance 2016 Overview .....	29
Administration Division .....	29
Weather Forecasting & Services Division (WFSD) .....	36
Climate Division .....	43
Geohazards Division .....	67
ICT and Engineering Division .....	102
Climate Change and Disaster Risk Reduction Division .....	118
<b>DEPARTMENT OF ENERGY .....</b>	<b>137</b>
Director’s Message.....	137
Overview .....	138
Programs, Functions and Sectors Served.....	139
Structure and Staff .....	139
Funding Basis .....	141
Ministry and Policy Framework .....	142
About this Report .....	143
Performance 2016 Review .....	143
Appendices .....	155
<b>NATIONAL DISASTER MANAGEMENT OFFICE.....</b>	<b>157</b>
Director’s Message.....	157
Achievements of the NDMO .....	158
Ongoing and 2017 Focus Activities .....	158
National Disaster Management Office Overview .....	159
Areas of Responsibility.....	160
Programs, Functions and Sectors Served.....	160
Structure and Staff .....	161
Funding Basis .....	162
Ministry and Policy Framework .....	164
About this Annual Report .....	165
Department Performance 2016 Overview .....	165
Staffing.....	167
Performance by Focal Areas .....	167
Operations.....	168
Research and Planning .....	170

Awareness and Training.....	171
Provincial Liaison .....	172
Disaster Risk Reduction .....	174
Logistics .....	176
Administration .....	177
Clerical and Cleaner.....	177
International organization of Migration (IOM) .....	178
Projects (EDF 10 ACP – EU/SPC) .....	179
Technical Advisors .....	180
Summary of Achievement .....	181
Challenges and constraints .....	182
Recommendation for improvement .....	182
<b>DEPARTMENT OF ENVIRONMENT .....</b>	<b>183</b>
Director’s Message.....	183
Overview .....	186
Structure and Staff .....	189
Funding Basis .....	194
Ministry and Policy Framework .....	194
About this Report .....	195
Department Performance 2016 Overview .....	195
<b>ANNUAL FINANCIAL REPORT 2016 .....</b>	<b>218</b>
Statement of Representation.....	218
Budget Overview.....	219
Statement of Appropriation.....	220
Expense summary report – Personal and Operating expenses .....	222
Statement of Commitments & Contingencies 2016 Review .....	227
Assets Report.....	228

## MINISTER'S STATEMENT

It is with pleasure that I hereby submit to Parliament the 2016 Annual Report of the Ministry of Climate Change Adaptation (MCCA), Meteorology & Geo-Hazards, Energy, Environment and National Disaster Management Office.

It is said that if “you fail to plan, then you plan to fail.” Continuous improvement is only possible if you review your old planning and implementation to ensure following initiatives are underpinned by sound problem solving and practical, strategic targets. Therefore, the 2016 Annual Report for the Ministry of Climate Change is an important document in the planning process, allowing our Ministry to assess what has been done well and what activities remain to be implemented or strengthened in the coming year.

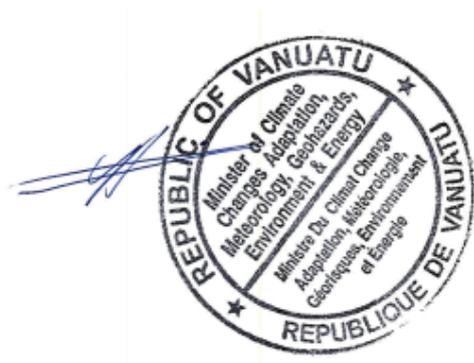


In 2016 the nation of Vanuatu continued to resolve issues caused by 2015 Cyclone Pam followed in 2016 by a strong El Nino and the threat of a La Nina event. Innovative responses to “Build Back Better and Stronger” were supported by our development partners, the private sector and Non Government Organisations both regionally and internationally. These efforts will continue into 2017.

At this point, I would like to recognise the contribution of our dedicated, professional team. The Ministry is fortunate to have well-educated technical and management officers delivering the Ministry’s program and projects often in very difficult and dangerous conditions, in isolated rural locations.

The closing function for the Ministry proved the opportunity to publicly recognise with Vanuatu Medals the services of long serving staff retiring after three decades of service. I wish to take the opportunity to name these officers - Leo Moli, Mercy Nalawas, Peter Feke, Paul Manamena and Philip Namu.

Yours sincerely,



**Honourable Minister Ham LINI VANUAROROA (MP)**  
Minister of Climate Change Adaptation

## DIRECTOR GENERAL'S MESSAGE

In the preparation of the 2016 Annual Report for the Ministry, I am reminded of the words of John Lennon's song "Another year over, a new one begun and what have you done...."

The process of preparing the 2016 Annual Report creates the opportunity for the Ministry team to look back to the year that has passed, reflect on achievements and challenges and then to utilise this period of reflection and lessons learned so as to be better prepared and resourced to pre-position our Ministry and Vanuatu for the challenges that will no doubt arise in the New Year of 2017.



In early 2016, a newly elected Government set us some challenging targets in the "One Hundred Day Plan." This meant re-prioritising existing work schedules, adjusting budgets and resource flows as well as mobilizing staff to ensure the deadlines were met while still balancing the need to keep on track with existing initiatives. I will leave the Directors in their Department Reports to provide details on the successful achievement of the One Hundred Day Plan agenda.

I wish to point out that this would not have been achieved without the hard work of the officers serving on the Ministry of Climate Change team. We are only a small Ministry – 149 staff once fully staffed. With a vacancy rate of 32.3%, our current team of 101 serving officers must punch above their weight to ensure that very ambitious targets in energy sufficiency, environmental protection, protection and warning for meteorological and geo-hazard events and our national response to emergencies are met. The Vanuatu Meteorology and Geo-Hazards staff work 24/7 – around the clock, 7 days a week. A strong commitment to national service, to improving and protecting the lives of ordinary Ni-Vanuatu, underpins our Ministry's work.

A new Department of Climate Change has been approved, the Department of Environmental Protection and Conservation restructured and restructures for the Corporate Service Unit, the Department of Energy and the National Disaster Management Office staffed. Policies, plans and legislation were prepared and implemented. Returning graduates and experienced personnel from the private sectors have been recruited to drive and implement a raft of new plans and legislation. The revision of the National Energy Roadmap, the National Environment Plan Implementation Plan set ambitious targets. Two new Acts – the Meteorology, geological hazards and Climate Change Act and the Energy Efficiency and Electrical Appliances, Equipment and Lighting Products Act were passed, reflecting years of development and consultation. An ambitious mobilization of 15 delegates were sent to COP 22 in Marrakesh to effectively raise Vanuatu's international profile and to lobby for improved resourcing to fight the potentially negative impact of Climate Change.

A significantly increased budget for 2017, following the annual Ministerial Budget Committee consultations, recognized the hard work of the Ministry and its on-going record of achievement of the Government's strategic priorities. The difficult task of dealing with long-term, outstanding financial liabilities i.e. International Memberships and fees, retirement packages and remuneration issues have been significantly addressed through consultative team work across all Departments. A raft of projects continued to be delivered across all Departments under this Ministry. The recent \$30 million Green Climate Fund (GCF) project on "Vanuatu Climate Information Services for Resilience Development Planning" is seen as a big step towards a more resilient and informed Vanuatu.

This spirit of teamwork imbues not only the work within our Ministry but across the sector. Government of Vanuatu Ministries and agencies worked together with international and regional partners, donors and Non-Government Organisations to provide critically important support for Ministry of Climate Change initiatives. The strong support of the public and private sectors both in Vanuatu and internationally must be recognised.

## Conclusion

I began this Preface to the 2016 Annual Report with the words from a John Lennon song and will close with more in hoping for a Happy New Year – let's hope it's a good one!

It is with pleasure that I hereby submit to Parliament the 2016 Annual Report of our Ministry. The 2016 Annual Report of the Ministry of Climate Change Adaptation, Meteorology and Geo-Hazards, Energy, Environment and the National Disasters Management Office has been prepared under Sub-Section 20 (1) (h) of the Public Service Act 1998 and the Public Finance and Economic Management Act 1998 (Section 30 (3)) in accordance with guidelines of the Public Service Commission.

Yours sincerely



Jesse BENJAMIN  
**Director General**  
Ministry of Climate Change



# CORPORATE SERVICES UNIT

## Overview

### Functions

The various functions of the Ministry of Climate Change Adaptation, Meteorology & Geo-Hazards, Energy, Environment and the National Disaster Management Office (NDMO) are implemented through the following:

- Ministry Cabinet, consisting of the Minister and support staff;
- Executive of the Ministry – the Corporate Services Unit – consisting of the Director General, Corporate Services Unit support staff and the Directors of the four Departments constituting the Ministry:
  1. Vanuatu Meteorology & Geo-Hazards Department (VMGD);
  2. Energy Department;
  3. Department of Environmental Protection & Conservation (DEPC);
  4. National Disaster Management Office (NDMO);

### The Government Vision

“Recommitting to reform to achieve a just, educated, healthy and wealthy Vanuatu”

### The Ministry Vision

“Develop sound policies & legislative frameworks and provide timely, reliable scientific information for service delivery to enable resilient communities, a sustainable environment and economic development.”

### The Ministry Mission

“Promote a resilient, sustainable, safe & informed Vanuatu.”

## Objectives

1

Support an enabling framework to develop and promote good governance and resource utilization through reporting (M&E), provision of sound advice to GoV, Legislative & Policy Frameworks, Planning & Budgeting and Donor harmonization)

2

Strengthen people to support strategic objectives (restructures & staffing, PMA, capacity building & training, Succession Planning, Retirement)

3

Resource the Ministry to deliver strategic objectives (funding, equipment, infrastructure, Convention & membership fees)

Values that underpin the work of the Ministry:

- Service delivery
- High performance against priorities
- Team Work
- Positive Attitude and Action
- Professionalism
- Ethical - Honest and Transparent
- Equity: Gender, Geographic, Disability, Youth, Language, Ethnicity
- Environmentally responsible
- Reliability, Commitment and Accountability

## Role

---

The Office of the Director General constitutes the Corporate Services Unit (CSU) and is primarily responsible for the efficient and effective administration of the overall functions of the Ministry:

- Enhance coordination between the Ministry, Cabinet, other Ministries and the MCCA Departments;
- Coordinate the achievement of the objectives of the Priorities & Action Agenda (PAA) and Plan Long Act Short (PLAS), as well as contribute to operationalising the National Sustainable Development Plan (NSDP);
- Develop and review policies relating to the core activities, especially those relating to Climate Change initiatives;
- Undertake high level reviews/special projects/investigations across the activity areas of the Ministry;
- Provide advice to Directors on matters pertaining to Ministry operations and policy;
- Monitor and review the performance of the Ministry against the agreed objectives and activities provided in the Ministry's Corporate Plan and Departmental Business Plans;
- Manage the human resources of the whole Ministry – including all Departments;
- Manage the budget of the Ministry with regular advice to the Minister, Director General and Directors;
- Ensure the Departments carry out policies within their given budget and forecast revenue is projected;
- Ensure that services are provided to the people of Vanuatu as agreed by the Ministry and Government;
- Facilitate the progression of cross-cutting issues such as the enabling framework of legislation, policy, Convention compliance, donor harmonisation, representation at sector stakeholder meetings as the “public face” of the Ministry.

## Challenges in 2016

---

The main challenges in 2016 were continuing responses to Tropical Cyclone Pam followed by the slow onset disaster of a major El Nino and La Nina events. The CSU Report will not overly dwell on these incidents as the reports from the National Disaster Management Office and Vanuatu Meteorology & Geo-Hazards will provide detailed analysis.

However, there is always a silver lining behind every cloud. International and national attention was focussed on the Ministry and its response capacity. The Government of Vanuatu acknowledged poor resourcing – human, financial, technical & infrastructure – for the NDMO. Restructures and additional resourcing were supported and hopefully will strengthen the response capacity of both the NDMO and the Ministry in the future.

### Staffing

The Corporate Services Unit structure was approved in 13<sup>th</sup> December 2013 but was not provided with staffing or operational budget for its activities in 2014, 2015 or 2016. Without an adequate Operations Budget for 2016, it was very difficult for the Corporate Services to

function effectively. A well-resourced and staffed Corporate Services Unit coordinates the effective functioning of the Ministry to deliver the policies and prioritised activities of the Government to provide effective responsive service delivery. The CSU should provide the enabling framework of planning, budget, policy development and the Human Resource management.

In 2016, Jesse Benjamin took up the role as

The CSU provides corporate services to five Departments:

- i. Vanuatu Meteorology & Geo-Hazards Department (includes Climate Change Project Management Unit),
- ii. Energy,
- iii. Department of Environmental Protection & Conservation,
- iv. National Disaster Management Office (NDMO),
- v. Department of Climate Change.

Director General and through the year four more appointments were made to ensure the

smooth operations of the CSU and to facilitate the organisational functions of the Ministry.

Name	Position	Position #	Employment Status
Jesse Benjamin	Director General	7000	Contract
Vacant	Executive Officer	7001	Vacant
Chester Takau	Finance Manager	7002	Permanent
Mike Waiwai	Human Resource Manager	7003	Permanent
Connie Sewere	Executive Secretary	7004	Permanent
Jane Kaiapam	Administrative Assist.	7005	Permanent
Vacant	Driver/Messenger	7006	Vacant

## Financial Resourcing

There was insufficient Operational Budget approved by the Ministerial Budget Committee for 2016. The Departments contributed by providing *virements* from their own budgets to allow CSU to function. This lack of appropriate resourcing hampered the proper function of the CSU office and indeed the entire Ministry. In addition, both the Department of Environmental Protection and Conservation (DEPC) and the National Disaster Management Office (NDMO) had limited budgets that were augmented by transfers from other Department's operational budgets.

The lack of funds also left Cabinet staff without gratuities or allowances. Across all Departments very serious budget constraints existed for retirement packages and medical retirements. Most 2016 retirements had to be deferred to 2017 except for one medical retirement paid for out of Cost Centre savings.

Without project and donor support and through the generosity of *virements* from VMGD and Energy, these Departments would not have functioned as well in 2016. New Policy Projects (NPPs) were submitted to the Ministerial Budget Committee to redress this situation in 2017. The Corporate Services Unit was able to facilitate some major initiatives in 2016, through Government, donor and sector stakeholder support. A supplementary budget midyear assisted effective operations in the latter half of the year. These will be discussed in full in Department reports following.

Recognition of the sound performance of the Ministry and the critical role of constituent Departments in the nation's security and economic well-being, saw significant budget increases approved for 2017 arising from a strong MBC presentation by the Directorate team.

### MCCA Salary to Operations Analysis for 2016 to 2017

2016 Budget Allocations				
Department	Payroll	Operations	Payroll to Ops (60% to 40% target)	Total
<b>Cabinet</b>	24,473,662	5,947,402	80.4% to 19.6%	30,421,064
<b>CSU</b>	6,839,560	6,367,250	51.8% to 48.2%	13,206,810
<b>VMGD</b>	92,132,213	30,969,193	74.8% to 25.1%	123,101,406
<b>Energy</b>	17,298,856	5,357,836	76.4% to 23.6%	22,656,692
<b>Environment</b>	18,309,742	6,864,107	72.7% to 27.2%	25,173,849
<b>NDMO</b>	16,822,549	6,601,675	71.8% to 28.1%	23,424,224
<b>MCCA Wide</b>	<b>175,876,582</b>	<b>62,107,463</b>	<b>74% to 26%</b>	<b>237,984,000</b>

MCCA 2017 Budget Allocations				
Department	Payroll	Operations	Payroll to Ops (60% to 40% target)	Total
<b>Cabinet</b>	25,630,932	4,790,132	84.2% to 15.8%	30,421,064

<b>CSU</b>	33,275,040	70,759,806	31.9% to 68.1%	104,034,846
<b>VMGD</b>	104,831,083	21,870,323	82.7% to 17.3%	126,701,406
<b>Energy</b>	25,541,207	12,115,485	67.8% to 32.2 %	37,656,692
<b>Environment</b>	26,966,220	8,207,629	76.6% to 23.4%	35,173,849
<b>NDMO</b>	25,177,060	8,247,164	75.3% to 24.7%	33,424,224
<b>MCCA Wide</b>	<b>241,421,542</b>	<b>125,990,539</b>	<b>65.7% to 34.2%</b>	<b>367,421,081</b>

**Comment:** 60/40 is the worldwide "gold standard" benchmark. Even many Western nations struggle to achieve this. The Efalal Bay Resolution for the PSC in 2011 was for 70% Salary to 30% Operations. MoH and MoE annually run at 82% to 18%.. MCCA needs to improve its Operations Budgets through recurrent NPPs.

## Facilities

The Head Office of the Ministry of Climate Change was damaged during Cyclone Pam as were provincial facilities. Work was undertaken in 2016 to repair the building and is largely complete.

The MCCA building in Port Vila is widely admired by regional organisations throughout the Pacific. However, the creation of the new Ministry with a need for more professional office space for our Minister and his cabinet as well as the amalgamation of Departments previously physically located in other Ministries, has created a need for even more office space.

The Department of Environmental Protection and Conservation, currently housed in the

George Pompidou Building, will move to office space in a refurbished house on the Ministry compound. In 2016, the Department of Energy secured the funding to construct a two storey building on the Ministry grounds to house itself on one floor and the new Department of Climate Change on the second.

NDMO intends to provide decentralised services to all six provinces and to this end in 2016 completed the construction of two Provincial Disaster Centres – one in Torba and one in Tafea. Three more offices were commenced with opening in 2017. Additional GoV or donor resources will be needed to actualise these infrastructure plans.

## Policy, Planning and M&E

Policy, planning and Monitoring and Evaluation are recognised in the MCCA Ministry as critical to strategic use and deployment of resources. It should be noted that our Ministry was one of only three Ministries to complete and submit its Ministerial Budget Committee Submission on time.

The following were completed, reviewed and/or implemented throughout 2016. *Reports and plans are available on request to the CSU in hard or soft copy.*

- MCCA Corporate Plan (2016 – 2018)
- National Disaster Management Office (NDMO) Strategic Plan 2016 – 2020
- VMGD's Strategic Plan 2014 – 2025
- Vanuatu National Energy Road Map updated
- Lessons Learned Cyclone Pam Report
- Department of Environmental Protection & Conservation's Strategic Plan (2014 to 2024)

- National Environment Policy & Implementation Plan
- 2016 Business Plans
- 2015 Annual Report
- MBC Submission prepared collectively & presented in August 2016;
- Monitoring & Evaluation (M&E) data collected for use in research and by DSPPAC;
  - 2015 Annual Development Report;
  - 2015 Six Month Report (July – December 2015) for DSPPAC;
  - COM Paper Compliance analysis for DSPPAC;
- Digitised data collected by VMGD for internal and regional use and research;
- Briefings for the Minister;
- Discussion Papers;
- Council of Ministers and DCO Papers as needed.

One of the most important developments in policy was the drafting of the Vanuatu National

Sustainable Development Plan in December 2016. This policy will provide the planning framework for future Ministry planning once its Key Performance Indicators are released.

This Policy aims to be accessible to and will be implemented by a wide range of government

agencies and stakeholders. It takes a practical approach in view of Vanuatu's resources, exposure and demographic contexts. It seeks to strengthen existing capacity at national, provincial and area council levels, drawing on our rich heritage, traditional knowledge and lessons learned.

## Legislative, Convention & Policy Framework

Initial consultations were commenced in 2014 to review, redraft and present to Parliament very important pieces of legislation governing the work of our Departments. The new One Hundred Day Plan provided key planning and delivery targets for the Ministry.

The Meteorology, Climate Change and Geological Hazards Bill, the Appliance Labelling Standards Bill and ratification of the Paris Agreement were legislative highlights of 2016.

The Ministry progresses compliance to several important Conventions. This has financial ramifications for membership fees and

attendance at international seminars. If delegates are not sent and fees lapse, Vanuatu becomes non-compliant. Once signed, legislation and policy needs to be ratified, framed and implemented in Vanuatu to make the Conventions take effect. If this does not occur, signing these Conventions becomes aspirational only. This has an impact on funding made available for project initiatives.

Attendance at international fora is compulsory to maintain compliance to Conventions. This places a heavy travel schedule on senior management and technical staff, depleting already stretched human resources.

## Project/Program Funding & Volunteer Support

Under the strong leadership of the CSU and MCCA Directors, project funding was negotiated and secured in 2016 for several important initiatives across the Ministry's Departments.

Detailed reports on donor funded project initiatives will be provided in the relevant Department Reports. This invaluable support provided significant opportunities for peer networking and mentoring for MCCA

counterparts, contributing to capacity building opportunities across the Ministry.

We would like to take this opportunity to thank our donor & sector partners for their on-going support for these major programs and also funding for the provision of technical support through volunteer programs.

## Restructures

Several restructures were undertaken in 2016.

Department	Date Submitted to PSC	Approval Status
<b>Restructures Approved in 2016</b>		
DEPC	9 <sup>th</sup> September, 2015	19 <sup>th</sup> February 2016
Climate Change	13 <sup>th</sup> April 2016	29 <sup>th</sup> April, 2016
<b>Restructures Being Staffed in 2016</b>		
CSU	6 <sup>th</sup> May, 2013	13 <sup>th</sup> December, 2013
VMGD	30 <sup>th</sup> May, 2013	30 <sup>th</sup> January, 2014
NDMO	26 <sup>th</sup> July, 2015	24 <sup>th</sup> September, 2015
Energy	25 <sup>th</sup> May, 2015	13 <sup>th</sup> August, 2015

Unfortunately, restructures completed later in 2015 meant MBC funding for new staffing in 2016 was not approved in time. Modest Implementation Planning for new staffing in restructures was dependent on Financial Visa and was undertaken in a staged manner depending on the strategic importance of the new positions.

In addition, a new Department of Climate Change was approved as part of the new Government's "One Hundred Day Plan." No

staffing funding in 2017 for the new Department of Climate Change was approved in the 2016 MBC hearings.

The establishment of a National Advisory Board Secretariat within the Corporate Services Unit saw two posts being contracted to mainstream Climate Change issues across the whole of Government.

## Capacity Building

---

Support through the Corporate Services Unit saw many of the Ministry staff secure international scholarships and access to training seminars in the region and overseas, details of which will be provided in the Department reports.

However, in 2016 the Ministry operated without a Human Resource Development Strategy, a gap needing to be redressed to remedy several major concerns such as:

- Performance Management System bi-annual reporting;
- Scholarship & Study Support Policy;
- Retirement Planning;
- Succession Planning;
- Equity & Gender Issues
- Leave Accruals

Drafting of the MCCA HRD Strategy was continued throughout 2016 and should be complete by 1<sup>st</sup> Quarter 2017.

## National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) Secretariat

---

### Introduction

The NAB Secretariat (or NAB Sec) sits within the Corporate Services Unit of the Ministry for Climate Change. Its functions include:

- Supporting the implementation of international obligations related to CC & DRR and monitoring and reporting on implementation
- Supporting the development of national stances/positions to be tabled at international CC & DRR summits and negotiations
- Guide, coordinate and facilitate dialogue among donors, development partners and financiers on national CC & DRR priorities and activities

Although a draft structure has been developed for the NAB Sec, it has yet to be submitted to the Public service Commission for approval. The Secretariat is currently composed of a Manager and an Information Management Officer. Towards the end of 2016, preparations were underway for the recruitment of a Green Climate Fund In-Country Coordinator for the Readiness Program, for the successful applicant to begin working under the NAB Sec

in January 2017. The Secretariat is also involved in various activities within the Ministry of Climate Change.

### NAB Secretariat Duties

Summarized below are tasks carried out by the NAB Secretariat under its mandate:

- Dissemination of NAB Membership or appointment letters to Ministries for DGs and Directors
- Coordination of the NAB Meetings, which were convened every second month beginning in March
- Managed the NAB Meeting minutes and disseminated endorsement letters for Projects and IEC Materials
- Assistance provided to the USAID USP CAP Project in coordinating their consultation meetings in Vila and Tanna
- Coordination of interviews for 2 research projects: Climate Refugees (Nikita Perumal) and Ni-Van Communities (Guy Jackson)
- Assistance provided with the Loss and Damage Forum (held in Port Vila in December)

- Delivered NAB and the NAB Portal Awareness Workshops to Provincial Technical Committees (held in Santo and Banks in September)
- Launching of the upgraded NAB portal (held in Port Vila in August)
- Assistance provided to the VCAN for the Disaster Risk Reduction Boot camp (held in Port Vila, in October )
- Correspondence with project proponents, for guidance on project aspects such as country priorities and project sites
- Continuously updating stakeholder list for easy coordination of information
- Collating and designing new information materials of the NAB processes for public to access
- Uploading all resourceful CCDRR materials to the NAB portal for the general public to access

The NAB Sec oversees four (4) working groups as outlined below. The Secretariat being the secretariat of all these working groups ensures all coordination of activities to be carried out within the four (4) working groups. The Secretariat summons meetings via email at least once a month for each of the working groups. Based on the work carried out this year, the Secretariat is proposing some changes to the ToRs outlining some of the functions and membership of the working groups. It is looking forward to the endorsement of these changes by the NAB in early 2017, so that work can begin once again.

## Working Groups

### Climate Finance Working Group

The Climate Finance Working Group (formally called the National Implementing Entity (NIE) Taskforce) was composed of representatives from the Department of Finance, Ministry of Climate Change (MoCC) Finance Officers, Prime Minister's Office (PMO), VMGD's Project Management Unit, the MoCC's HR Unit and the TA for Climate Change. Its aim was to consolidate information needed towards accreditation of the government as a National Implementing Entity by 2017.

In September 2016, the Climate Finance Working Group members were invited to a workshop organized by two climate ready project coordinators who were planning on obtaining NAB approval for their projects in Vanuatu. During the workshop, the facilitators were able to gather information about the requirements that the NAB has for project proponents.

The Working Group will be continuing their work in 2017, under a revised ToR, which includes a revision of their objectives and the membership of the Working Group. On NAB endorsement, the Working Group can convene and begin its work.

### UNFCCC Task Force

The UNFCCC COP22 Taskforce was composed of representatives from the Foreign Affairs Department, the VMGD's PMU, Department of Woman's Affairs, State Law Office, PMO, Department of Agriculture, Department of Finance, VHT and VCAN. It served as the primary Government-led planning, information sharing and implementation mechanism for all initiatives related to the UNFCCC COP22 under the oversight of the NAB.

The 2016 annual engagement plan and budget was developed in January and endorsed at the first NAB meeting in March. The Secretariat coordinated the selection of the Vanuatu UNFCCC COP22 delegates in July and oversaw the preparation of the delegates towards the COP 22 from August to November which included the coordination of the delegates into 4 thematic groups; Adaptation, Finance, Gender and Science & Technology and preparing country submissions. Upon return from COP 22, the Secretariat facilitated a half-day COP22 Debrief workshop in collaboration with GIZ. The Vanuatu outcomes of the COP 22 can be accessed on the NAB portal [www.nab.vu](http://www.nab.vu).

### Project Screening Committee

The Project Screening Committee is composed of representatives from the Department of Woman's Affairs, VMGD's PMU, Department of Finance, PMO, Department of Environment, VMGD, Department of Local Authorities and the NDMO. The Committee was established under the direction of the NAB to expedite project appraisal processes, by reviewing and making recommendations to the NAB, based on Vanuatu's priorities and needs, on projects seeking Government endorsement.

There were a total of nine (9) projects and project concepts endorsed by NAB from March to December 2016. These included the PARTnER Project (with the VMGD and NDMO), the PPOA (with the Departments of Fisheries and Environment) and the Vanuatu Laef App. In addition, six (6) research projects were endorsed by NAB (Examples of research

projects that were endorsed were: Climate Refugees by Nikita Perumal, Social Relations of Water Management in the Context of Climate Change by Mouna Chambon and the Monitoring determinants for water and sanitation services by Jeremy Krovitz). Information on projects endorsed last year are available on the portal.

## Information Educational and Communication Materials

This working group consists of Principal Scientific Officers in the climate change and disaster risk reduction area (such as Alice Iarem at the NDMO). They are responsible for validating IEC materials submitted to them from stakeholders (which initially goes through the NAB Secretariat).

In 2016 materials endorsed included posters, videos, flipcharts and other linens such as t-shirts and tea towels. Organizations such as the Red Cross, ADRA, and Save the Children submitted samples of materials for endorsement through the NAB.

## NAB Portal

The NAB Portal [www.nab.vu](http://www.nab.vu) was re-launched on August 17 2016 since it was first created in 2012. The user interface and user experience were greatly improved (funded by the Australian government through a program known as RTSM) since its former version (funded by GIZ). All projects, documents, events and other resources are properly laid out clearly for users to find.

After its launching in August, the NAB Secretariat amended a few features of the portal to suit the context of Vanuatu. Continuous improvements are being made to the portal.

The nab portal is being promoted through a range of mediums including pamphlets, FM Broadcast, Stickers, workshops and on other portals such as the Pacific Climate Change Portal <https://www.pacificclimatechange.net> and the SPREP portal <http://www.sprep.org>. The NAB Secretariat continues to inform the public of this national portal that has all of the NAB's endorsed CCDRR projects and the majority Vanuatu CCDRR related resources.

## Training and Workshops

The NAB Secretariat is also a member several other committees including the Community

Based Disaster Risk Reduction Working Group, National Water Steering Committee, the CCCPIR Steering Committee and the VCAP Board. Below are some of the Meetings, Workshops or Trainings that the NAB Secretariat either had an active role in, assisted its facilitation or attended as a participant in 2016:

- Provincial Response Plan workshop (NDMO, Port Vila in February)
- Community Assessment Form (NDMO, Port Vila in February)
- PRRP Board Meeting (Tonga, in March)
- VCAP Board Meeting (Port Vila in March, Epi in October)
- 2016 iCLIM Work plan Workshop (Brisbane, Australia in March)
- CCCPIR Steering Committee Meeting: GCF Presentation (Port Vila in March)
- National Solid Waste Management Strategy Consultation Meeting (Port Vila in March)
- GCF Accelerating Direct Access (South Korea in April)
- NDMO Act Amendment Consultation (Port Vila in May)
- RTSM Technical Training *by Tony Miller* (Port Vila in May)
- Knowledge Management Training *by SPREP* (Port Vila in June)
- PIC Region Network of Ozone Officers (Suva Fiji in June)
- GIS Training by PCRAFTI (Port Vila in August)
- KOBO Training by URNCHA (Port Vila in August)
- UNFCCC COP 22 (Marakesh, Morocco in November)
- Help coordinated the Climate Finance Forum (November)

## Other NAB Engagements

Other duties that the NAB Secretariat is involved in included:

- Monitoring and Evaluation Reporting for DSPACC (January)
- Designed and Coordinated the construction of the Ministry of Climate Change's official sign board
- Supported the Department of Environment by providing assistance with the ozone layer act and implementation of the Montreal protocol activities (Training for RAC and Customs Border (Anna – Assisted DEPC in August)
- Requested as an independent party in the recruitment and selection panel

## CSU Public Awareness

As always, public awareness and access to information generated by the Ministry remains a strong focus. Weekly articles appear in the local newspapers “The Daily Post” and “The Independent” with radio and television following many of the stories.

The VMGD Communication and Engagement Strategy, although focussed on public awareness and communication within the VMGD Department, provides strategies replicated by other MCCA Departments.

World Meteorological Day, MCCA Open Day, Energy Week, ICT Week, National Environment Week, World Ocean’s Day, Waste Management Awareness and participation in Careers or Schools Awareness Programs continue to positively raise the Ministry’s public profile.

An upgrade of the NAB Portal and the NDMO Web Site means easier public access to information.

## Challenges

2016 was a challenging year for the entire Ministry for which the Corporate Services Unit provides oversight administrative assistance, policy development, budget and staffing.

Challenge	Background	Status
Luganville Concession Tender	Difficult tendering process	In Progress
Financial Obligations	<ul style="list-style-type: none"> <li>Backlog in International dues &amp; fees</li> <li>contracts &amp;</li> <li>Utility expenses many years old</li> </ul>	Addressed by collaborative budgeting across MCCA Departments
COP 22	Complex organisation process	COP 22 Delegation of 18 successfully mobilised
GCF Funding	Very complex submissions for two projects (VMGD) prepared requiring considerable investment in time	Project approved by GCF Board to value of 30 million vatu
Vulnerability	Vanuatu is deemed the most vulnerable nation in the world to natural disasters	CC and DRM being mainstreamed across whole of GoV
Cyclone Pam, El Nino + La Nina	These events continue to challenge the response and coordination capacity of the Ministry	Full Report in NDMO Section
Political Leadership + Policy Direction Changes	Change in Government & leadership results in new policy directions requiring Ministry to revise planning & operational priorities	MCCA meets most of its 100 Day Plan targets
Budget Constraints	Budget issues for Cabinet, CSU, and operations budgets for Energy, DEPC and NDMO insufficient.	A supplementary budget approved in June 2016; NPPs applied for in August 2016 MBC to address financial shortfalls
Restructures	In 2016, 2 restructures were progressed but these remain to be staffed fully and Operations budget provided commensurate with staffing & activities	CC Dept – Approved DEPC –approved
Legislation	i) Appliance Labelling & Standards ii) VMG Bill legislative passed iii) NDMO Act reviewed iv) Environmental Protection & Conservation Act reviewed	i) Approved ii) Approved iii) SLO to finalise draft by 2nd Quarter 2017 iv) In progress
Reporting	Ministry previously non-compliant in some reporting	2016 full compliance (Refer section on reporting)
HRD Strategy	MCCA has no HRD Strategy to guide staffing issues & planning	Redress by 1 <sup>st</sup> Quarter 2017
Leave Accruals	Significant Leave Accruals – some staff with over 400 days accrued leave – created longitudinal liability	DG instructs Directors to better manage leave of staff
Retirement	Limited funds available - 6 retirements with 4 others postponed to 2017 or when funds are available	Funds for 2017 held by MFEM
NIE	Accreditation to become a National Implementing Entity to manage in country CC funding	NIE Status Audit undertaken and Working Group set up to progress issues
Vacancy rates	Across the ministry vacancy rates of 38.9% affect delivery of Ministry initiatives (Figure as of 02/01/16)	Strong recruitment drive sees vacancy rates drop to 32.3% (Figure as of 09/01/17)

Directorships	Vacant Director's posts had an operational impact – NDMO, DEPC & DoE	DoE Director recruited Recruitment in progress for NDMO & DEPC
Absorptive Capacity	MCCA has small highly effective Departments with significantly high funding and projects that challenges absorptive capacity – Energy, NDMO & DEPC	Restructures should ameliorate this problem

## Conclusion

---

The Corporate Services Unit can look back to 2016 as the year in which an increase in permanent staffing from one position to five meant the opportunity to more effectively deliver the support for the other Departments of the Ministry. In addition, 2016 was a year of successful restructures, legislation and policy development pre-positioning the Ministry for the future.



<p><u>PO 4.5:</u> Ensure the protection and conservation of Vanuatu's natural resources and biodiversity, taking climate change issues inconsideration.</p>	<p>Indicator:</p> <ul style="list-style-type: none"> <li>- Develop and implement environmental policies;</li> <li>- Number of resource management plans developed.</li> </ul>	<p>2011-2016</p>	<p>DEPC has developed several pieces of legislation The Environmental Protection and Conservation Act 2002; and amendments made to the Act in 2010. Ozone Layer Protection Act No. 27 came into effect in 2010 including the Ozone Layer Protection (Fees &amp; Penalty Notices) Regulation No.100 of 2011. There was also the development of an EIA regulation and amendment order 175 of 2011. The Pollution Control Act and Waste management Act developed and gazetted in 2014. The National Environment Policy (NEP) is approved and in October the National Environment Implementation Plan is launched.</p> <p>DEPC has developed 3 Regulations</p> <ol style="list-style-type: none"> <li>1. CITES Regulation</li> <li>2. ODS Regulation</li> <li>3. EIA Regulation</li> </ol>
<p><u>Strategy 4.5.1</u> Ensure the full implementation of the Environmental Management and Conservation Act 2002 through the development and enforcement of related regulations, and the establishment of the EIA Trust fund.</p>	<p>Indicators:</p> <p>Number of regulations developed and enforced; EIA Trust Fund Established; Number of EIAs conducted; Number of stop-working notices issued.</p>	<p>2011-2016</p>	<p>Since 2008, DEPC has conducted about 180+ EIA on development projects around the country. DEPC has also prepared about 250+ PEAs (Preliminary Environment Assessment) for development projects around the country. DEPC has issued 40+ 'Stop Work' notices since 2008. In relation to this, we have issued 35+ penalty notices for non-compliances. DEPC generated collected solid revenue streams through EIAs for the Government in 2016.</p> <p>EIA Trust Fund not established The EIA Trust Fund will be part of an overall Environment Trust Fund as per Environmental Management &amp; Conservation Act 2002 once implemented</p>
<p><u>Strategy 4.5.2</u> Encourage the development of protected areas.</p>	<p>Indicator:</p> <ul style="list-style-type: none"> <li>- Number and size of protected areas with a map, survey, management plan and management committee.</li> </ul>	<p>2011-2016</p>	<p>DEPC has assisted with the creation of over 20 protected areas. Currently there is a total of 37 protected areas recognised by the Vanuatu Government covering 10,000 hectares</p>

			DEPC assisted several community conservation areas (CCAs) to develop the resource management plans in particular those CCAs that are interested in registering their CCAs. At the moment DEPC has developed over 10 resource management plans. As required by the Environmental Protection and Conservation Act, DEPC registered a total of 4 Community Conservation Areas (CCAs)
Strategy 4.5.3 Establish the Biodiversity Advisory Council	Indicator: Biodiversity Advisory Council established.	2011-2016	Not established
Strategy 4.5.4 Minimize coastal water and reef pollution associated with sewage, oil and industrial chemicals spills and contamination through strengthened monitoring and enforcement	Indicator: Public sewage system in Port-Vila and Luganville designed (Plan).	2011-2016	Port Vila Urban Development Project designed incorporating waste and sewerage treatment
Strategy 4.5.5 Finalize and implement the Vanuatu climate change policy including its integration in the PAA, sector plans and ministry corporate plans.	Indicators: Vanuatu climate change policy finalized;  Number of sector plans that take climate change issues into consideration  Baseline: Vanuatu climate change policy still in draft (2011)	2011-2016	Friday 30th October 2015, Vanuatu's Climate Change & Disaster Risk Reduction Policy was launched by the Prime Minister Hon Sato Kilman Litvunvanu # Sector Plans <ul style="list-style-type: none"> <li>• Ministry of Infrastructure</li> <li>• Ministry of Health</li> <li>• Ministry of Education</li> <li>• Ministry of Agriculture, Livestock Fisheries &amp; Forests</li> <li>• Ministry of Climate Change</li> </ul>
Strategy 4.5.6 Review the Vanuatu Meteorological Act to reflect climate change issues and use of the GISM technology for Geo-Hazards.	Indicators: Vanuatu Meteorological Act reviewed to include the relevant changes Baseline: Meteorological Act not reviewed Target: Done by 2013	2011 - 2016	VMG Act revised July 2016 ready for presentation Parliament. Passed in December 2016
PO 4.6 Prepare the people of Vanuatu to face disasters.	Indicator: Allocation of financial and human resources for DRR&DM plans across all sectors of Government	2011-2016	Resources planned for financial & human resources in <ul style="list-style-type: none"> <li>• Ministry of Infrastructure</li> <li>• Ministry of Health</li> <li>• Ministry of Education</li> <li>• Ministry of Agriculture, Livestock Fisheries &amp; Forests</li> <li>• Ministry of Climate Change</li> <li>• All Provincial Governments (6)</li> </ul>

<p><u>Strategy 4.6.1</u> Strengthen planning and decision-making processes at national and provincial level for DRR and DRM.</p>	<p>Indicator: Number of Ministerial / Sectoral / Provincial / Corporate Plans and annual budgets that explicitly reflect DRR and DM considerations.</p>	<p>2011 - 2016</p>	<ul style="list-style-type: none"> <li>• Ministry of Infrastructure</li> <li>• Ministry of Health</li> <li>• Ministry of Education</li> <li>• Ministry of Agriculture, Livestock Fisheries &amp; Forests Biosecurity</li> <li>• Ministry of Climate Change</li> <li>• Ministry of Trade</li> <li>• All Provincial Governments (6)</li> </ul>
<p><u>Strategy 4.6.2</u> Empower communities to design and implement their strategies for DRR and DRM.</p>	<p>Indicator: <i>Number of communities with their disaster risk reduction and management plans.</i></p>	<p>2011-2016</p>	<p>Community Disaster Committees established &amp; training delivered</p>
		<p>2016: 124 Shefa x 2 Sanma X 8 Penama X 10 Torba X 38 Tafea X 47 Malampa X 3</p>	<p>2017: 200 Shefa x 40 Sanma X 20 Penama X 15 Torba X 50 Tafea X 47 Malampa X 28</p>
<p>Strategy 7.4.4: Promote the use of bio-fuels and other alternative energy sources where economically feasible. (Land Transport)</p>	<p>Indicator: Total volume of biofuel produced and used for transport and electricity generation.</p>	<p>2011 - 2016</p>	<p>Five generating stations generating energy with biofuel. Unelco using 25% biofuels for generation</p>
<p><b>PLAS MATRIX &amp; KPIS (ADDITIONAL TO PAA ABOVE)</b></p>			
<p>Infrastructure 7.1.4. Promote, explore expand and invest on the use of potential renewable energy, especially where these can be used effectively in remote locations. (Energy) . Proportion of rural population with access to electricity; . Proportion of rural population with access to electricity generated from renewable and non-renewable energy</p>	<ul style="list-style-type: none"> <li>. Vanuatu Energy for Rural Development Project (AusAID);</li> <li>. Amend URA Act to allow the Minister responsible for Geothermal Act to issue minimum tariff for geothermal electricity;</li> <li>. Takara geothermal project operational;</li> <li>. Talise (Maewo) and Wampu (Santo) hydro;</li> <li>. Solar desalination Ambae and Aniwa;</li> <li>. Extend grids Efate, Santo, Malekula;</li> <li>. Global Partnership on Output-Based Aid (GPOBA)</li> </ul>	<p>2016</p>	<p>Electricity Connections currently 27% (16.7% rural homes, 25% health facilities, 42% schools) Takara Geo-Thermal being explored Talise (Maewo) and Wampu (Santo) hydro; Solar Desalination:  <ul style="list-style-type: none"> <li>• Aniwa – 3 communities</li> <li>• Ambae – Lolowai including hospital</li> <li>• Efate Sato and Malekula Grids extended</li> </ul> </p>
<p>7.1.8. Improve solid waste management in towns.</p>	<ul style="list-style-type: none"> <li>. Port Vila and Luganville dump site;</li> <li>. Lenakel town dump site.</li> </ul>	<p>2016</p>	<p>Waste Management Act passed</p>
<p>7.1.9. Maintain and upgrade the basic meteorological and geo-hazard infrastructure and operations.</p>	<ul style="list-style-type: none"> <li>. Set up provincial meteorological sub-stations;</li> <li>. Upgrade and maintain the meteorological and geohazard infrastructure.</li> <li>. Percentage of seismic and volcanic stations established and maintained;</li> </ul>	<p>2016</p>	<p>Under way</p>

	. Percentage of forecasting and warning issued by the VMS which are timely and accurate.		
P.O 7.4 Respond to Natural Disasters	7.4.1 Maintaining and upgrading the basic meteorological and geo-hazard infrastructure and operations (Meteo). . Establish a tsunami warning system for Port Vila and Luganville	2016	Tsunami Warning System in place, SOP written, Simulation Exercises in Santo in November 2016



## Director's Message

---

2016 has been a very busy year for the Vanuatu Meteorology and GeoHazards Department. More than 60% of activities stated in the Business Plan were implemented, which shows how successful 2016 was for VMGD.

The Department has grown from strength to strength. It began its path to modernization, with two automatic weather stations installed in Vanuatu's international airports Bauerfield and Pekoa. By the end of 2017, all weather stations will become automated. New seismic stations have also been installed, and this development will improve, data collection, monitoring, and eventually our warning system.

About 80% of positions within the approved structure has been filled, and the Department will continue to fill in vacant and new positions. Additionally, the current national government, in its "100 Day Plan," indicated the need to establish the Hydrology Forecasting within VMGD and that hydrology personnel should join the VMGD.

VMGD invested strongly in human resource development and capacity building. At the end of 2016, 6 staff were on long term studies, while a good number of staff attended short term courses, trainings and workshops.

2016 have been capped off with the enactment of the new legislation titled Meteorology, Geological hazards and Climate Change Act. The law has since been gazetted. The Department is now working towards changing the current regulation to tie in with recent changes within.

Furthermore, the project "Development of Climate Services for Resilient Development in Vanuatu", developed in partnership with SPREP and totalling 2.5 billion vatu, has been approved by the Green Climate Fund board. The billion vatu project will be implemented in the latter part of 2017 and will run for a period of 5 years.

We congratulate the hard work of all VMGD Staff and Divisional Managers for their efforts in 2016. We also would like to extend our thank you to the Director General of the Ministry of Climate Change and staff for supporting VMGD throughout 2016.



David Gibson, Director  
Department of Meteorology and Geo Hazards

## Overview

---

### About Vanuatu Meteorology and Geo-Hazards Department

The Vanuatu Meteorology and Geo-Hazards Department (VMGD) is a Department within the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management. The VMGD consists of seven Divisions, being: Administration, Weather Forecasting and Services, Climate; Climate Change/Project Management Unit, Geo-Hazards, Observations, and ICT/Engineering. These Divisions work together to ensure the core functions are carried out as indicated in the annual Business Plans, the Corporate Plan, and Vanuatu Priorities and Action Agenda.

### Vision

“To be a world class meteorological and geo-hazards institution that contributes to the sustainable development of Vanuatu, and the Pacific region”

### Mission

“A fully professional institution comprising skilled and motivated staff, using updated and state of the art science and technology, within an efficient and effective organization, providing high quality meteorological and geo-hazards services that are widely available and accessible, effectively applied, beneficial and highly valued by all sections of the community in Vanuatu.”

### Areas to Achieve

1

Excellence in weather and climate forecasting processes

2

Leader in climate change adaptation and mitigation implementation, monitoring, negotiations

3

Active monitoring and state of the art implementation of early warning systems for Geo-hazards

4

Accessing and supporting international and regional observation networks

5

Research and innovation targeting improved products and services to all

6

Facilitating cooperation with respect to its monitoring networks

7

Cutting edge technology

8

Quality control systems in place with supporting administrative and financial resources in place

## Principles

The guiding principles of the VMGD as set out below apply to the implementation of this Strategy.



### Vanuatu Focus

The work of the VMGD is primarily focused on effective delivery of meteorological (weather and climate) and geo-hazards services for the benefit of the people and communities of Vanuatu, with its focus of development consistent with the priorities of relevant national sustainable development framework.



### Partnerships

Partnerships with the WMO, regional inter-governmental agencies and organizations, and technical partners are critical to the success of this Strategy. The participation of VMGD in a national and regional coordinated approach enhances effectiveness in increasing resources, targeting effort and managing potential overlap between agencies, organizations and development partners, especially where these are managed through national, bilateral and multilateral arrangements. Partnerships between VMGD and its counterparts in other Pacific Island countries have an important role in ensuring cooperation and sharing of lessons-learned within the region.



### Supporting gender equality and the most vulnerable in society

VMGD accepts the need to operate and deliver services in ways that address principles of gender equality and the needs, both internally of the Department and in the development and delivery of VMGD services to the most vulnerable in Vanuatu society.



### Cost effectiveness

Services should be delivered in an efficient, cost-effective way. VMGD's ability to deliver the actions in this Strategy is critically dependant on the re-sources available to it. The VMGD will endeavour to be strategic in the alignment of the development and delivery of VMGD services in ways that maximize the development support from national government and from regional partners.



### Sharing information

The VMGD is committed to sharing data in line with national obligations and international policies; in particular the WMO commitment to free and unrestricted exchange of meteorological and related data and products (WMO Resolutions 40 and 25).



### Regional and Global contribution

The VMGD recognizes the regional and global character of weather, climate, and geo-hazards, and the need for an international approach that is consistent with relevant guiding regional frameworks such as the Pacific Islands Meteorological Strategy, the Disaster Risk Management Framework, and the Pacific Islands Framework for Action on Climate Change, amongst others.

## Objectives

The object can be divided into these main areas:



## Programs

The Department consists of six major programs (Activities) to carry out its functions and they are as follows:

1. The Administration
2. The Weather Forecasting and Services Section
3. The Climate Services Section which also includes Climate Change
4. The ICT and Engineering Section
5. The Observation Section
6. The Geo Hazards Section

## Locations

The VMGD has a total of seven observation stations throughout the country, with each weather station strategically located in each province. Sola Station is located in TORBA Province, Saratamata in PENAMA Province, Lamap in MALAMPA province, Pekoa in SANMA Province and Bauerfield in SHEFA Province. TAFEA Province has two observation stations, one on the island of Tanna and one on Aneityum. The Head Office of the VMGD is located at Nambatu, Port Vila, and houses all Divisions, including the Ministry of Climate Change, Corporate Service unit and the National Disaster Management Office (NDMO).

## Outreach within Vanuatu

The VMGD continues to engage in outreach programs throughout the country. Establishing VMGD Communication and Outreach Partnership (COP) working group during 2014 was a strategic achievement for VMGD. VMGD

COP Working Group which is made up of at least one representative from the 7 divisions within VMGD is co-chaired by PSO Training and Community Liaison Officer and Information and Communication Officer within PMU. The group's main focus during 2016 was on Outreach activities such as community and schools awareness, Exhibitions, community group visits and schools careers talks. However due to funding limitations most of the Outreach activities were done around communities of Efate.

## Regional and International Connections

The VMGD relies on regional and international partners to implement some of its core and planned activities, as the recurrent budget is not sufficient to carry out all activities stated in the Departmental Annual Business Plan. The VMGD is thankful for such assistance, and will continue to seek funding from these organizations now and into the future.

## Programs, Functions and Sectors Served

The VMGD has seven major Divisions to carry out its programs and functions (see table below), they are: Administration Division, Weather Forecasting and Services Division,

Climate Division, Climate Change and Disaster Risk Reduction/Project Management Unit Division, Observation Division, Geo-Hazards Division, and ICT and Engineering Division.

Programs							
Administration	Observation	Weather Forecasting and Services	Climate	Geo-Hazards	ICT and Engineering	Climate Change & DRR PMU	Programs
Provides the VMGD leadership and management structures for the operations of the VMGD.	Maintains adequate observational networks, providing the required data and information needs of the VMGD Divisions and other national, regional, and international users and networks.	Provides timely and quality weather services and products to the general public, mariners, and commercial end-users  Provides timely warnings on severe	Provides climate data and information, long term forecast and ENSO information	Delivers quality services and products on geo-hazards and related phenomena to mitigate against potential impacts of geological hazards (earthquakes, tsunamis and volcanic eruptions)	Enables the VMGD to adapt to technological changes and use up-to-date, modern and sound infrastructure and ICT to support all VMGD's services.	Manages and operates the implementation and integration of climate change and disaster risk reduction programs and projects to support national level commitments to Climate Change and Disaster Risk Management multilateral agreements.	Functions

		weather events					
VMGD Management Team, All VMGD staff, Line Departments, WMO and other regional organisations	VMGD, Other National Meteorological Services	All sectors	All sectors	All sectors	VMGD, Line Departments	All sectors	Sectors

## Structure and Staff

### Structure

The structure to reflect the amalgamation of Meteorology and Geo-Hazards was approved on the 29<sup>th</sup> January 2014. In the new structure a total of 89 positions and Job descriptions were created and approved by the PSC for VMGD. The Structure consist of six Divisional Managers, a Deputy Director and a Director.

### Staff

The table below shows the number staff per divisions and against their employments and gender in 2016.

Divisions	Male Staff		Female Staff		Total Staff	Remarks
	Permanent	Temporary	Permanent	Temporary		
Administration	3	0	3	0	6	
Weather Forecasting	7	0	2	0	9	
Climate Serves	5	1	2	0	8	1 officer on secondment.
Geo-Hazards	5	0	5	0	10	
Weather Observation	17	0	2		19	
Climate change (PMU)		5		5	10	
ICT & Engineering	4	0	3	0	7	
Totals	41	6	17	5	69	

The VMGD's recurrent budget is used mostly to implement activities within the business plan for 2016. Additionally, three major projects: Increasing Resilience to Climate Change and Natural Hazards (US \$ 11,100,000), Mainstreaming Disaster Risk Reduction (US \$ 7,200,000) and Vanuatu Climate Adaptation program (V-CAP) (800 million vatu) consist of components which assisted VMGD in executing its business plan for 2016.

## Performance 2016 Overview

The VMGD's performance in of 2016 was above average, with more than 80% of the planned activities carried out

**Table: VMGD Department Performance**

Key Area	Key Results and Highlights
<b>Institutional arrangements</b>	<b>Hydrology positions (x2) created in the revised structure</b>
Amalgamation	Eighty percent of vacant positions within VMGD structure filled
QMS, operational procedures	Documents reviewed, submitted to civil aviation authority for approval Operational procedures have been updated
Policy and Legislation	Meteorology, Geological hazards and climate change legislation enacted in parliament and gazetted
Infrastructure	All observation stations (outer islands) renovated and refurbished.
People	1 Staff on secondment with SPREP
Finances	The annual budget for 2016 was 138,476,413
Capacity Building	3 Staff on long term studies (2 Masters and 1 PHD) Staff continue to attend short, medium and long-term courses.

## Administration Division

### Division Purpose and Key Outcomes

The Administration Division provides the VMGD leadership and management structures for the operations of the VMGD. Given the relatively rapid development of the VMGD in the past decade, the Directorship and Corporate Division have sought the appropriate and relevant capacity building and resource support for the increasingly wide array of services the Administration Division provides, as well as building the resources to support those services that go with it.

The Administration Division continues to ensure that it has the necessary and appropriately skilled staff in relevant fields (finance, administrative and human resources) to have an effective administrative component which assures the operation of the various Divisions. The Division also strives to equip the VMGD with the highest possible degree of all resources allocated to it for its operations. The Division, in close consultation, continues to develop appropriate policy documentation to cover the management and operation of the VMGD.

### 2016 Priority Activities and Results

Programs and Objectives required by the 2015 Business Plan are summarized in the table below with results and commentary provided.

**Table: Programs, Objectives and Results – Administration Division (Business Plan)**

Programs	Objective (Targets)	Result ✓✗	Result Summary
----------	---------------------	--------------	----------------

<b>Revenue</b>	Increase revenue	✓	
<b>Legislation</b>	Develop legislation for organizational operations and decision making	✓	
<b>Policy</b>	Improvement of weather, climate, climate change, water, volcano, earthquake and related meteorological and geological hazards	✓	
<b>Amalgamation</b>	Complete implementation of new structure	✓	
<b>Strengthening Operations</b>	Deliver better services more effectively	✓	
<b>Quality Management System</b>	Sustain QMS on services to Aviation sector, expanding to marine sector.	✓	
	Competency	✓	
<b>Strengthen services</b>	Strengthen services to rural communities	✓	
<b>Working Groups</b>	Ensure working groups are effective	✓	
<b>Strengthen relationships between partners</b>	Establish MOU's with partners	✓	
<b>Annual Report</b>	Develop appropriate monitoring and reporting systems to meet the required public service standard.	✓	
<b>Business Plan</b>	Develop business plan	✓	
<b>VMGD Structure</b>	update VMGD structure to reflect changes	✓	
<b>Appraisal</b>	Conduct appraisal for all staff	✓	
<b>Review VMGD Strategic Development Plan</b>	Revise VMGD SDP	✓	
<b>Budget</b>	Completed budget	✓	

## Strategic Development Plan 2014-2023

The VMGD has launched its Strategic Development Plan (SDP) 2014-2023. The plan is in line with the Ministry's Corporate Plan, the National Plan (PAA), and the new people's plan, and is also reflected in the Annual Departmental Plan. The plan will be reviewed in 2017.

## VMGD Finances

The total budget allocated and appropriated by Parliament to cover operations of VMGD for 2016 was 125,492,904 vatu, of which 102,849,013 vatu went to Salary/Personnel Expenses and 22,643,891 vatu went to operations.

Filters Applied to this Report					
<b>Fund</b>	2-Recurrent Fund				
<b>Dept.</b>	75-Vanuatu Meteorological Services				
<b>Currency</b>	Vatu				
<b>Book</b>	Primary Book (vatu)				
Account	Description	Actual	Total	Budget	Under/(Over)
75DA	Meteo Department Corporate Service Section				

<b>Personnel Expenses</b>					
8AAA	Acting Allowances	2,358,108	2,358,108	-	(2,358,108)
8AAB	Responsibility Allowance	281,514	281,514	-	(281,514)
8AAF	Family Allowance	1,092,164	1,092,164	2,296,320	1,204,156
8AAG	Gratuity Allowances	960,997	960,997	-	(960,997)
8AAH	Housing Allowances	7,098,165	7,098,165	8,073,000	974,835
8AAO	Other Allowances	451,469	451,469	-	(451,469)
8AAP	Home Island Passage Allowances	356,930	356,930	888,000	531,070
8ASP	Provident Fund	3,314,388	3,314,388	3,044,133	(270,255)
8AWC	Contract Wages	966,497	966,497	-	(966,497)
8AWD	Daily Rated Wages	2,226,633	2,226,633	-	(2,226,633)
8AWL	Leave expense	14,875	14,875	-	(14,875)
8AWO	Overtime Wages	8,443,928	8,443,928	3,000,000	(5,443,928)
8AWP	Permanent Wages	71,025,406	71,025,406	70,806,960	(218,446)
PAYR	Payroll expenses	-	-	8,887,965	8,887,965
	<b>Personnel Expenses</b>	<b>98,591,074</b>	<b>98,591,074</b>	<b>96,996,378</b>	<b>(1,594,696)</b>
	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	1,709,000	1,709,000	1,000,000	(709,000)
8CBI	International Accommodation	70,000	70,000	100,000	30,000
8CBL	Local Accommodation	91,333	91,333	-	(91,333)
8CCI	International Courses	5,603	5,603	-	(5,603)
8CCL	Local Courses	-	-	180,000	180,000
8CET	Other Fees	10,240,455	10,240,455	250,000	(9,990,455)
8CFV	Vehicles Fuel	719,998	719,998	1,200,000	480,002
8CGM	Mail Carriage Freight	2,160	2,160	200,000	197,840
8CGO	Other Charges - Freight	123,797	123,797	250,000	126,203
8CGR	Transport - Freight	-	-	250,000	250,000
8CGS	Storage - Freight	-	-	100,000	100,000
8CHL	Local Medical Treatment	6,450	6,450	-	(6,450)
8CIE	Equipment Hire	34,223	34,223	100,000	65,777
8CIF	Facilities Hire	22,756	22,756	-	(22,756)
8CIV	Vehicles Hire	1,777	1,777	-	(1,777)
8CJO	Office Cleaning	681,585	681,585	400,000	(281,585)
8CKD	Advertising - Communications	221,006	221,006	200,000	(21,006)
8CKP	Postage - Communications	33,235	33,235	80,000	46,765
8CKR	Printing - Communications	1,162,678	1,162,678	411,163	(751,515)
8CKS	Stationery - Communications	694,857	694,857	1,000,000	305,143
8CKT	Telephone / Fax - Communications	2,659,183	2,659,183	1,000,000	(1,659,183)
8CMG	General - Materials	261,130	261,130	600,000	338,870
8CNT	Other Rental	16,000	16,000	-	(16,000)
8COI	Incidentals	1,028,537	1,028,537	1,021,126	(7,411)
8COP	Official Entertainment	1,270,384	1,270,384	600,000	(670,384)
8COR	Recruitment Costs	-	-	2,532,084	2,532,084

8CRB	Buildings Repairs & Maintenance	3,281,426	3,281,426	2,000,000	(1,281,426)
8CRE	Equipment Repairs & Maintenance	2,079,667	2,079,667	821,000	(1,258,667)
8CRH	Houses Repairs & Maintenance	233,400	233,400	1,586,000	1,352,600
8CRV	Vehicles Repairs & Maintenance	300,617	300,617	2,020,000	1,719,383
8CTI	International Travel	907,447	907,447	-	(907,447)
8CTL	Local Travel	1,264,982	1,264,982	735,542	(529,440)
8CUC	Gas - Cooking Utilities	51,556	51,556	-	(51,556)
8CUE	Electricity Utilities	1,725,178	1,725,178	2,000,000	274,822
8CUW	Water Utilities	246,820	246,820	400,000	153,180
8CWL	Local Workshops	-	-	1,050,294	1,050,294
8CZV	Value Added Tax	2,134,636	2,134,636	200,000	(1,934,636)
8EBR	Buildings - Renovation	-	-	1,700,000	1,700,000
8EEC	Equipment - Computer	823,609	823,609	1,500,000	676,391
8EER	Equipment - Replacement General	-	-	248,123	248,123
8EFH	Furniture - Housing Furniture	53,333	53,333	-	(53,333)
8EFO	Furniture - Office Furniture	217,688	217,688	100,000	(117,688)
8EHR	Houses - Renovation	-	-	80,000	80,000
8EVR	Vehicle - Replacement	-	-	3,577,661	3,577,661
8FCB	Bank Charges	25,500	25,500	-	(25,500)
OVER	Overhead expenses	-	-	5,313,801	5,313,801
	<b>Operating Expenses</b>	<b>34,402,006</b>	<b>34,402,006</b>	<b>34,806,794</b>	<b>404,788</b>
<b>75DA</b>	<b>Meteo Department Corporate Service Section</b>	<b>132,993,080</b>	<b>132,993,080</b>	<b>131,803,172</b>	<b>(1,189,908)</b>
<b>75DC</b>	<b>Weather Forecasting &amp; Monitoring</b>				
	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	30,000	30,000	70,000	40,000
8CKR	Printing - Communications	38,217	38,217	-	(38,217)
8CKT	Telephone / Fax - Communications	171,769	171,769	-	(171,769)
8CMG	General - Materials	-	-	100,000	100,000
8COI	Incidentals	196,805	196,805	200,000	3,195
8COP	Official Entertainment	27,000	27,000	-	(27,000)
8CRB	Buildings Repairs & Maintenance	245,012	245,012	-	(245,012)
8CTI	International Travel	30,000	30,000	100,000	70,000
8CTL	Local Travel	10,000	10,000	70,000	60,000
8CWL	Local Workshops	-	-	80,000	80,000
8CZV	Value Added Tax	57,642	57,642	-	(57,642)
8EEA	Equipment - Additional General	-	-	50,000	50,000
8EEC	Equipment - Computer	103,111	103,111	150,000	46,889
8EER	Equipment - Replacement General	-	-	100,000	100,000
8EFO	Furniture - Office Furniture	73,777	73,777	80,000	6,223
	<b>Operating Expenses</b>	<b>983,333</b>	<b>983,333</b>	<b>1,000,000</b>	<b>16,667</b>
<b>75DC</b>	<b>Weather Forecasting &amp; Monitoring</b>	<b>983,333</b>	<b>983,333</b>	<b>1,000,000</b>	<b>16,667</b>
<b>75DD</b>	<b>Geo-hazard</b>				

	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	125,000	125,000	80,000	(45,000)
8CGO	Other Charges - Freight	11,400	11,400	40,000	28,600
8CGR	Transport - Freight	-	-	40,000	40,000
8CGS	Storage - Freight	-	-	40,000	40,000
8CIE	Equipment Hire	-	-	30,000	30,000
8CKD	Advertising - Communications	-	-	70,000	70,000
8CKR	Printing - Communications	17,773	17,773	60,000	42,227
8CKS	Stationery - Communications	10,500	10,500	40,000	29,500
8CKT	Telephone / Fax - Communications	20,200	20,200	40,000	19,800
8CMG	General - Materials	58,013	58,013	50,000	(8,013)
8COI	Incidentals	75,733	75,733	50,000	(25,733)
8COP	Official Entertainment	49,622	49,622	-	(49,622)
8CRB	Buildings Repairs & Maintenance	244,450	244,450	-	(244,450)
8CTI	International Travel	128,082	128,082	70,000	(58,082)
8CTL	Local Travel	186,657	186,657	80,000	(106,657)
8CWL	Local Workshops	-	-	80,000	80,000
8CZV	Value Added Tax	72,570	72,570	-	(72,570)
8EEA	Equipment - Additional General	-	-	50,000	50,000
8EEC	Equipment – Computer	-	-	70,000	70,000
8EER	Equipment - Replacement General	-	-	60,000	60,000
8EFO	Furniture - Office Furniture	-	-	50,000	50,000
	<b>Operating Expenses</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DD</b>	<b>Geo-hazard</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DE</b>	<b>ICT-Engineering</b>				
	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	175,000	175,000	200,000	25,000
8CCL	Local Courses	-	-	40,000	40,000
8CGO	Other Charges - Freight	1,111	1,111	-	(1,111)
8CGR	Transport - Freight	-	-	34,000	34,000
8CGS	Storage – Freight	-	-	30,000	30,000
8CIE	Equipment Hire	-	-	30,000	30,000
8CKR	Printing - Communications	10,490	10,490	-	(10,490)
8CKS	Stationery - Communications	5,849	5,849	-	(5,849)
8CKT	Telephone / Fax – Communications	27,045	27,045	-	(27,045)
8CMG	General - Materials	115,480	115,480	50,000	(65,480)
8COI	Incidentals	88,463	88,463	50,000	(38,463)
8COP	Official Entertainment	34,333	34,333	-	(34,333)
8CRB	Buildings Repairs & Maintenance	259,888	259,888	40,000	(219,888)
8CRE	Equipment Repairs & Maintenance	29,778	29,778	96,000	66,222
8CTI	International Travel	44,969	44,969	60,000	15,031
8CTL	Local Travel	120,921	120,921	100,000	(20,921)
8CWL	Local Workshops	-	-	40,000	40,000
8CZV	Value Added Tax	64,540	64,540	-	(64,540)

8EEA	Equipment - Additional General	-	-	40,000	40,000
8EEC	Equipment - Computer	22,133	22,133	150,000	127,867
8EER	Equipment - Replacement General	-	-	40,000	40,000
OVER	Overhead expenses	-	-	-	-
	<b>Operating Expenses</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DE</b>	<b>ICT-Engineering</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DF</b>	<b>Climate Section</b>				
	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	90,000	90,000	300,000	210,000
8CET	Other Fees	60,000	60,000	30,000	(30,000)
8CGR	Transport - Freight	-	-	30,000	30,000
8CIF	Facilities Hire	-	-	30,000	30,000
8CIV	Vehicles Hire	-	-	20,000	20,000
8CKP	Postage - Communications	(6,400)	(6,400)	-	6,400
8CKR	Printing - Communications	84,712	84,712	40,000	(44,712)
8CKS	Stationery - Communications	12,700	12,700	40,000	27,300
8CMG	General - Materials	49,177	49,177	20,000	(29,177)
8COI	Incidentals	118,000	118,000	30,000	(88,000)
8COP	Official Entertainment	20,889	20,889	-	(20,889)
8CRB	Buildings Repairs & Maintenance	278,881	278,881	-	(278,881)
8CTI	International Travel	-	-	40,000	40,000
8CTL	Local Travel	210,535	210,535	213,000	2,465
8CWL	Local Workshops	-	-	167,000	167,000
8CZV	Value Added Tax	81,506	81,506	-	(81,506)
8EEC	Equipment - Computer	-	-	40,000	40,000
OVER	Overhead expenses	-	-	-	-
	<b>Operating Expenses</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DF</b>	<b>Climate Section</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>1,000,000</b>	<b>-</b>
<b>75DG</b>	<b>Observation Section</b>				
	<b>Operating Expenses</b>				
8CAB	Subsistence Allowances	-	-	300,000	300,000
8CCL	Local Courses	-	-	70,000	70,000
8CGR	Transport - Freight	-	-	60,000	60,000
8CGS	Storage – Freight	-	-	28,000	28,000
8CIE	Equipment Hire	-	-	50,000	50,000
8CKP	Postage - Communications	-	-	20,000	20,000
8CKT	Telephone / Fax – Communications	13,333	13,333	40,000	26,667
8CMG	General - Materials	32,236	32,236	-	(32,236)
8COI	Incidentals	69,000	69,000	40,000	(29,000)
8CRB	Buildings Repairs & Maintenance	806,666	806,666	40,000	(766,666)
8CRE	Equipment Repairs & Maintenance	417,787	417,787	200,000	(217,787)
8CTI	International Travel	-	-	80,000	80,000
8CTL	Local Travel	-	-	212,000	212,000

8CWL	Local Workshops	-	-	70,000	70,000
8CZV	Value Added Tax	160,978	160,978	-	(160,978)
8EEA	Equipment - Additional General	-	-	70,000	70,000
8EEC	Equipment – Computer	-	-	150,000	150,000
8EER	Equipment - Replacement General	-	-	70,000	70,000
OVER	Overhead expenses	-	-	-	-
	<b>Operating Expenses</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>-</b>
<b>75DG</b>	<b>Observation Section</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>-</b>
	<b>Total Expenditure</b>	<b>138,476,413</b>	<b>138,476,413</b>	<b>137,303,172</b>	<b>(1,173,241)</b>

Revenue Detail Report

Government of  
Vanuatu

For transactions between 1 January 2016 and 31 December 2016

Extracted on  
06/01/17 08:36

Filters Applied to this Report					
<b>Fund</b>	From 1-Administered Fund to 2- Recurrent Fund				
<b>Ministry</b>	M20-Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy				
<b>Dept.</b>	75-Vanuatu Meteorological services				
<b>Currency</b>	Vatu				
<b>Book</b>	Primary Book (vatu)				
Account	Description	Revenue	Budget	Over/(Under)	Cash Received
	<b>Revenue</b>				
7NFO	Other Fees	5,253,585	3,000,000	2,253,585	9,007,919
	<b>Revenue</b>	<b>5,253,585</b>	<b>3,000,000</b>	<b>2,253,585</b>	<b>9,007,919</b>
	<b>Total Revenue and Receipts</b>	<b>5,253,585</b>	<b>3,000,000</b>	<b>2,253,585</b>	<b>9,007,919</b>

The total revenue budgeted for was 3 million. The total revenue collected was 9,007,919 vatu. This shows a positive variance of 200% increase in revenue.

### Achievements Comment

There were many developments within the VMGD in 2016. More than 80% of activities stipulated in the Division Business Plans were implemented across all Divisions, funded either through the recurrent budget or through regional funding and/or bilateral aid.

A high number of training sessions were conducted over the course of the year thanks to donor funding. Most trainings were short term. Three staff, two from the Forecasting Division, and one from the climate division are currently on long term studies. Within that group one had completed his WMO class one meteorologist course.

At the national level, the creation of the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management is seen as a huge success for the VMGD, as it reflects that the

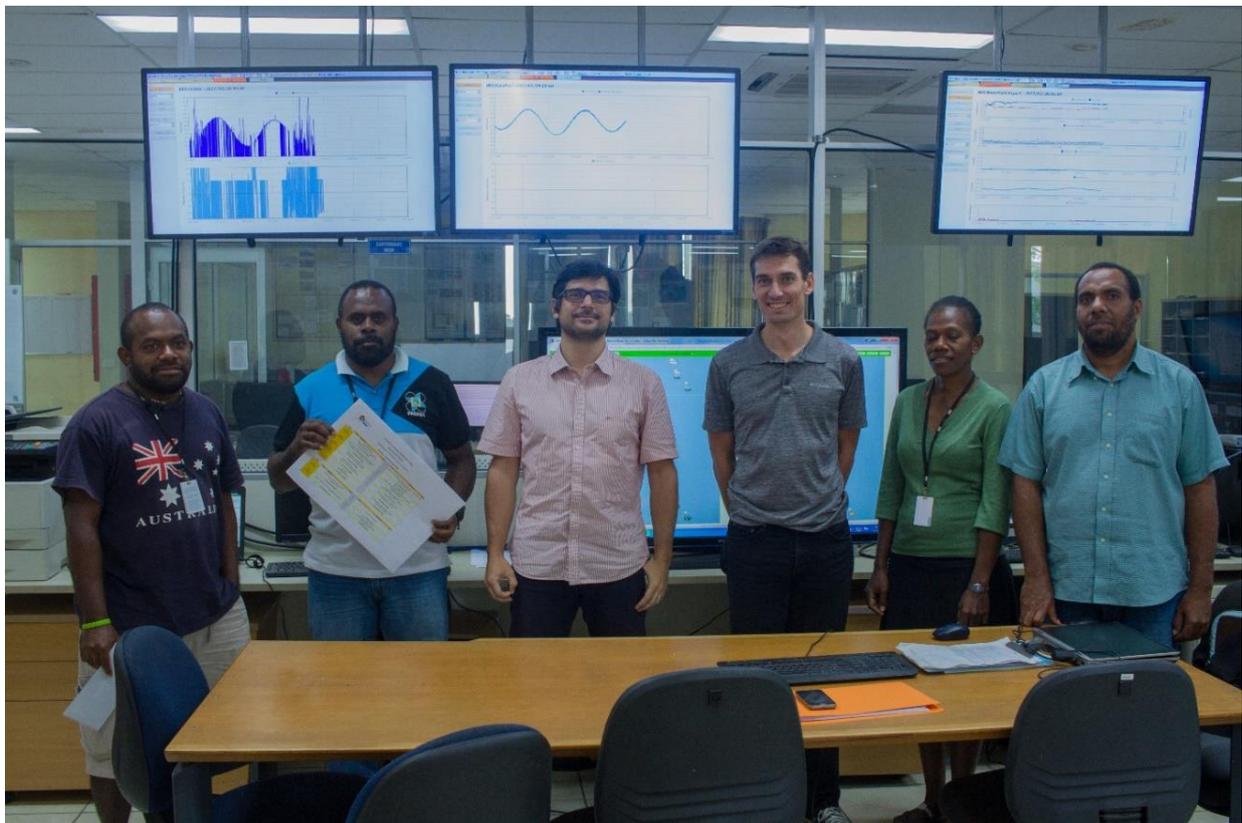
National Government sees the importance of the role played by the VMGD on the issues of weather, climate variability, climate change, disaster risk reduction, mitigation and early warning systems. Vanuatu is an island nation that is very vulnerable to natural hazards<sup>1</sup>. In light of that fact, the establishment of the Ministry by the current government reflects an important mandate; to save lives and property, as well as reduce the risk of these natural hazards in the short, medium and long term, through better planning.

In general, 2016 saw many achievements from each Division, each reflected in this annual report. At the Directorship level, the

implementation of 80% the current approved structure, the continuous weather watch 24 hours a day/7 days a week, and the continued modernization of VMGD through various projects that will be implemented within the next two to three years.

The success of a Government organizations measured on the services it provides to Vanuatu's population; importantly the number of services provided by the VMGD continues to grow. The VMGD continues to find ways deliver these services to the 'the last mile', and this includes building partnerships with various organizations, both government and non-government organizations.

## Weather Forecasting & Services Division (WFSD)



*End of Synergie and Meteo Factory training by Meteo France International (MFI)*

### Background Information

The Weather Forecasting & Services Division (WFSD) is one of the seven divisions within the

Vanuatu Meteorology & Geo-Hazards Department (VMGD). WFSD has a total of ten weather forecasters which comprises of the Divisional Manager, two Principal Scientific Officers (PSO's) and seven senior and junior

forecasters. Out of the ten forecasters, there are six WMO Class I which adds the number to seven with the current Director of the Department, Mr. David Gibson. Currently, three are on study leave at which Moirah Matou is doing Masters in Environmental Science at Monash University in Australia, while Allan Rarai is undertaking a master's program at Waikato University in New Zealand and Fred Jockley is also doing a masters in Meteorology in Japan.

The primary function of the WFSD is to provide short to medium range weather forecasts targeting mostly the Aviation, Marine, Tourism, Agriculture, Fisheries, Government, nongovernment organizations and the public at large. WFSD also provides warnings for Severe Weather, such as heavy rainfall, flash flooding and inland winds, High Seas warnings for Vanuatu area during the Tropical Lows and Tropical Cyclones and Marine wind warnings for Vanuatu coastal waters. WFSD is also responsible for the Tsunami Information/Advisories in the event that an earthquake may trigger a tsunami, posing a threat to the islands of Vanuatu. WFSD was also involved in a survey to improve the products and services and case studies (research) and other specifically tailored services.

### Division's Purpose and Key Outcomes

The WFSD contributes significantly to VMGD's purpose by providing timely and quality weather services and products to the general public, mariners and commercial end-

users, via qualified meteorologists deploying the appropriate and state-of-the-art weather forecasting systems.

The WFSD continuously monitors and ensures that all Division products and services are delivered in a timely manner. To further ensure quality services and products by way of recruiting the highest qualified science graduates for deployment as qualified meteorologists. In addition, the Division regularly assesses and evaluates its weather forecasting systems to ensure the state-of-the-art and most appropriate technologies are being deployed to produce quality services. Finally, the Division is also responsible for the implementation of the Quality Management System (QMS) to monitor, evaluate and improve the Division's products and services standards.

The key strategic outcomes of the WFSD are as follows:

- Improve weather information, forecasts, services and warnings for air navigation.
- Improve weather information, forecasts, services and warnings for mariners.
- Improve weather information, forecasts, services and warnings for the public and communities at large.
- Improve the tropical cyclones warning system, information, forecasts, services and warning.
- Develop and provide information, forecasts, services and warnings for storm surges, swells and high waves.
- Develop, establish and operate an early warning system for flash flooding.

### Priority Activities and Results 2016

Programs	Objective (Targets)	Result ✓ or ✗	Results Summary
<b>Recruitment of 3 Forecasters</b>	Recruit 2 Weather Forecasters & 1 PSO-Aviation to maintain 24/7 shift operation	✓	2 forecasters has been recruited, while PSO - Aviation by 2017
<b>24-hours Operations</b>	Provide 24-hour weather watch forecast	✓	24/7 operations sustained
<b>Weather on TV</b>	Provide weather presentation on TV	✓	TV Weather Presentation, available daily on National TV and uploaded on Website
<b>Quality Management System</b>	Attain ISO 9001:2008 Certification	✗	ISO 9001:2008 certification has not been done but we are looking into submitting for certification against the New Zealand Civil

			Aviation Regulation Part 174. Submission has been done in December 2016
<b>Qualification requirement</b>	All Forecasters to eventually be Uni graduates	✘	This will be achieved by 2017
<b>Upgrade Synergie Platform with an IWFS (VCAP)</b>	To purchase and install synergy IWFS software and PCs through VCAP funding	✓	Upgrade done for Synergies and Mateo Factory system has been installed. Currently at the training phase and improvement processes.
<b>Annual Internal Training</b>	Conduct in-house training and assessment	✓	2-week In-house training conducted Assess staff knowledge before and after training
<b>TC Module French text warning version</b>	Develop French text warning version on TC Module	✘	Will be achieved in 2017
<b>Awareness Material</b>	Improve Vanuatu TC Tracking map	✓	New TC tracking map has completed by June and has been launched.
<b>Awareness Material</b>	Marketing of Commercial & Public Weather Products & Services	✓	Been done but has not been heavily advertised.
<b>Forecasting Technology &amp; Equipment</b>	To improve weather forecasting capability with Weather RADAR	✘	Not yet achieved.

## Achievements

The 24/7 shift continued to be managed throughout the year diligently well. The WFSD maintained the service delivery in terms of its quality weather forecasting products and continued to improve on all the current products, whilst endeavoring to meet the needs of the end users. As far as the human resources capability is concerned, WFSD is manned with 5 WMO class I Forecasters. The Integrated Weather Forecasting System (IWFS) has now been installed and will be in operation soon which will improve the dissemination process to all weather related products.

With this system installed, the Synergie has also been upgraded which will improve the forecasting tool to a new level. Nonetheless, there are always areas with room for improvement which include: Weather TV and radio production, improvement of the website which will be launch very soon and attaining the ISO standards for Aviation forecasters which at this stage is still a long way to go, however despite this still to be achieved we have launch an application for certification against the New Zealand Civil Aviation regulation part 174.

## Challenges

The WFSD has faced a number of challenges this year. One of which was the shortage of staff. Mr. Levu Antfalo was in Philippines, Mrs. Moirah Yerta was in Australia, Mr. Fred Jockley

left for Japan at the middle of this year and Allan Rarai left for New Zealand at the middle of this year also. A side but urgent issue is with staffing, to recruit a new forecaster. We have recruited twice and both officers resigned in less than a week. We finally recruit an officer from the observation division at the end of the year.

The annual internal TC training had been a challenge since we only rely on the availability of the director to conducted this training in preparation for the 2016/2017 TC season since Fred Jockley and Allan Rarai are now oversea on study leave. However, the training has been on and off for a period of two weeks but the outcome has been really good which we see the acting manager Mr. Jerry Timothy is now well vested with the Dvorak Analysis and the TC Module.

## Products & Services Provided by WFSD

There are no additional forecast products or service introduced this year, 2016. The usual services and products are Public Weather Forecasts, Marine Weather Forecasts, Aviation Weather Forecasts Weather Warnings and Tsunami Advisories and they are as follow:

### 1. Public Weather Services

- 1) Forecast Policy is prepared and uploaded on website twice a day and accessible on:

- <http://www.meteo.gov.vu/Forecasts/ForecastPolicy/tabid/126/Default.aspx>
- 2) 7-Day forecast for six provincial centers, issued twice a day via client email list and uploaded on: <http://www.meteo.gov.vu/Forecasts/7DayForecastforSelectedCentres/tabid/192/Default.aspx>
  - 3) Public Forecast is prepared and sent to the national Radio, FM stations every four to five hours a day, and uploaded on website which is accessible on: <http://www.meteo.gov.vu/Forecasts/MediaForecast/tabid/283/Default.aspx>
  - 4) Media forecast for Weekly IPV, Independent Newspaper and daily forecast for Daily Post Newspaper which is accessible on: <http://www.meteo.gov.vu/Forecasts/MediaForecast/tabid/283/Default.aspx>
  - 5) Hourly images are uploaded on the VMGD's website: <http://www.meteo.gov.vu/MapsandCharts/LatestSatelliteImage/tabid/82/Default.aspx>
  - 6) Vanuatu Cities forecast is prepared and sent via email to the World Cities Forecast of the WMO every 24 hours

## 2. Marine Weather Services

- 1) 4-Day coastal Marine forecast including wave and swell heights, issued twice a day. The marine forecast covers six boundaries: The Northern, Central, Channel between Efate and Erromango, the Southern waters, Port Vila and Luganville Harbours is uploaded on: <http://www.meteo.gov.vu/Marine/tabid/65/Default.aspx>
- 2) High Seas forecast for Vanuatu's Area (from 10°S to 23°S and from 160°E to 175°E) is prepared and uploaded on website every twelve hours. This can be accessed on: <http://www.meteo.gov.vu/Marine/HighSeasForecast/tabid/293/Default.aspx>

## 3. Aviation Weather Services

- 1) Terminal Aerodrome Forecast (TAF) for all seven aerodromes [Sola (NVSC), Pekoa (NVSS), Saratamata (NVSG), Lamap (NVSL), Bauerfield (NVVV), Whitegrass (NVVW) and Aneityum (NVVA)] are prepared and sent six hourly through GTS, to pilots email group and also uploaded on:

<http://www.meteo.gov.vu/AviationServices/TerminalAerodromeForecasts/tabid/222/Default.aspx>

- 2) Area Forecast (ARFOR) for the whole Vanuatu group is prepared and sent through GTS, to pilots email group and also uploaded on: <http://www.meteo.gov.vu/AviationServices/AreaForecast/tabid/223/Default.aspx>
- 3) Terminal Trend Forecasts (TTF) are prepared and issued only for international aerodromes (NVSS, NVVV and NVVW) when weather warrants such report. This is uploaded in <http://www.meteo.gov.vu/AviationForecasts/TrendForecast/tabid/127/Default.aspx>
- 4) Route Forecast (ROFOR) is prepared and issued to Air Vanuatu for its international flights as per its International weekly flight schedules.

## 4. Weather Warnings

- 1) Coastal marine wind warning or strong wind warning issued six hourly only when weather warranted and is uploaded at: <http://www.meteo.gov.vu/MarineForecasts/MarineWarnings/tabid/123/Default.aspx>
- 2) High Seas wind warning is issued during tropical cyclones and/or during a tropical low for the Vanuatu area (10S – 23S, 160E – 175E). and is uploaded at: <http://www.meteo.gov.vu/Warnings/HighSeasWarning/tabid/294/Default.aspx>
- 3) Tropical Cyclone three Day outlook is prepared and uploaded on website twice a day only during cyclone season from the beginning of November 2015 till end of April 2016 and beginning of November 2016 till end of April 2017. And is uploaded at: <http://www.meteo.gov.vu/Forecasts/TropicalCycloneOutlook/tabid/99/Default.aspx>
- 4) Tropical Cyclone Information, Advisories and Warnings are prepared and sent to tropical cyclone subscribers for any system which may be formed within Vanuatu's area of responsibility from the beginning of November 2015 January till end of April 2016 and beginning of November 2016 till end of April 2017.
- 5) Tropical Cyclone Forecast Tracking Map is prepared and sent to tropical cyclone subscribers only during a cyclone event affecting Vanuatu. This map indicates the past track and the next 48 hours forecast track.

- 6) Severe weather warnings issued for heavy rainfall  $\geq 100\text{mm}/24\text{hr}$  and inland winds of  $\geq 40\text{km/hr}$ . and is uploaded at:  
<http://www.meteo.gov.vu/Warnings/SevereWeatherWarning/tabid/118/Default.aspx>
- 7) Tsunami Information and Advisory are prepared and issued with three hours validity only when there is an earthquake triggering a tsunami and posing a threat to Vanuatu.

### 5. Tsunami Information and Advisory

The Tsunami Information or Tsunami Advisory will be prepared and issued only during the events when earthquakes occurred and triggered potential tsunami threat to Vanuatu. There are basically two thresholds: (1) one for local or regional tsunami and (2) the other is for the Pacific wide or international tsunami. The Tsunami operation are stipulated under the Tsunami Directive or SOP. In any tsunami event, the Tsunami Information or Tsunami Advisory will be issued with three hours validity only when there is an earthquake triggering a tsunami and posing a threat to Vanuatu. However, VMGD had no major tsunami during 2016, although it had recorded a few events:

- 1) Tsunami Advisory was issued for an earthquake which occurred on the 3<sup>rd</sup> of April 2016 at 07:24 am local time. Its magnitude was 7.2 with its epicenter near 14.2°S and 169.9°E with the depth of 10 km. this was about 60 Km west of Gua Island and about 50 km NE of Santo Island in Sanma province. People in the Torba, Sanma, Penama and Malampa are advised to listen to all Radio Outlets.
- 2) Tsunami Advisory was issued for an earthquake which occurred on the 29<sup>th</sup> of April 2016 at 07:33 am local time. Its magnitude was 7.0 with its epicenter near 16.21°S and 167.45°E with the depth of 10 km. this was about 4.0 Km west of Litzlitz Village northeast of Malekula Island and about 45 km northwest of Lamap in the southeast of Malekula. People in the Sanma, Penama and Malampa are advised to listen to all Radio Outlets.
- 3) A Tsunami Information was issued for an earthquake which occurred on the 30<sup>th</sup> of June 2016 at 10:30 pm local time. Its magnitude was 6.1, depth of 28 Km with epicenter near 16.0°S and 165.5°E near Malekula Island. This was about 17 km east of Atchin Island. No destructive tsunami expected within Vanuatu.
- 4) A Tsunami Information was issued for an earthquake which occurred on the 22<sup>nd</sup> of November 2016 at 07:08 am local time. Its magnitude was 7.3, depth of 10 Km with epicenter near 37.3N and 141.6E near Japan. No destructive tsunami expected within Vanuatu.
- 5) A Tsunami Information was issued for an earthquake which occurred on the 17<sup>th</sup> of December 2016 at 09:51 am local time. Its magnitude was 7.9 with epicenter near 4.5S and 153.6E. This was about 46 Km east of Taron, New Ireland region PNG. No destructive tsunami expected within Vanuatu.

### Records of TC's during 2015-2016 Season

Following the release of the TC Seasonal forecast for 2015-2016 for Vanuatu's Area (10°S to 23°S and 160°E to 175°E), the Vanuatu Meteorology & Geo-Hazards Department through the Climate & Services Division (CSD) indicates that 2015-2016 tropical cyclone season falls together with the El-Nino period which has been forecasted and lasted throughout the cyclone season. According to Tropical Cyclone Season Outlook for 2015-2016 season, an El Nino was well established and history has shown that there is a higher probability of cyclone maneuvering around the islands. With the climate TC Outlook in perspective for the 2015/2016 TC season, VMGD officially recorded three cyclones: (1) Tropical Cyclone Ula occurred on the 08<sup>th</sup> till 11<sup>th</sup> of January 2016 (2) The next was Severe Tropical Cyclone Winston from 10<sup>th</sup> till 23<sup>rd</sup> February 2016 and finally (3) Tropical Cyclone Zena which occurred from the 5<sup>th</sup> till 6<sup>th</sup> of April 2016.

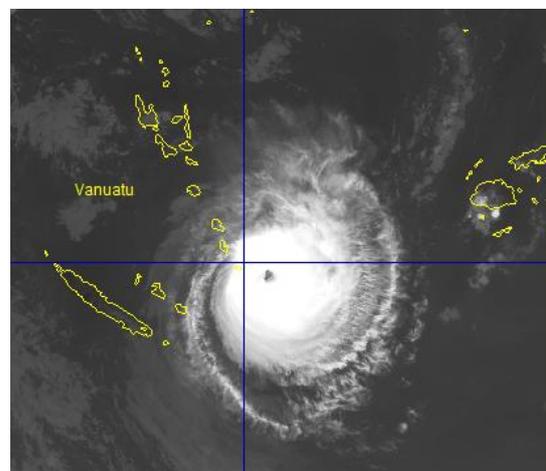
### Tropical Cyclone Ula 8-11 January 2016

Tropical Cyclone Ula formed south of Fiji Islands and rapidly reached Category 3 as it moves south then northwest wards to Vanuatu Area. Tropical Cyclone Ula entered Vanuatu Tropical Area for Responsibility at 11 am on the 8<sup>th</sup> of January 2016 as a Category 2 and was about 590 kilometers east of Tanna Island based on the first on the Tropical Information. Winds close to the center are estimated to be 90 KM/HR. At this time, the system does not poses any threats to any island Vanuatu.

Ula continued to generally moved west southwest and become a Category 3 at 5am on the 9<sup>th</sup> of January 2016. This is about 440 kilometers northeast of Tanna Island with strong to gale force winds of 60 to 90 km/hr. were forecasted to affect the southern islands with next 24 to 48 hours. The first Tropical Cyclone advisory bulletin was issued at 11am on the 9<sup>th</sup> of January 2016 as Tropical Cyclone continue to move west southwest towards Vanuatu. Tropical Cyclone Bulletin was upgraded to warning phase at 3 pm in the afternoon on the 9<sup>th</sup> of January while Ula was still a Category 2 cyclone.

Tropical Cyclone Ula continue to move in a southwest direction towards Vanuatu and upgraded to Category 4 at 5am on the 10<sup>th</sup> of January with central pressure of 941 hPa and winds close are estimated at 165 km/hr. This was about 270 kilometers east of Tanna and 225 kilometers east northeast of Aneityum. Real time observation for wind speed recorded from Aneityum weather station at 8am on the

10<sup>th</sup> was 17 knots. Tropical Cyclone Ula close proximity to any islands of Vanuatu was at 5pm VUT, on the 10<sup>th</sup> of January as it passed some 90 kilometers southeast of Aneityum Island (photo 1). Real time wind speed observation at Aneityum at the same time and date was 26 knots. Tropical Cyclone Ula remained a Category 4 system when it left Vanuatu area.



**Number of TC Bulletins issued for TC Ula**

Tropical Cyclone	Information Bulletins	Advisory Bulletins	Warning Bulletins	Forecast Track Maps	SMS
TC Ula	3	2	14	20	8

## Tropical Cyclone Winston 10-23 February 2016

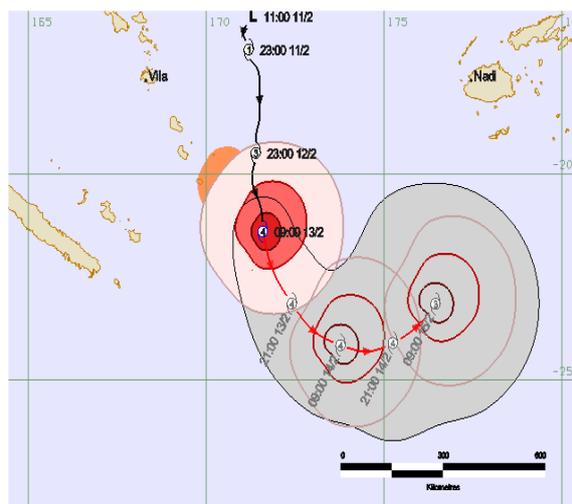
Tropical Cyclone Winston started as a tropical low east of Vanuatu on the 10<sup>th</sup> of February 2016 within Vanuatu area of responsibility. It remained as a tropical low as it moved south southeast wards. It became a named tropical cyclone on the 11<sup>th</sup> of February 2016 with favorable environment conditions as it continued to move south southeast. Situated within a very favorable environment with sea surface temperature of 30 to 31°C, Winston rapidly intensified on Friday the 12<sup>th</sup> of February and became a Category 2 severe tropical cyclone by 5:00pm and then a Category 3 only six hours later as it moved south southeast. It left Vanuatu’s area of responsibility as category 3 on the 13<sup>th</sup> of February 2016 at 5:00 am VUT.

It was degraded to Category 1 system as it turned northeast at 11am on the 15<sup>th</sup> of February, as it moved past north of Tonga. Moving into conditions that favored its development, TC Winston intensified and

increase its convection at 5:00 pm on the same day. It made a U-turn south of Samoa as a Category 4 system and moved in a west direction. Winston became a Category 5 on the 19<sup>th</sup> of February as it heads directly towards Fiji Islands.

Severe tropical cyclone Winston remained a Category 5 system as it moved westerly with ten minutes sustained maximum wind of 270 km/hr. moving over the small island of Vanua Balavu, Fiji Islands. Winston continued to move west wards making landfall on the 20<sup>th</sup> of February on the northern part of Viti Levu with sustained wind of 230 km/h and pressure of 915 hPa.

Winston continue and entered Vanuatu Tropical Cyclone Area of Responsibility at 11 am, on the 21<sup>st</sup> of February 2016 still a Category 5 system which warranted a Tropical Cyclone Information to be issued by Vanuatu Tropical Cyclone Warning Centre (VTWC). It continued to move west as a Category 5 system and gradually turned south and southeast wards at 5am on the 23<sup>rd</sup> of February 2016 while degraded to Category 4 and to Category 3 system 12 hours later. Severe Tropical Cyclone Winston continued to moved southeast as a Category 3 cyclone and left Vanuatu area at 11am on the 23<sup>rd</sup> of February 2016. On its return to Vanuatu area, it came closest to Vanuatu at 2 am on the 23<sup>rd</sup> which was about 240 kilometers east of Futuna Island, south of Vanuatu.



### Number of TC Bulletins issued for Severe TC Winston

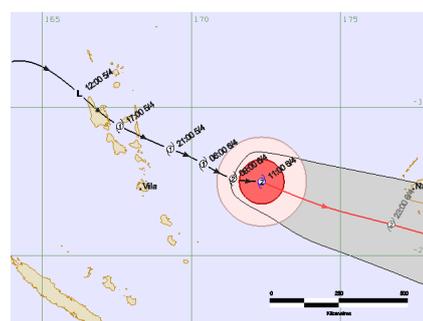
Name of TC	Information Bulletins	Advisory Bulletins	Warning Bulletins	Forecast Track Maps	SMS to both Digicel & TVL
Severe TC Winston	9	3	5	17	7

### Tropical Cyclone Zena 5-6 April 2016

A Tropical Low formed some 305 kilometers west of TORBA province on the 5<sup>th</sup> of April 2016 that rapidly became a Tropical cyclone within 12 hours. The Information on the system was issued 11:34am on the 5<sup>th</sup> when winds near the center was estimated at 50 km/h and central pressure was 1000 hPa. Vanuatu Tropical Cyclone warning center issued severe weather warning for heavy rainfall for northern and part of central Vanuatu.

In just 6 hours, the information was upgraded to warning as it headed east southeast with rapid development and was about 85 kilometers northwest of Vanuatu. It remained as a tropical low as it moved across Santo Island. It became a tropical cyclone and named tropical cyclone Zena Category 1 at 12:00 am, on the 6<sup>th</sup> of April 2016 when Zena was heading towards PENAMA province. Damaging gale force winds

of 70 to 90 km/h were experienced over SANMA, PENAMA and south of TORBA province. Tropical Cyclone Zena moved very fast travelling at 14 km/h and went over northern part of Pentecost. Tropical Cyclone Zena went through the northern islands as a Category 1 system. Tropical cyclone Ula was upgraded to Category 2 at 9am on the 6<sup>th</sup> of April 2016 when it was 325 kilometers east southeast of Efate Island. It remained a Category 2 system as it moved out of Vanuatu Area of responsibility at 11am on the 6<sup>th</sup> of April 2016.



### Number of Tropical Cyclone Bulletins issued for TC Zena

	Information Bulletins	Advisory Bulletins	Warning Bulletins	Forecast Track Maps	SMS
TC Zena	1	0	8	9	2

## Tsunami Generated and Expected threat to Vanuatu islands during 2016

The VMGD through WFSD is mandated to issue Tsunami Information and Advisories if any earthquake triggering Tsunami and become a potential threat to Vanuatu Islands.

During 2016, WFSD had issued Tsunami Information and Advisories for five Tsunami events. Given below in the table are record of the tsunami event.

Tsunami Event	Information Bulletins	Advisory Bulletins	Warning Bulletins
3 April 2016	1	2	Nil
29 April 2016	1	1	Nil
30 June 2016	1		Nil
22 Nov 2016	1	Nil	Nil
17 Dec 2016	1	Nil	Nil

A total of 5 Tsunami Information bulletin, 3 Tsunami Advisory bulletin and no Tsunami Warning.

## Other Notable Development

- WFSD has always supportive of the Department outreach program and officers has been engage in giving out awareness by form of presentation and community consultation. We have been fully engaged in giving awareness to non-government organization for example, JICA, PEACE Corp Vanuatu and Red Cross Vanuatu.
- JICA project are now completed and live transmission of data from the two AWS at Pekoia and Bauerfield and two tidal gauges from Lenakel and Litzlitz were displayed in the WFSD operation room.
- The successful upgrade of the GTS network by the JICA project.
- The Himawari Cast direct downlink station has been completed and in operation. This is another successful project through JICA.
- Through the VCAP project we have three new work station setup with modern computer system facilitated by Meteo

French International. Through this system, we have an upgrade in our Synergie system and the installation of the Meteo Factory which will help improve our product interface, forecast consistency and products dissemination time.

## Training and Human Resource Development

- Levu Antfalo was in Philippines completing a PGD in Meteorology from October 2015 to November 2016.
- Moriah Yerta in Melbourne Australia doing her Masters from 2015 and 2016.
- Fred Jockley in Japan doing his Masters in Meteorology from June 2016 to date.
- Allan Rarai in New Zealand doing his Maters from July 2016 to date.

## Climate Division

The Climate Division's performance in the first quarter of 2016 has been above average, as more than ninety percent of the planned activities were carried out.

### Division Performance

Key Area	Key Results and Highlights
Policy/concept note	<ol style="list-style-type: none"> <li>1. Amend VMGD Act</li> <li>2. Amend ENSO Directive</li> <li>3. Submission of EU-GIZ PDD</li> <li>4. FAO – concept note developed with Dr Gavin</li> <li>5. Appraisal performance activity</li> </ol>

	6. RTSM funding
<b>Programs/Functions</b>	There are some major changes in the Division which now has some impact on the activities. After Tropical Cyclone Pam, the Division concentrated mainly on indoor activities such as seasonal forecast, data digitization and policy issues.  Also, movement of staff elsewhere for studies and work put a strain of the officers left to shoulder the Divisions' activities.
<b>Outreach</b>	<ol style="list-style-type: none"> <li>1. The Division continues to engage in outreach programs with stakeholders providing updates on the status of El Niño and the likelihood of a La Nina event occurring towards the end of 2016.</li> <li>2. COPIWG – climate officers were part of this activity</li> </ol>
<b>Infrastructure</b>	<ol style="list-style-type: none"> <li>I. 2016 see the implementation of JICA project that will assist with sea level and climate data. New tide gauge and AWS will assist with the CLEWS</li> <li>II. 7 new rain gauges were installed around Efate to replace those damaged by TC Pam</li> <li>III. Penama Province mission to replace old Rain-gauges, outreach and introduce the new VRN and TK monitoring forms to the rainfall collectors.</li> <li>IV. FAO funded Community Based climate field schools piloted in Penama and Malampa Province. 3 new rainfall sites set up, 2 in Malampa and 1 in Penama Province.</li> </ol>
<b>People</b>	<ol style="list-style-type: none"> <li>1. The Climate Division has one of its staff pursue Ph.D studies in Fiji.</li> <li>2. Mike Waiwai transferred to Climate Change Ministry.</li> <li>3. Two new officers were contracted to work within the Climate division for 6 months (Jan – Jun 2016).</li> <li>4. A Red Cross Volunteer station in the climate division until May 2016.</li> <li>5. Two officers approaching retirement. Due to accumulated leaves they were advised to take 3 days off each week to help cut down on their outstanding leaves.</li> </ol>
<b>Finances</b>	Climate Division has a monthly warrant of 83,333vt with an annual budget of 1,000,000vt.

## Seasonal Forecast

### Program Purpose and Key Outcomes

The seasonal forecasting program contributed to Climate Division's purpose by providing timely and quality seasonal outlook services and products by way of skilled and motivated staff, using modern and sound technology and techniques.

The seasonal forecast activity is a highly scientific activity that requires qualified staff using modern and sound technology for management and analysis of climate and

related environmental data to monitor, predict and provide climate and other related environment information, forecasts, advisories and warnings.

The following are key outcomes identified by the seasonal forecast program:

1. Providing relevant information in a timely manner to aid decision making with regards to climate related natural hazards
2. Expansion of climate services to other sectors

### 2016 Priority Activities and Results

Program: Seasonal Forecasting (Business Plan)		
Objective (Targets)	Result ✓✗	Result Summary
a. Include talkback shows in quarterly reports (4 talk back shows)	✓	a. Participated in 1 talk back show ( Yumi Redi). Instructions were given by the directors office to cease this activity.
b. Provincial notice boards updated	✓	b. Updated for 6 months
c. Monthly updated seasonal outlook display on VNSO screen	✗	c. Have yet to follow up with the statistics office.

a. Completed outlook tables and email to BOM before teleconference	✓	a. Completed 8 Outlook Tables (Jan – April)
b. Participate in 12 OCOF Teleconferences and chair	✓	b. Participated in 8 teleconference
c. 12 rainfall outlook bulletins develop	✓	c. 8 rainfall outlook bulletins
d. Publish 12 VCU through webpage, intranet and email	✓	d. 8 VCU
e. Have 4 stakeholders meeting - should ENSO event exist	✓	e. Organized 6 stakeholder meeting.
f. Have 12 Monthly climate briefing with VMGD officer	✓	f. 6 VMGD Briefings
g. Bislama language incorporated into SCOPIC Outlook.	✓	g. Bislama language has been incorporated into SCOPIC
h. Update provincial boards	✓	h. Updated For the past 6 months ( Jan – July)
i. Amended ENSO directive	✓	i. Amended ENSO Directive.
j. Develop and trial a six month forecast - rainfall and ENSO	✓	k. Produced first trial from (Mar – Aug)
k. Produce mid-season TC update	✓	l. Done
l. Organise a National Climate Outlook Forum	✓	m. NCOF held at the Melanesia, 14 <sup>th</sup> – 18 <sup>th</sup> March 2016.

### BOM Teleconference

The Climate Division team participated in a total of 8 teleconferences organized by the COSPPAC team. With the movement of staff out of the division as well as to carry our climate

outreach activities, field visits and training made it a challenge for the team to participate in all teleconferences.

DATE	ATTENDANCE	SUMMARY
OCOFC 100 – Tue 19 <sup>th</sup> Jan, 12pm– 1:45pm		The El Niño remains strong, but continues its gradual decline. Close to the equator, sea surface temperatures have cooled by 0.5 °C since the El Niño peaked in late 2016. Despite this decline many countries are likely to feel the effects of the event through much of 2016.

### NIWA teleconference

This year the Climate Division team participated in 3 teleconferences organized by NIWA. In June NIWA hosted its final teleconference as priorities for the organization had changed. Along with this were also changed to the Island Climate Update (ICU).

The ICU began in May 2000 with NIWA sub-contracted by SPREP to produce monthly bulletins. Beyond the initial one year trial period the ICU has continued for the last 15 years through funding from the New Zealand Ministry

of Foreign Affairs and Trade. Over the period 2012-15 funding for the ICU was provided within NZ Ministry of Foreign Affairs' multi-year funding package to SPREP. This contract finished in December 2015. As a new multi-year funding package was being negotiated, NIWA had continued to produce the ICU until June. A more streamlined process was undertaken and basic guidance document was produced focusing on regional ENSO outlook and rainfall guidance.

DATE	ATTENDANCE	SUMMARY
ICU 185 Friday 5 <sup>th</sup> February: 10:30am – 11:00am	 Daphne N, Melinda N and Shanna J	<p><b>El Niño/Southern Oscillation (ENSO)</b></p> <ul style="list-style-type: none"> <li>Strong El Niño conditions continued in January 2016.</li> <li>El Niño has probably reached its peak towards the end of 2016.</li> <li>El Niño is highly likely (96% chance) to continue over the coming season (February– April 2016).</li> </ul> <p><b>The South Pacific Convergence Zone (SPCZ)</b></p> <ul style="list-style-type: none"> <li>The SPCZ is expected to be positioned north and east of climatological position.</li> </ul> <p><b>Multi-model Ensemble Tool for Pacific Island (METPI) rainfall and sea surface temperature forecasts</b></p> <ul style="list-style-type: none"> <li>Below normal rainfall is forecast for New Caledonia, Samoa, Tonga, northern Vanuatu, Wallis &amp; Futuna, Niue, Fiji, southern Vanuatu and the Federated States of Micronesia.</li> <li>Above normal rainfall is forecast for Eastern Kiribati, Western Kiribati, Tuvalu, the Northern Cook Islands, the Marquesas and Tokelau.</li> <li>Above normal sea surface temperatures are forecast for western Kiribati, eastern Kiribati and the Marquesas.</li> </ul>

### Monthly Climate Briefings

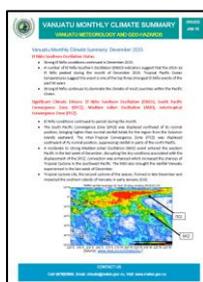
This year Climate Division officers organized 6 briefings with the stakeholders. The first two briefings occurred at the VMGD conference room and the third was done during the National Climate Outlook forum. The rest of the briefings

were done as requested by stakeholders. Some of the stakeholder briefings were; Australian High Commission, NDMO Cluster Groups and Ministry of Agriculture.



Attendance of briefings organized at VMGD comprises mainly of officers from within the Ministry and NGO's.

### Vanuatu Monthly Climate Summary



A new product of the climate division that was created in January and is being tested with stakeholders at the Vanuatu monthly climate summary. The aim of this product is to provide a report of what was observed in the past month which would include; Main climate drivers, Highs /Lows, Rainfall totals recorded in each station and selected VRN sites.

### Data Management

## Program Purpose and Key Outcomes

The Data Management program contributes to climate's purpose by providing Vanuatu historical climate data by way of a skilled and motivated staff using robust climate database skilled using modern and sound technology and techniques.

The data management activities requires qualified staff using modern and sound

technology for management and analysis of climate and related environmental data to monitor, predict and provide climate and other related environment information, forecasts, advisories and warnings.

The following are key outcomes identified by the seasonal forecast program:

1. Safeguard historical and current climate data to aid national development in Vanuatu

## 2016 Priority Activities and Results

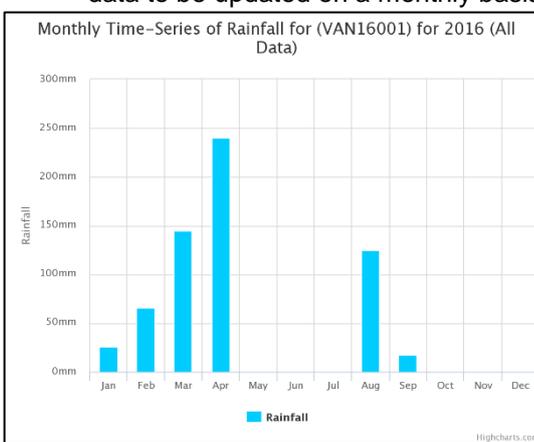
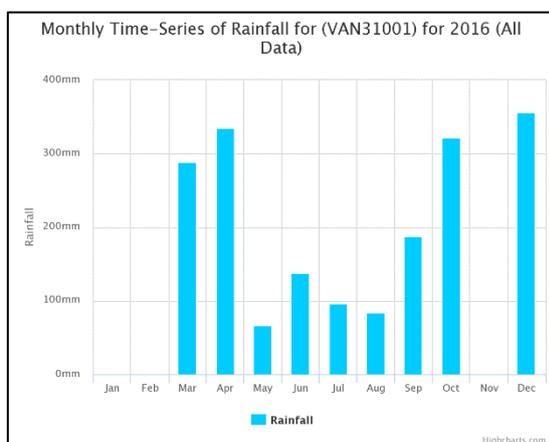
Data Management (Business Plan)			
Programs	Objective (Targets)	Result ✓✘	Result Summary
Data archive	a. Monthly data in archive room and include in all quarterly reports	✓	a. Ongoing
	b. Monthly electronic archive of all update climate data in database	✓	b. Ongoing
	c. Vanuatu Tropical cyclone database – Linking TC module (IT Division )	✓	c. Ongoing
	d. Report of 2016 archive	✓	d. In Progress
Data Management	a. CliDE report of 3 hourly data for Aneityum, Sola and Lamap	✓	a. Ongoing
	b. Complete validate of Bauerfield Synoptic station	✓	b. Ongoing
	c. An update historical tropical cyclone listing for Vanuatu	✓	c. Ongoing

## Introduction

Climate Division is operating two databases namely CliDE 3 and Excel spread sheet. CliDE is a software developed by PSSCP project in associated with PACCSAP in 2014. This database is currently used by most 14 NMS in the pacific islands including Vanuatu.

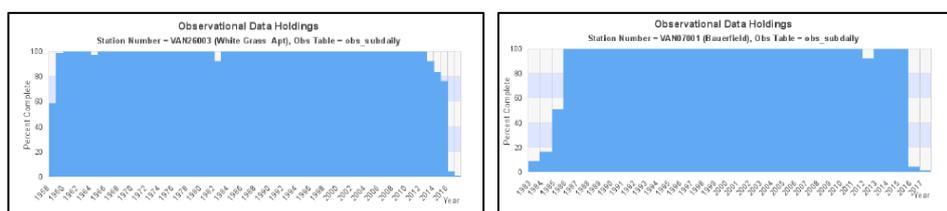
### CliDE database

With the fast past developments of technology, particularly CliDE updates are being made frequently and climate officers and required to attend trainings and work closely with the IT team to facilitate this updates. Challenges with transfer of Field books from outer stations to the main office at Nambatu has made it difficult for data to be updated on a monthly basis.



## Sub-daily digitization

The Climate Division contracted two officers to enter sub-daily data into CliDE. So far more than 50 years of subdaily data for Anelgauhat, Whitegrass and Bauerfield have been entered into CliDE.



## Vanuatu Rainfall Network (VRN)

### Program Purpose and Key Outcomes

The Vanuatu Rainfall network program contributes to the Climate Division's purpose by providing timely and quality rainfall data, services and products by way of skilled and motivated staff, using modern and sound technology and techniques.

The VRN activity is a community base activity that requires qualified staff using modern and

sound technology for management and analysis of rainfall data to monitor, predict and provide climate and other related environment information, forecasts, advisories and warnings.

The following are key outcomes identified by the seasonal forecast program:

1. Expansion and collection of timely observation data

### 2016 Priority Activities and Results

Vanuatu Rainfall Network(Business Plan)			
Programs	Objective (Targets)	Result ✓✗	Result Summary
	a. Report of automatic rainfall visit b. Report of climate site installation c. Report of Penama rainfall visit d. Report of Sanma rainfall visit e. Cheque collected and cash deposit into rainfall collector's bank account	✓ ✓ ✓ ✗ ✓ ✗	a. Visited Tanna Automatic rain gauge b. Find details listed below c. Ongoing d. Ongoing e. Yet to be submitted

### 1. Performance

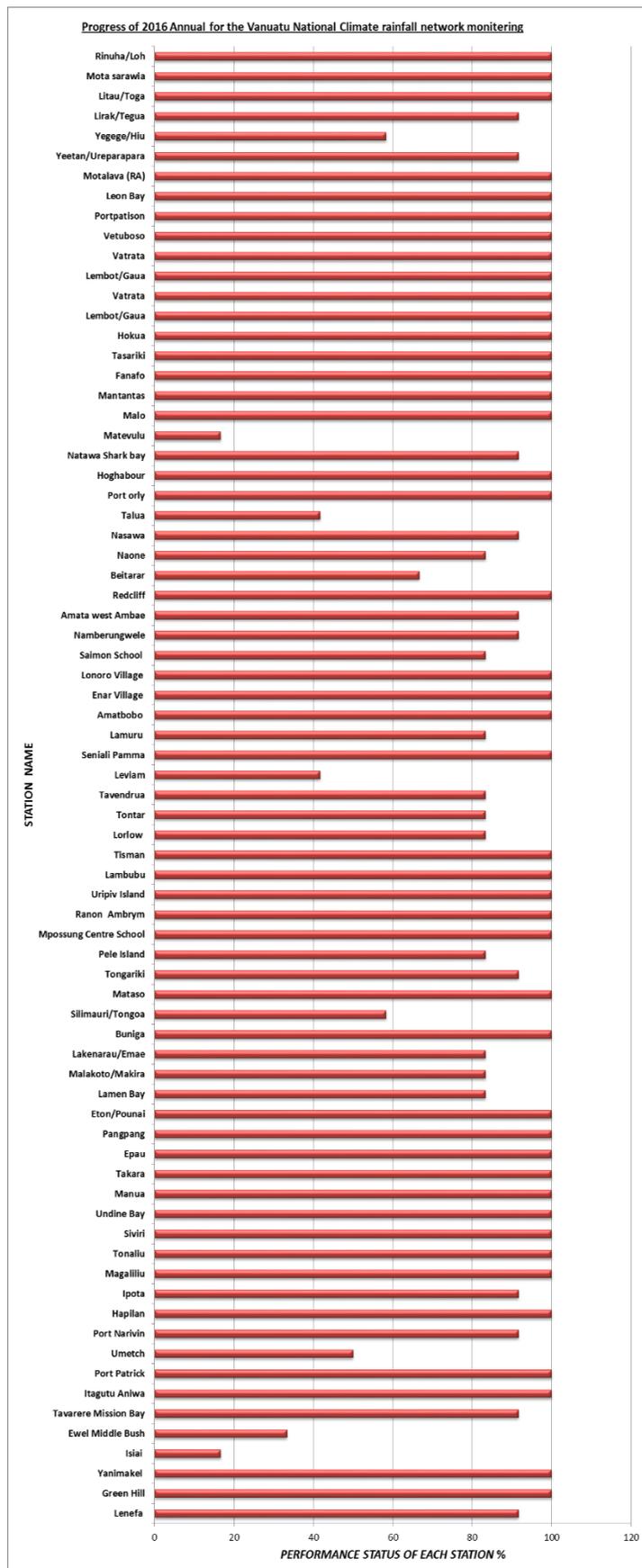
For the month of January to December data collected by phone and mail, most of the sites is 17% to 100%, except due to problem of coverage a few stations data are yet to be collected.

STATION NAME	BEGIN DATE	STATUS OF PERFORM
Lenefa	24th June 2008	92
Green Hill	24th June 2008	100
Yanimakel	25th June 2008	100
Isiai	28th June 2008	17
Ewel Middle Bush	13th June 2009	33
Tavarere Mission Bay	30th June 2005	92
Itagutu Aniwa	32540	100

Port Patrick	10th Nov 2009	100
Umetch	March1,2013	50
Port Narivin	Jun-11	92
Hapilan	Jul-11	100
Ipota	Jul-11	92
Magaliliu	Mar 8,2011	100
Tonaliu	Mar 8,2011	100
Siviri	Mar 8,2011	100
Undine Bay	Mar 8,2011	100

Manua	Mar 8,2013	100
Takara	Mar 8,2011	100
Epau	Mar 8,2011	100
Pangpang	Mar 8,2011	100
Eton/Pounai	Mar 8,2011	100
Lamen Bay	Mar,9 2011	83
Malakoto/Makira	1st sept 2011	83
Lakenarau/Emae	24th Apri 2011	83
Buniga	41091	100
Silimaui/Tongoa	2013, April 1	58
Mataso	2013 Jul 7	100
Tongariki	30/1/16	92
Pele Island	April 24,2013	83
Mpossung Centre School	5th Aug 2008	100
Ranon Ambrym	Aug-08	100
Uripiv Island	4th Sept 2008	100
Lambubu	September	100
Tisman	7th Sept 2009	100
Lorlow	1st Sep 2009	83
Tontar	8th Sept 2009	83
Tavendrua	18/7/2013	83
Leviam	March 2012	42
Seniali Pamma	Dec 2012	100
Lamuru	29th Dec 2007	83
Amatbobo	10th July 2008	100
Enar Village	11th July 2008	100
Lonoro Village	12th July 2008	100
Saimon School	1st Jan 2008	83
Namberungwele	31th Dec 2009	92
Amata west Ambae	41214	92
Redcliff	1/11/2013	100
Beitarar	24/5/2011	67
Naone	7/8/2013	83
Nasawa	4/8/2013	92
Talua	3/3/2012	42
Port orly	5/3/2013	100
Hoghabour	5/3/2012	100
Natawa Shark bay	6/3/2012	92
Matevulu	6/3/2012	17
Malo	7/3/2013	100
Mantantas	8/3/2012	100
Fanafo	9/3/2013	100
Tasariki	4/11/2013	100

Hokua	7/11/2013	100
Lembot/Gaua	1st Mar 2013	100
Vatrata	16/12/2011	100
Lembot/Gaua	1st Mar 2013	100
Vatrata	16/12/2011	100
Vetuboso	14/12/2011	100
Portpation	13/12/2011	100
Leon Bay	14/12/2011	100
Motalava (RA)	13/12/2011	100
Yeetan/Ureparapara	14/12/2011	92
Yegege/Hiu	13/12/2011	58
Lirak/Tegua	13/12/2011	92
Litau/Toga	14/12/2011	100
Mota sarawia	14/4/2016	100
Rinuha/Loh	14/12/2011	100



## Rain gauge damage during Pam

During TC Pam 41 new rain gauges were purchased from Wilco hardware.



### 2. Installation of new rain gauge

Date	Installation	Summary
1 <sup>st</sup> January		Damaged rain gauge on Mataso replace with new gauge By Walter Marcel
30 <sup>th</sup> January		Installed new rain gauge on Erata Tongariki by Bill Toara
30/1/16		Replaced damage rain gauge by TC Pam On Green Hill Tanna.
1 <sup>st</sup> Feb		Installed new rain gauge on Dillions Bay
12 <sup>th</sup> February		Installed new rain gauge damage by TC Pam on Burtonfield Tanna.
4 <sup>th</sup> March		Installed new rain gauge after TC Pam on Marae Emae.
9 <sup>th</sup> March		Replaced by new rain gauge damage by TC Pam on Anokantan Umetch Aneityum.
10 <sup>th</sup> March		Installed new data locker on Ewel Middle Bush Tanna, by Jeremy, Joe Mala and Peter Feke.
1 <sup>st</sup> July 2016		Installation of one new raingauge on Daves Bay Ureparapara by Peter Feke (VRN Coordinator) and Albert Willy (TK officer)

1 <sup>st</sup> Dec 2016		Installed new raingauge on Port Vato Ambrym by Albert Willy
1 <sup>st</sup> Dec 2016		Installed new raingauge on sesivi Ambyrm by Albert Willy
6 <sup>th</sup> Dec 2016		Insatallation of new raingauge on Varak Malekula.by officer Albert Willy And Levu.
1 <sup>st</sup> Dec 2016		Installation new raingauge on Jilo Plon Narago south Santo by VMGD officer Mr. Levu Antfalo

### 3. Sea water data collection



Samples of about 0.02mm of seawater is collected twice a month by climate officers and is send to Texas University for research, a collaboration between VMGD and Texas University.

### 4. Vanuatu rainfall Network Payment

The Annual payment for Vanuatu rainfall Network for this year is, first quarter incentive payment is 1,232,000 VT, last quarter payment is 1,254,000 VT, summing to a total of 2,486,000 VT.

### 6. Sites Visit On Penama & Malampa province

The Climate team visited Penama Province on the three Islands of Maewo, Pentecost and

Date	Station/Island	Photo
6/08/2016	Naone/Maewo  Looked after by Mr Clement Raubani	
8/08/2016	Beitarara  Mr Paul Rentari VRN collectors.	
10/08/2016	Nasawa  Mrs. Ventonsale VRN collectors	
13/08/2016	Ansanvari  Miss. Violet B	
17/08/2016	Lamoru/Pentecost  Mr. Tom Tigona VRN Collectors.	

The last quarter payment of rainfall collectors has yet to be processes.

### 5. Tide Calendar to Rainfall collectors /VCU



On February 15, delivered 91-tidal calendar to rainfall collectors and observations sites.

Ambae from 4<sup>th</sup> to 17 August, then continued from the 4<sup>th</sup> to 12<sup>th</sup> of November. Training VRN Collectors and also replaced some of this gauges with new gauges.

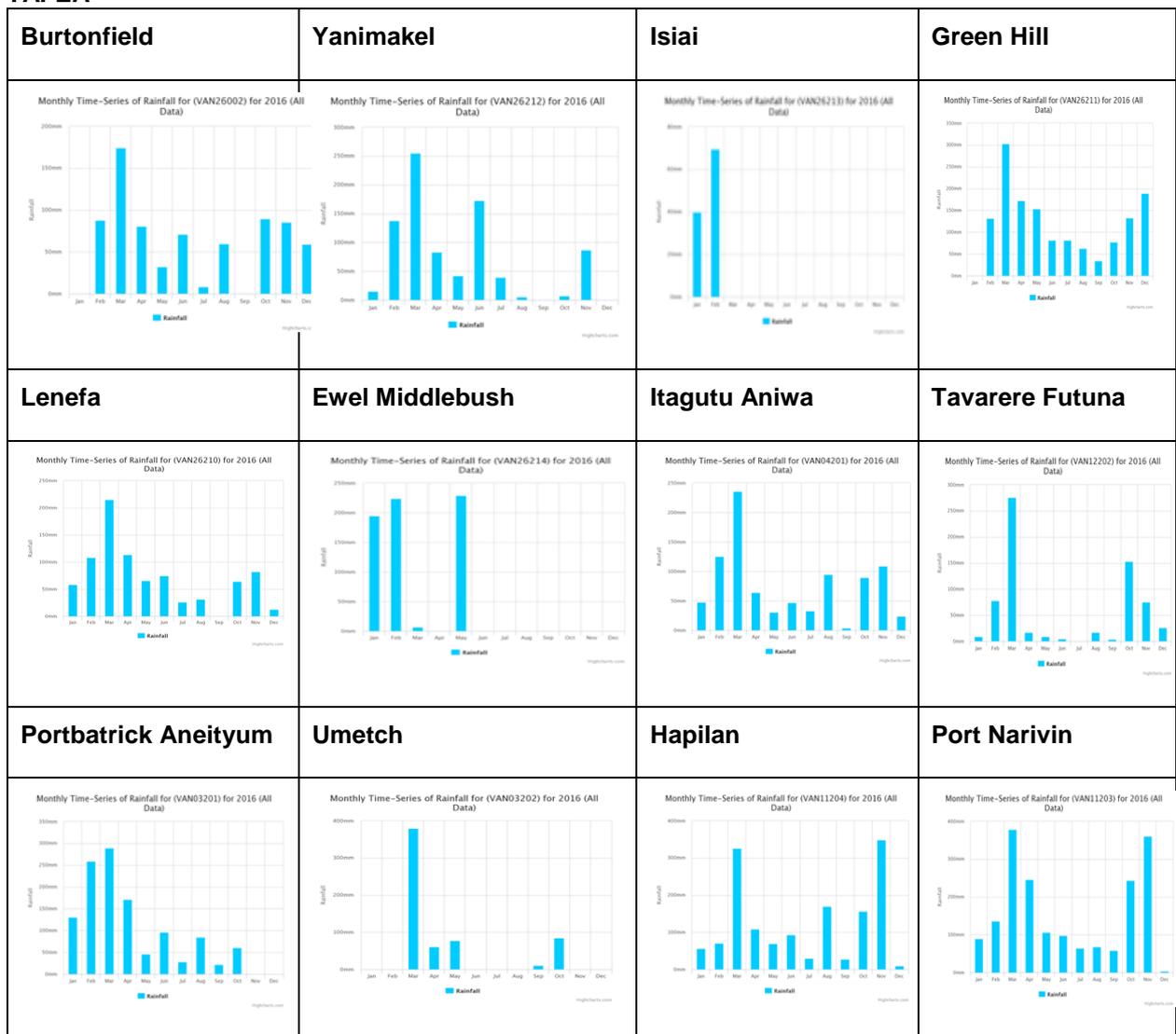
4/11/2016	Ennar/Pentecost  Mrs. Ritalyn VRN Collector.	
5/11/2016	Lonorore airport  Mr Thomas VRN collectors	
7/11/2016	Amatbobo  Mr. Anthony Bovu VRN Collegetors	
9/11/2012	Saimon School  Mrs.Stelyn Mala VRN Collector	
10/11/2016	Lolovele  Mr.Richael Tari VRN Collector	
11/11/2016	Namberungwele  Mr.Perthuel Beru VRN Collector.	

12/11/2016	Amata West Ambae	
	Mr. Keith Boe VRN Collectors.	

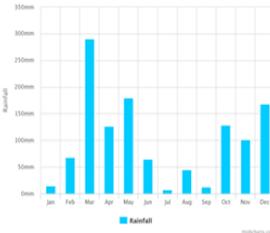
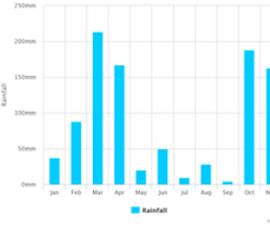
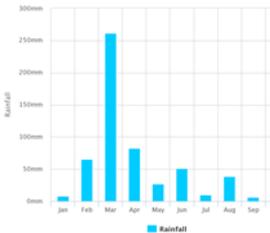
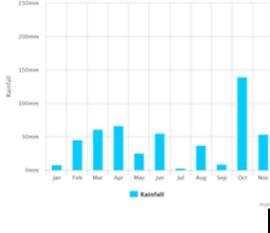
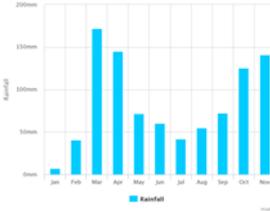
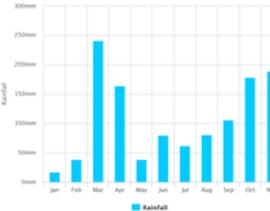
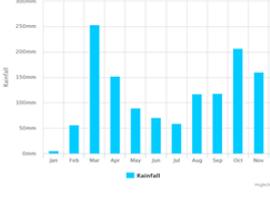
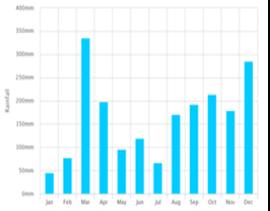
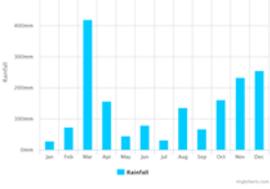
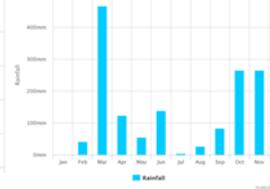
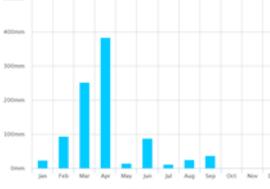
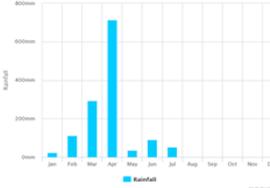
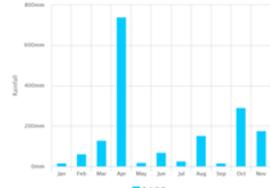
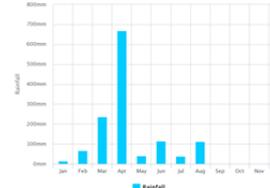
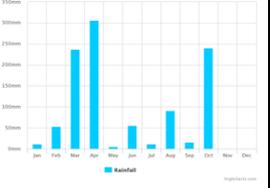
13/09/2016	Tisman Malekula	
14/09/2016	Lambubu STN 1	
	Mr. Harry Simion VRN Collector.	
	Mr. Aisen T VRN Collectors	

## 7. Digitization of Rainfall data into CliDE.

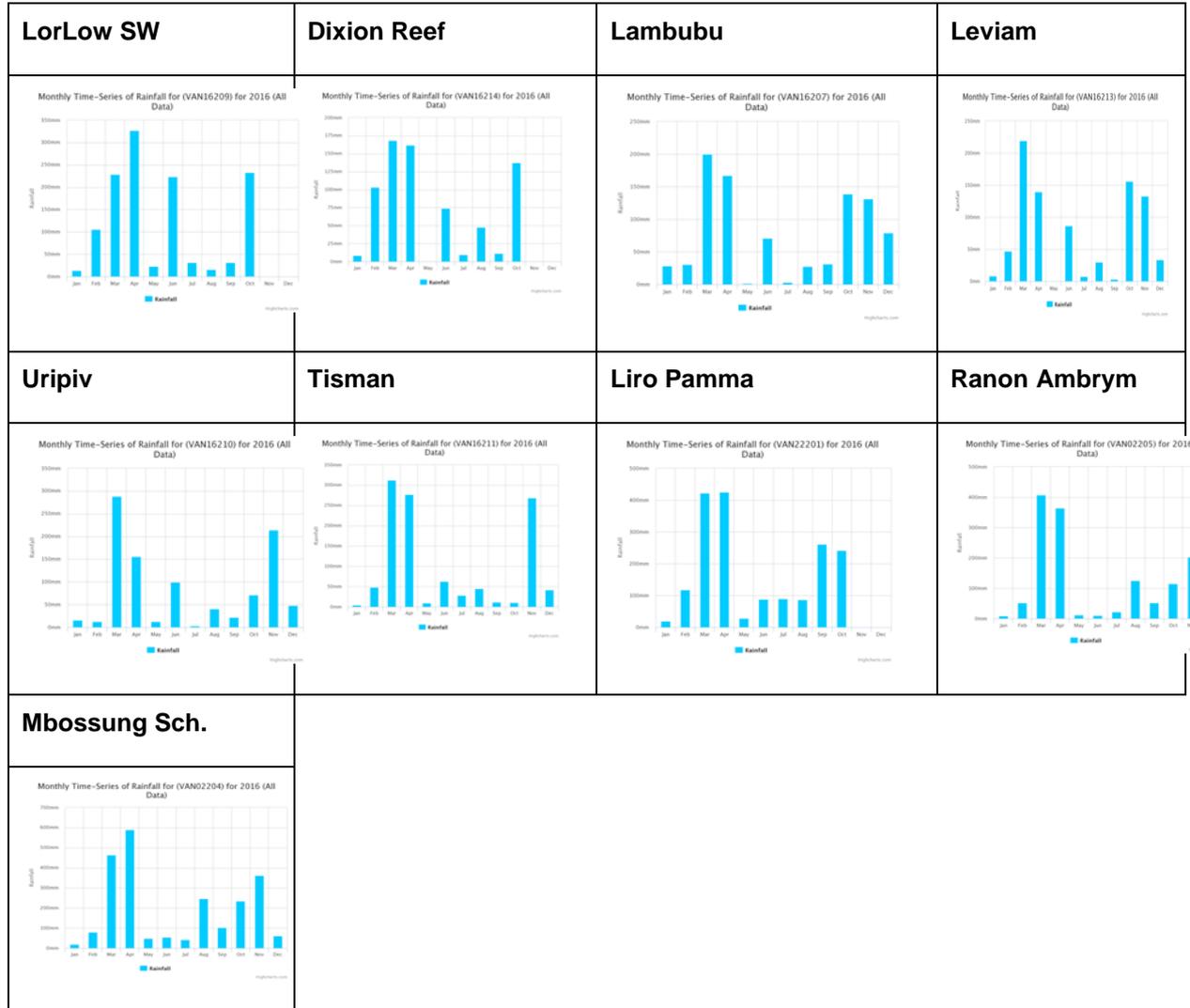
### TAFEA



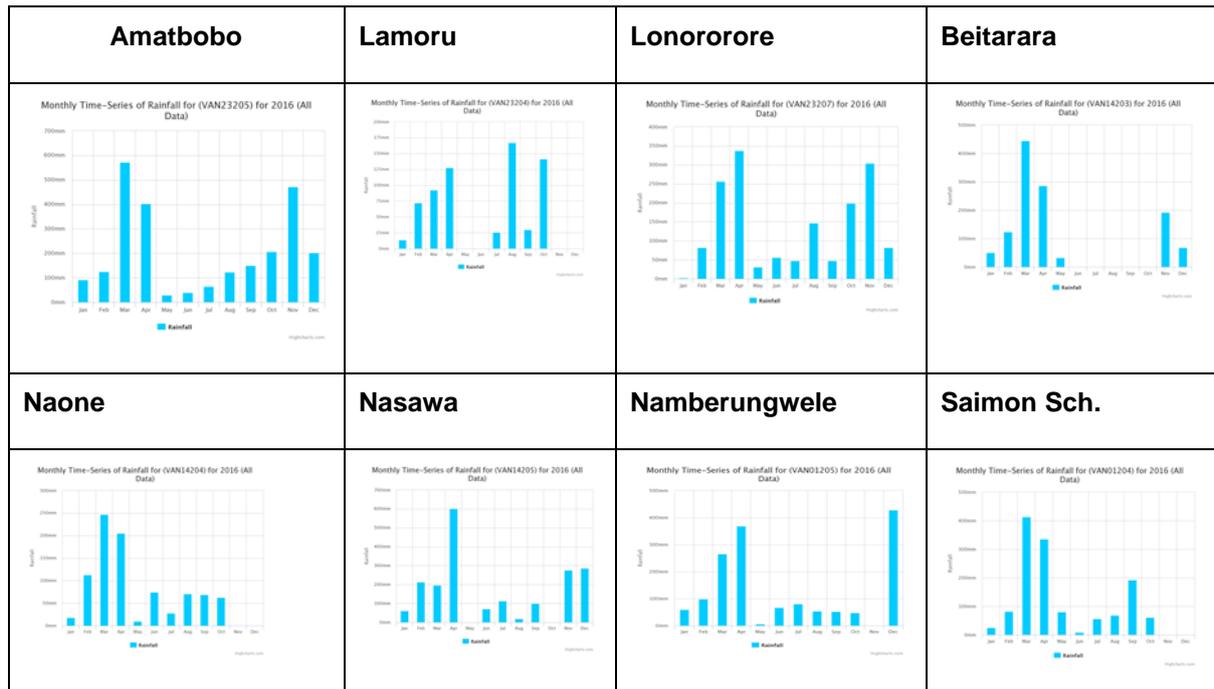
**SHEFA**

<p><b>Magaliliu</b></p>	<p><b>Tonaliu</b></p>	<p><b>Siviri</b></p>	<p><b>Undine Bay</b></p>
<p>Monthly Time-Series of Rainfall for (VAN07223) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07224) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07225) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07204) for 2016 (All Data)</p> 
<p><b>Manua Pounagisu</b></p>	<p><b>Takara</b></p>	<p><b>Epau</b></p>	<p><b>Pangpang</b></p>
<p>Monthly Time-Series of Rainfall for (VAN07226) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07227) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07228) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07229) for 2016 (All Data)</p> 
<p><b>Eton</b></p>	<p><b>Lounamua Pele</b></p>	<p><b>Mataso</b></p>	<p><b>Makira</b></p>
<p>Monthly Time-Series of Rainfall for (VAN07230) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN07237) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN15203) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN15201) for 2016 (All Data)</p> 
<p><b>Silimauri</b></p>	<p><b>Selebanga</b></p>	<p><b>Buebue</b></p>	<p><b>Lamen bay</b></p>
<p>Monthly Time-Series of Rainfall for (VAN29205) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN29204) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN10203) for 2016 (All Data)</p> 	<p>Monthly Time-Series of Rainfall for (VAN10204) for 2016 (All Data)</p> 

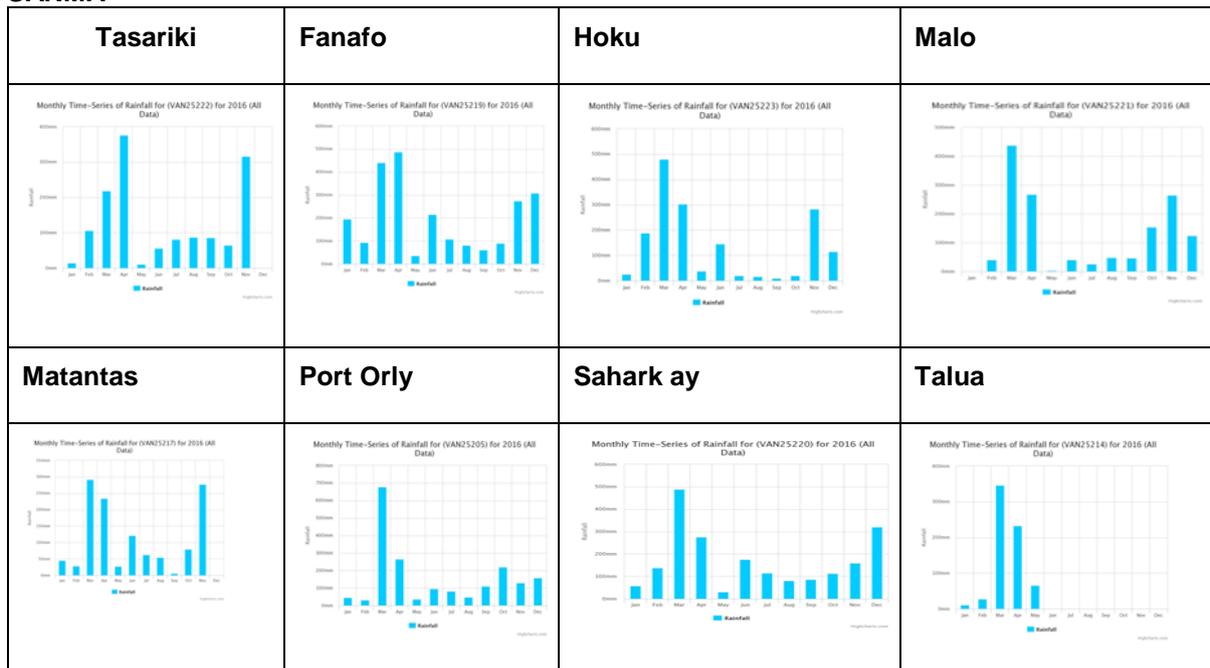
**MALAMPA**



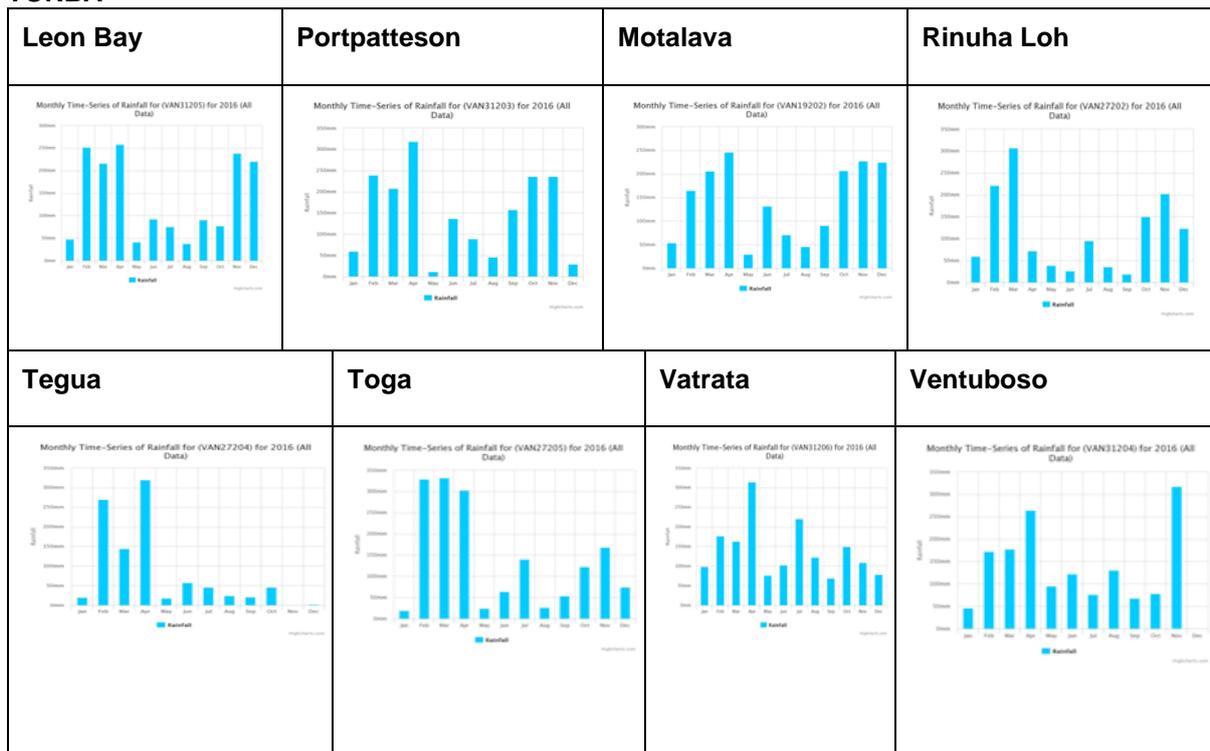
**PENAMA**



## SANMA



## TORBA



## 8. Research on Maewo Paleo climate

Date	Activities	Photo

4 <sup>th</sup> June to 6 <sup>th</sup>	Visited Naone, Petiwa Cave collected seven stalagmite	
7 <sup>th</sup> June to 9 <sup>th</sup>	Visited Nasawa, Malagi Ulu cave collecte one	
	Visited Nasawa, Molrawei collected three stalagimite	
10 <sup>th</sup> June 13 <sup>th</sup>	Asanvari, Bat Cave collected 2	
<p>Vanuatu Meteorology and University of Texas Collaboration</p> <ul style="list-style-type: none"> <li>Collecting stalagmite samples to discover more rainfall history of Vanuatu. Samples in hand from Maewo <ul style="list-style-type: none"> <li>Analyze corals which grew over the last 1500 years to identify past El Niños and La Niñas</li> <li>Collecting modern rainfall to assist in the interpretation of the stalagmite records</li> <li>May be able to distinguish past changes in: <ul style="list-style-type: none"> <li>MJO</li> <li>Cold fronts</li> <li>Cyclones</li> </ul> </li> </ul> </li> </ul>		

## Data Request

### Program Purpose and Key Outcomes

The data request program contributes to the Climate Division's purpose by providing timely and quality climate data, products and information by way of skilled and motivated staff, using modern and sound technology and techniques.

The data request activity is a scientific activity that requires qualified staff using modern and sound technology for management and

analysis of climate and related environmental data to meet request of clients.

The following are key outcomes identified by the data request program:

1. Reporting and proving data request facility to client using up to date technology and mode of communication

### 2016 Priority Activities and Results

Data Request (Business Plan)			
Programs	Objective (Targets)	Result ✓✗	Result Summary

Request	<ul style="list-style-type: none"> <li>a. Collect and archive soft climate data request</li> <li>b. Request statistics in quarterly reports</li> <li>c. New Data request form integrated into new VMGD webpage</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>a. For Jan – Dec soft climate request collected and archived.</li> <li>b. Completed</li> <li>c. Integrated to new VMGD Webpage.</li> </ul>
---------	---	---	---

## Climatological Data requests

Name of Client	Organization	Types of Elements Requested	Comments
Richard Reinen-Hamill	Tonkin + Taylor LTD	Monthly & Annual Rainfall	Flood study at Bauerfield Airport and La colle
Jonathan Gee	Tonkin + Taylor LTD	Monthly, Annual & Daily rainfall and Climate Future	Flood analysis for Bauerfield Airport
Aishah Taleo	Student @ Malapoa College	Monthly rainfall for Port Vila	For a Statistic project
Brownly Suvwa	Student @ USP	20 Years Past Tropical Cyclone	Disaster risk management research
Mr Morishita	JICA office	Monthly rainfall for Bauerfield	To design the repairing work of Teoma bridge more appropriate to reflect the change of climate along the river
Zolostino T	Student @ Central School	Monthly rainfall for Port Vila	For an Assessment in Mathematics
Stephanie Isaac	Student @ Central School	Monthly rainfall for Port Vila	To answer some questions based on Statistics project
Tony A	Student @ Central School	Monthly rainfall for Port Vila	For an Mathematics Assessment

## Traditional Knowledge

### Program Purpose and Key Outcomes

The Traditional Knowledge (TK) program is a project based activity that contributes to the Climate Division’s purpose by collecting traditional weather and climate Indicators. This will be useful in provide timely and quality seasonal outlook services and products to the communities for decision making.

The TK activity is a scientific activity that’s requires qualified staff using modern and sound technology for management and

analysis of traditional climate and related environmental data to monitor, predict and provide climate and other related environment information, forecasts, advisories and warnings.

The following are key outcomes identified by the seasonal forecast program:

1. To provide easy and relevant information to aid decision making in the communities

### 2016 Priority Activities and Results

Traditional Knowledge (Business Plan)			
Programs	Objective (Targets)	Result ✓✘	Result Summary
1) TK Refresher Training	1)New TK officer to Familiarize with TK project	✓	1) TK activities Familiarize
2) First Site visits to Torba	2) Collect TK Indicators and Distribute TK Monitoring Forms (Ureparapara Island)	✓	2) TK Survey undertaken and TK Monitoring forms distributed
3) Second visits to Malampa		✓	

4) Third Site visits to Penama	3) Collect TK Indicators and Distribute TK Monitoring forms (Malekula Island)	✓	3) TK Survey undertaken and TK Monitoring forms distributed
5) Fourth Site visits to Tafea	4) Collect TK Indicators and Distribute TK Monitoring forms (Pentecost Island)	*	4) TK Survey undertaken and TK Monitoring forms distributed
	5) Not yet done		5) Not yet done

In April the Climate Division team added a new officer under contract to carry out Traditional Knowledge activities. Throughout the year we were able to carry out site visits to Tanna, Pentecost, Malekula and Ureparapara.

Traditional Knowledge Project & VMGD Climate Activities of 2016			
Programs	Area visited	Activities done	Dates
1- TK Refresher	VMGD Office	- TK Database - TK Surveys - TK Monitoring	June 6 <sup>th</sup> -8 <sup>th</sup>  <a href="#">TK Refresher Training with Dr Roan (BOM)</a>
2- VKS Darkroom	VKS Office	-Recordings Tapes -Vanuatu Ancient Ways of Communications (TK Informations of Weather and Climate)	June 20 <sup>th</sup> -24 <sup>th</sup>  <a href="#">VKS Darkroom Listen to Tapes</a>
3- First Site Visit	Ureparapara Torba Province	-TK Survey conducted -TK monitoring distributed -TK/VMGD Awareness	June 24 <sup>th</sup> -5 <sup>th</sup>  <a href="#">TK Survey Torba Province</a>
4- Second Visit	Malekula (Central) Malampa Province	-TK Survey conducted -TK monitoring form distributed -TK/VMGD Awareness	September 9 <sup>th</sup> -16 <sup>th</sup>  <a href="#">TK Survey Malampa province</a>

5- Third visit	Pentecost Penama province	-TK Survey conducted -TK monitoring form distributed -TK/VMGD Awareness	November 4 <sup>th</sup> -12 <sup>th</sup>  TK/VMGD Penama province
6- Other activity	FAO/MALAMPA	Agro-Climate Field School -Ambrym -Malekula	November 27 <sup>th</sup> -8 <sup>th</sup> December  FAO AGRO-Climate Field School Malampa

TK plans for 2016 required four site visits, but only three has been undertaken the one still left to do is Tafea province. Apart from planned TK activities, components of TK were also incorporate into other activities plans by Climate such as FAO-Agro-Climate Field School on Malampa and Penama province. Other activities being carried out as part of the TK project are; products such as TK Season Calendars for six provinces and a pull-up banner which will be finalize at the end of February 2017. The successful progress of data Collection and Storage of TK indicators in 2016 has enabled the division to begin the process of creating 6 Pull Up banners and Six Seasonal Calendars to be finalized in 2017.

## Human resource, Policy, communications and improvement

### Program Purpose and Key Outcomes

The Climate Division contributes to VMGD purpose by providing timely and quality climate services and products by way of skilled and motivated staff, using modern and sound technology and techniques.

The Climate Division is a highly technical section with qualified staff using modern and sound technology for management and analysis of climate and related environmental data to monitor, predict and provide climate and other related environment information, forecasts, advisories and warnings.

The following are key outcomes identified by the Climate Division:

1. To upgrade skills of climate officers and others to perform effectively and raise the profile of VMGD.
2. Establish mechanism to enable new initiatives in VMGD.
3. New initiatives to further enhance the work of Climate Services in Vanuatu.
4. Accessible climate information using modern technology that benefits all citizens of Vanuatu.
5. Increase VMGD's Outreach Activities.
6. Improvement of climate working environment and information.
7. Updated working procedures and environment to enable high productivity within Climate Division.
8. Professional, hardworking officers.

## 2016 Priority Activities and Results

Human Resources, Policy, Communications (Business Plan)			
Programs	Objective (Targets)	Result ✓✘	Result Summary
Restructuring	a. A new structure to include 7 new positions	✓ ✓	a. New structure has been incorporated in the

Reporting	b. 4 quarterly reports, 1 Bi-annual and 1 annual report for climate Division	✓ ✓ *	Vanuatu Framework for Climate services.
Review	c. Complete and operate Climate reporting system	✓	
Retirement	d. 2016 business plan reviewed e. Climate strategy plan reviewed f. Annual Update of SOP uploaded on intranet and print g. Organise a farewell party		
Research	a. Report of Maewo cave ( to collect speleothems) research b. Report of Lake in Efate regarding Tropical cyclone c. Publish TK paper on how to collect TK information d. A research proposal on MJO rainfall contribution on Vanuatu's monthly and annual rainfall. Develop a map of the different phase (1-8) of MJO	* ✓ * *	a. Research was delay and not happened as planned b. Professor Sear will return in October to present findings or the research. c. In progress d. Research was delay
Policy	a. 1 VMGD Uniform Policy b. Amended Climate Operating Procedure c. Vanuatu National drought Policy d. Amended ENSO Directive e. Media release on review of TC seasonal outlook f. Launching of Vanuatu Framework on Climate Services	✓ ✓ ✓	
Studies	a. Study foundation and degree courses at USP b. Apply for PHD Studies	✓ ✓	
Training	a. Report on COP22 b. Report on IPCC meeting c. Training/Workshop report with recommendations d. COSPPac meeting report e. BOM attachment report f. NIWA attachment report	✓	
Projects	EU-GIZ	✓	
	V-CAP a. Workshop report with priority needs for Agriculture, hydrology, health, energy and DRR captured b. 7 AWS procure c. Installation report d. On site testing report e. Launching of CLEWS f. Vehicle delivered to VMGD	✓	
	RUSSIAN		
	GCF		
	FAO	✓	
	RTSM		
	WMO-VCP		
	MDRR –web site		

Traditional Knowledge	a. Report on visit and database information b. TK database update c. Report of automatic rainfall visit	✓ ✓ ✓	-Report submitted for site visits -TK survey form into database
-----------------------	---	-------------	--

## COPIWG awareness & survey mission

### 1. IPCC climate change science reports

The IPCC has contributed by provide the latest climate change science report to the climate division to be part of their outreach program. There are 200 copies of each of the WGs SPMs in both English and French versions, as well as 50 USB sticks, posters and the 50 copies of the SYR.



### 2. Yumi Redi Program Talkback show

On the 22nd of Feb 2016 from 12:30-1:30pm a team of climate officers (Daphne Nalawas, Shanna Joseph and Melinda Natapei) participated in a talkback show organized under the Yumi redi Program by Save the Children in partnership with Oxfam, Red Cross, CARE, NDMO, CDC's, PDC's and Area councils. The aims and key objectives of the program were as follows;



The Aims of the program: The Yumi Redi - Everyone is Ready Consortium is an initiative about strengthening communications and coordination between and within national, provincial and local authorities. The initiative builds on previous inter-agency work and ECHO financial support in Vanuatu. Save the Children, Red Cross, CARE, and Oxfam are working to support the vertical linkages between Community Disasters Committees, Provincial Disaster Committees, Areas Councils and NDMO.

The Key Objectives of the program: Communities and key stakeholders with increased capacity to prepare for and respond to disasters, through integrated Disaster Risk Management (DRM) systems strengthening at the community, provincial and national levels.

## Trainings and Workshops Attended

### 1. COP 21 debrief

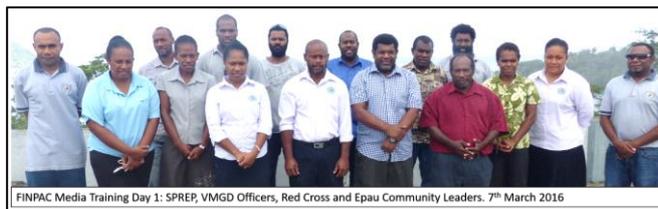
There was a debrief on Vanuatu's participation in COP21. This was organize by the ministry of climate change. Climate division was also part of the delegation to Paris and a short brief on article 7 on technology was provided to the team. The agenda for discussions during debrief on Vanuatu's priority thema ic areas COP21 were:



- Adaptation (Christopher Bartlett)
- Mitigation (Jesse Benjamin, Margaretha Wewerenke, Glarinda Andre, Anjali Nelson)
- Finance (Esrom Mike Vano, Sanjeev Singh)
- Loss and Damage (Ian Iercet, Margaretha Wewerenke)
- Technology, Gender, Human rights, Traditional Knowledge & Capacity Building (Malsale Philip, Mike Waiwai,)
- Lessons learnt, major outcomes of negotiations
- 2016 Work-plan (suggested way forward)

### 2. FINPAC Media Training

From the 7<sup>th</sup> – 9<sup>th</sup> March 2016, SPREP funded by FINPAC facilitated a Media Workshop that presented the VMGD Team to build relationships with media and to gain a great understanding of the expectations /challenges the media faces in reporting on VMGD issues.



FINPAC Media Training Day 1: SPREP, VMGD Officers, Red Cross and Epau Community Leaders. 7<sup>th</sup> March 2016

DAY 1 of the workshop was designed to help strengthen the confidence and ability of VMGD staff in communicating relevant information through to media

DAY 2 - 3 provided the opportunity for enhanced professional relations between national media and VMGD to increase quality and frequency of VMGD information shared with media audiences. As well as provide national media (and other relevant communicators) with information on climate change and disaster risk management to help support stronger understanding of the issues of Meteorology, Climate Change and Disaster Risk Management, by the media.



FINPAC Media Training Day 2: SPREP, VMGD Officers, Red Cross, Epau Community Leaders, Media Outlets. 8<sup>th</sup>-9<sup>th</sup> March 2016

### 3. Vanuatu National Climate Outlook Forum (NCOF) and National Stakeholders consultation on climate services (NSCC)

#### Background and Overview

The Vanuatu National Climate Outlook Forum (NCOF) was a two-day forum hosted by the Climate Division of the Vanuatu Meteorology and Geo-Hazards Department. The NCOF was funded and supported by the World Meteorological Organization who were also the funding body for the first regional Pacific Climate Outlook Forum (PICOF) held in Fiji in 2016 and for other National Climate Outlook Forums for other Pacific Island countries. The NCOF was held at the Melanesian Hotel in Port Vila from 14-15 March 2016.

The focus of the NCOF was on looking back at the 2016/16 El Niño as well as ahead to a possible La Niña developing later in 2016, including a refresher for attendees on the science of these phenomena. Participants were asked to share their experiences of the impacts of the El Niño, and reflect on how prepared they were for the drier than normal conditions. Presentations were made by the Climate Division on the preparation and dissemination of their monthly publication, the “Vanuatu Climate Update” – which includes updated seasonal forecasts. The Climate Division also presented a detailed overview of their communications and outreach activities during the 2016/2016 El Niño event, and sought feedback on internal ENSO response and planning strategy through a review of their ENSO Directive. Lastly, a national statement on the 2016/16 El Niño, its impacts, current status, and forecasted weakening was produced with an associated media release.

#### Participants

The NCOF organizing and facilitation committee was made up of staff from: VMGD Climate Division, VMGD Administration Division (Training Officer), Australian National University (Researcher), SPREP, NIWA and WMO.



Sectors represented at the NCOF were: agriculture/livestock, health, water and sanitation, energy, disaster management, fisheries, tourism, chamber of commerce, media, women and education. There were also representatives from provincial government (Secretary Generals from each Province and VMGD provincial observations staff), Vanuatu Rainfall Network (VRN), the Red Cross and other NGOs and UN agencies. A full list of participants is attached as *Appendix A*.

#### NCOF Structure

The NCOF was conducted over two days with the first day focusing on the 2016/2016 El Niño event and the second looking forward to a potential La Niña event. The NCOF was made up of 1 – 1.5 hour long sessions in presentation, panel and whole room/facilitated group discussion format. The agenda for the NCOF is attached as *Appendix B*.

It is important to note that there were consultants in attendance at the NCOF who were collecting information ahead of a three-day consultation to shape the development of a Vanuatu Roadmap on Climate Services. All presentations and discussions were facilitated in Bislama throughout the NCOF so diligent note taking and recording was carried out by the facilitation team to ensure that all information was captured accurately for inclusion in that Roadmap and other future planning.

Following the success of the first NCOF, the VMGD at the request of participants, will seek to secure funding to conduct NCOFs on a continuing annual basis.

## Lessons Learned

It is important to take into account Vanuatu's remoteness and size when planning for future events to make sure that the provinces are duly represented and also have the opportunity to connect with national level stakeholders. Planning for such a big event requires a long lead time to account for the administrative processes required.

Thorough documentation of all aspects of the NCOF is incredibly helpful for future planning and must continue to be a priority.

### 4. Pacific Island Climate Services Panel (PICs panel)

SPREP and WMO co-organized the third Meeting of the Pacific Islands Climate Services (PICS) Panel hosted by the VMGD at the VMGD Office in Port Vila, Vanuatu from 21-23 March 2016. The meeting discussed a range of issues from the Regional Climate Centre, second PICOF, the ET-RCC and TT-RCOF meeting that was held in Melbourne in Sept 2016, Regional implementation Roadmap on Climate Services, Updating the PICS Panel Action Plan and Priority Activities, Reviewing the PICS Panel ToR, Development of a PICS Panel website. Guidance from the discussions on these delegate matters is greatly valued to ensure there is good progress to report to the PMC in July in 2016.



Participants of the third PICS Panel

### 5. Republic of Korea-Pacific Islands Climate Prediction Services Project

On 24<sup>th</sup> of March 2016, SPREP through the Korea-Pacific Islands Climate Prediction Services Project organized a CLIKP Demonstration at VMGD. The session were very informal, and looked into these main areas

- Overview of the Korean Climate Prediction Project and CLIK Pacific (CLIKP) tool
- Registration into CLIKP
- CLIKP and functionalities
- Evaluation of climate model performance
- Discussions on improvements to CLIKP - way forward - VMGD Needs

The project is being implemented by the APEC Climate Centre (APCC) and the Secretariat of the Pacific Regional Environment programme (SPREP). It is funded by the Government of Korea through the Pacific Island Forum Secretariat (PIFS). The project will be completed in three years from 2016–2017.

The main objective of the project is to strengthen the adaptive capacity of vulnerable communities to climate risks at the seasonal timescale. The project aims to build the adaptive capacity of vulnerable communities and



Climate division officers during the CLIKP demonstration

users of climate information and services. This will be done by strengthening the capacity of the National Meteorological and Hydrological Services (NMHS) to contribute to community resiliency and national development planning. Tailored climate prediction information using a region-specific system will be developed.

Small island developing states in the tropical Pacific are increasingly vulnerable to the impacts of climate variability, extremes, and

change, such as loss and damage to infrastructure and natural assets from climate-related natural disasters and associated threats to the health and well-being of the population. Seasonal climate prediction services play a critical role in utilizing advanced climate prediction (early warning outlooks) to understand the causes, impacts, and necessary provisions to prepare for anticipated extreme climate events. By using the nationally-tailored seasonal climate prediction information, the Pacific Islands will be able to better inform decision making regarding climate risk reduction and adaptation in the region.

The project will develop region-specific downscaling methodologies and establish a climate prediction system. The work will consider the unique geographic features of the Pacific and build upon the programs named

above, utilizing APCC's multi-model ensemble prediction system and the support from the SPREP Pacific Met Desk Partnership.

APCC will not only provide climate information but also assist the Pacific Island Countries and Territories National Meteorological and Hydrological Services to self-operate the dynamical seasonal forecasting system after transferring it to the SPREP Pacific Met Desk Partnership. This system will be connected to the climate prediction information system at APCC via the Internet. Then, APCC and the Pacific Met Desk Partnership will develop guidelines and train participating NMHS's in order for them to effectively analyze the information and utilize the forecasting information to support decision-making processes.

### 6. CliDE user workshop.

From the 25<sup>th</sup> – 27<sup>th</sup> of October 2016 a Australian Government funded Climate and Oceans Support Program for the Pacific (COSPPac) CliDE workshop was organized in Apia, Samoa to demonstrate the new features in CliDE Version 4.0 and 4.1 and provide CliDE refresher training. The workshop participants received a copy of CliDE 4.1 to take back and install in country.

### 7. Republic of Korea- Pacific Islands Climate Prediction Project - Regional Downscaling Training Workshop.



On the 18<sup>th</sup> - 23<sup>rd</sup> July 2016, Rarotonga, Cook Islands – The climate division participated in a workshop on 'downscale' climate and weather forecasts using a computer based programme.

The program is called CLIK-Pacific and is supported by both the ROK-PI CLIPS Project, a partnership between the Asia-Pacific Economic Cooperation Climate Center and the Government of the Republic of Korea with SPREP and the Pacific Islands Forum Secretariat.

The second component of the one week workshop focused on ways to best communicate the information developed is supported by the Finnish Pacific Project (FINPAC) which aims at reducing the vulnerability of the livelihoods of Pacific islanders to the impacts of climate change through strengthening the Meteorological Services. It is a partnership between SPREP and the Government of Finland.

### FAO

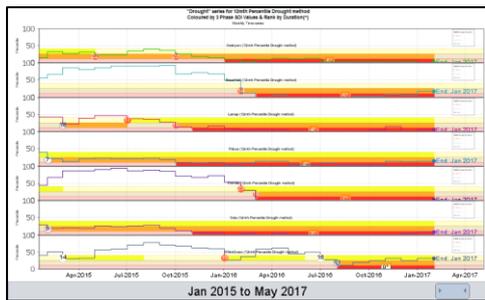


VMGD partnered with the Food and Agriculture Organization of the United Nations (FAO), funded by the Disaster Preparedness of the European Commission Humanitarian Aid Office (DIPECHO) and in partnership with the Department of Agriculture and Rural Development (DARD) to achieve the following objectives:

- Increase the resilience of livelihoods to threats and crises via improving capacities to formulate and promote risk reduction and crisis management policies, strategies and plans.
- Improving capacities of countries, communities and key stakeholders to implement prevention and mitigation good practices to reduce the impacts of threats and crises

To achieve these objectives, a technical team from VMGD and DARD conducted a series of training sessions on Building Community Capacity in Agro-meteorology and Disaster Risk Reduction in Malampa and Penama Province from the 28<sup>th</sup> Nov – 9<sup>th</sup> Dec 2016. These two-day workshops helped enhance the scientific and technical capacity of agricultural field officers and key farmers to use weather/climate related information for good decision making, increase their ability to prepare and respond to certain hazards, and become more resilient.

### 2015/16 El Niño



The  
El

as shown by observed rainfall records in synoptic stations.

### 2015/16 Tropical cyclone season



Outlook for season 2015 – 2016 forecasted 2-6 Tropical cyclones to pass through Vanuatu Waters. During the season 4 Tropical Cyclones passed through Vanuatu's area of responsibility.

Tropical cyclones that passed through Vanuatu are; TC Ula, TC Winston, TC Zena and TC Amos.

## Projects

Projects that the Climate Division is currently involved with include; V-CAP, FAO and EU-GIZ.

### AVID Red Cross Volunteer Imogen Aitken

Imogen Aitken has been volunteering at the VMGD since April 2016. She is based in the Climate Division and her work focuses on communications, community engagement and outreach. Within Climate, Imogen has worked with the team on stakeholder Climate briefings, an engagement workshop for key regional stakeholders in TAFEA in collaboration with the Vanuatu Red Cross, applications for funding and review of products and services and outreach materials.



Cross-Divisionally, she has worked with the Communications, Outreach and Partnerships Internal Working Group (COPIWG) to conduct a regional survey of access and understanding of VMGD products and services, and provide awareness about the VMGD throughout Vanuatu to the last mile. The results of the survey, along with the results of focus groups conducted with community members and key stakeholders will help to shape communications, outreach and engagement planning for the VMGD from 2016 onwards. The COPIWG has also worked to align Divisional outreach materials and define key messages. Imogen has also been involved in the content design and planning process for the upcoming VMGD website development, and has given general project and administration support where necessary.

Imogen also helped with organizing the current National Climate Outlook Forum (NCOF) and the National Stakeholder Climate Consultation (NSCC). The workshop held on 14<sup>th</sup> till 18<sup>th</sup> March 2017 was for informing stakeholders on the current ENSO status and develop climate strategy plan.

Imogen left Vanuatu in 4<sup>th</sup> of April 2016 having had a wonderful learning experience at VMGD.

### Weekly briefing and monthly meetings

The weekly briefings are to discuss openly with officers on their weekly activities especially on how the division can assist in terms of funding and allocating resources and time. The other goal of the briefings is get officers who implement activities to review progress of task to ensure that activities are carried out to implement the business plan. This is done weekly depending on urgency of activities. When there is not much activities going on, officers are called for discussion on alternative weeks. The progress of the proposed activities are being monitored from a whiteboard.



### Achievements Comment

The overall report for 2016 shows or indicates that more than half of the activities for this year for the Climate Division have been achieved beyond to a high level of delivery. This is because of the good team work amongst officers within the Climate Division, other VMGD divisions, stakeholders (Vanuatu Government and NGOs) and donor partners.

## Geohazards Division

---

### Division Purpose and Key Outcomes

The Geo-Hazards Division contributes to the Department's purpose by way of qualified, skilled and motivated staff using modern science and technology to mitigate against potential impacts of geological hazards (earthquakes, tsunamis and volcanic eruptions).

The Geo-hazards Division Contributes to VMGD Overall Objective (High Level) by way of Improving accuracy, timelines, quality of geo-hazards' information, alerts, warnings and services.

The key strategic outcomes for the Geo-Hazards Division are as follows:

- (1) Improve early warning system for tsunamis;
- (2) Develop early warning system for earthquakes;
- (3) Develop early warning system for volcanos;
- (4) Improve accuracy, timeliness and quality of tsunami information and alerts;
- (5) Improve accuracy, timeliness and quality of earthquake / seismicity information and alerts;
- (6) Improve accuracy, timeliness and quality of volcanic information and alerts;
- (7) Establish and develop geo-hazards' mappings;
- (8) Operate and manage volcano database; and
- (9) Operate and manage earthquake / seismic database

### 2016 Priority Activities and Results

Programs and Objectives required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Geo-Hazards Division (Business Plan)			
Programs	Objective (Targets)	Result ✓✖	Result Summary
<b>Research and Capacity Development</b>	Improve current knowledge, and responses to volcanism, Seismicity and Tsunami	✓	<p>1.1- Engage in research activities with local and international scientists on earthquakes, tsunamis and volcanoes in Vanuatu</p> <p>1.2- Facilitate Internal technical trainings relevant to Geohazards areas of work for Geohazards staff</p> <p>1.3- Coordinate &amp; facilitate training workshops and attachment with other counterparts in Geohazards field</p> <p>1.4- Participate in regional and international conferences, trainings and seminars</p>
<b>Scientific collaboration and partnership for Data sharing</b>	Enhance collaboration with regional institutes to promote the regional geophysical network	✓	<p>2.1- strengthen trilateral and multilateral-agreements to address Geohazards Observations and data sharing</p> <p>2.2- Share seismic data with other Earthquake Information centers to encourage research and to re-enforce earthquake monitoring system in Vanuatu</p> <p>2.3- Cooperate with Regional Partners to maintain and enhance regional seismic network</p>
<b>Geo-Hazards Crisis response</b>	Undertake responses to volcanic eruption, earthquakes and tsunami	<p>✓</p> <p>✓</p>	<p>3.1- Liaise with NDMO, and other stake holders for disaster response plan and action in times of volcanic eruptions, earthquake and tsunami</p> <p>3.2- Carry out hazard Hazard assessment in response to major volcano activity events</p> <p>3.3- Carry out earthquake intensity survey and hazards assessment in response to major earthquake events</p> <p>3.4- Carry out tsunami run up and hazards assessment in response to a major tsunami even</p> <p>3.5- Contribute in the tropical Cyclone shift</p>

			3.6- Undertake 24 hour analysis on the Geo-Hazards data in times of volcanic, earthquake or tsunami crisis
<b>Geo-Hazards Early Warning system</b>	<p>1- Earthquake, tsunami and volcano warning systems and hazard map</p> <p>2- Installation of the Tsunami Sirene</p> <p>3-Implement the Geo-hazards early warning system</p>	<p>✓</p> <p>✓</p>	<p>4.1- Ensure Geohazards Warning center operations up and running</p> <p>4.2- Contribute in the development of the tsunami signage project</p> <p>4.3- Contribute in the finalization and distribution of earthquake and Tsunami hazard maps for Luganville and Port Vila</p> <p>4.4- Contribute to the Development of the reviewed Hazard map and contingency planning for Tanna and Ambrym</p> <p>4.5- Participate in the Tsunami siren installation in Port Vila and Luganville</p> <p>4.6- Ensure 24H/7 on call services for Geohazards Early Warning systems</p> <p>4.7 Acquire a vehicle dedicated for the Warning Center operations for quick response Services</p> <p>4.8 Carry out the observations of earthquakes and volcanoes in real-time 24H/7 for tsunami and volcanic eruptions early warning</p>
<b>Earthquakes and volcano monitoring</b>	<p>Improve seismic and volcano monitoring systems to prevent disastrous consequences of natural disasters to humans and the environment</p>	<p>✓✓</p>	<p>5.1- Establish agreements with provinces and landowners for the use of rural lands for Geohazards monitoring systems</p> <p>5.2- Upgrade, maintain and install Real-time seismic monitoring system on Efate, Malekula, Maewo, Malo, Santo, Ambae, Gaua, Vanua Lava, Lopevi</p> <p>5.3- Maintain and upgrade the Efate seismic network</p> <p>5.4- Maintain the Geoscope station for global earthquake monitoring network</p>

				<p>5.5- Daily volcanic hazards Assessment on Ambrym, Tanna, Ambae, Lopevi and Gaua</p> <p>5.6- Draft the initial proposal for a possible geodetic network for volcano and earthquake monitoring</p> <p>5.7- Maintain volcano monitoring systems</p>
<b>Geohazards data/product management</b>	<p>1-Update hazards database</p> <p>2- Issue and disseminate Geo-hazards observations information for public safety</p>	Geo-	<p>✓</p> <p>✓</p>	<p>6.1- Collect, analyze, backup and store volcano data in a daily basis from national and international monitoring network</p> <p>6.2- Collect, analyze, backup and store earthquake and tsunami data in a daily basis from national and International monitoring network</p> <p>6.3- Ensure daily data quality checks on volcanic and Earthquake data</p> <p>6.4- Issue earthquake occurrence bulletins to relevant authorities, and media outlets</p> <p>6.5- Issue monthly and annual earthquake bulletins for scientific communities</p> <p>6.6- Issue volcano Alert Bulletins for tourism industry, relevant authorities and media outlets</p> <p>6.7- Issue monthly and annual volcano activity bulletins for scientific communities</p> <p>6.8- Issue monthly volcano activity update bulletins for general public</p> <p>6.9- Issue weekly report of Geo-hazards monitoring systems and operations</p> <p>6.10- Contribute in the VMGD warning dissemination platform activities and add a display screen of tide data in the warning center</p> <p>6.11- Review and develop specific education and awareness materials for specific audience using specific software</p> <p>6.12- Participate in COP activities</p>

	3- Educate communities and the general public about Geological Hazards in Vanuatu		
<b>Geo-Hazards management and operating procedures</b>	1- Formalise the Emergency response Manual Operation Procedures for cases of volcanic eruption, earthquakes and tsunamis.  2- Manage Geo-Hazards resources, plans and reporting	✓	7.1- Update Draft SOPs/ instructions/templates Geohazards response, emergency response, Issuance of Geohazards products  7.2- Review Tsunami detection and operation procedures  7.3- Update Geo-Hazards operating manual/Geo-Hazards Directive including all hazards/Geo-Hazards Monitoring systems Manual  7.4- Engage in the VMGD Business/corporate planning and annual budgeting for 2016/2017  7.5- Report annually and bi-annually on the Geo-hazards operations and achievements 2015  7.6- Assess staff through staff appraisal  7.7- Control the Geohazards assets  7.8- Address Geo-Hazards capacity building in collaboration with Aid Donors and Scientific partner  7.9- Ensure the Geo-Hazards business plan is well implemented within means and timeframe

Programs	Objective (Targets)	Result ✓ x	Result Summary
<b>Project Management</b>	To ensure proper management of the projects that are relevant to Geohazards operations	✓	1. Contribute to the IRCCNH and MDRR project implementation planning 2. Manage the ORSNET project 3. Manage the VU-NC Cooperation project 4- Contribute in the new project development

## I. Research and scientific collaborations

### I-1- Engage in research activities with local and international scientists on earthquakes, tsunamis and volcanoes in Vanuatu

#### Research projects

The Geo-Hazards Division has been involved in five different research projects and PHD studies:

- “The first attempt to sample the directional infrasonic wave field for volcanic micro-eruptions by using microphones payloads on tethered weather balloons” in collaboration between Dr. Ben Kennedy of Canterbury University, Christchurch, with Art Jolly and Graham Leonard from GNS, Sciences, Wellington, New Zealand, . Field works under this project have been undertaken in Tanna from 27<sup>th</sup> July to August 3<sup>rd</sup> and from October 16<sup>th</sup> to 21<sup>st</sup> with the assistance of the Geo-Hazards technicians.

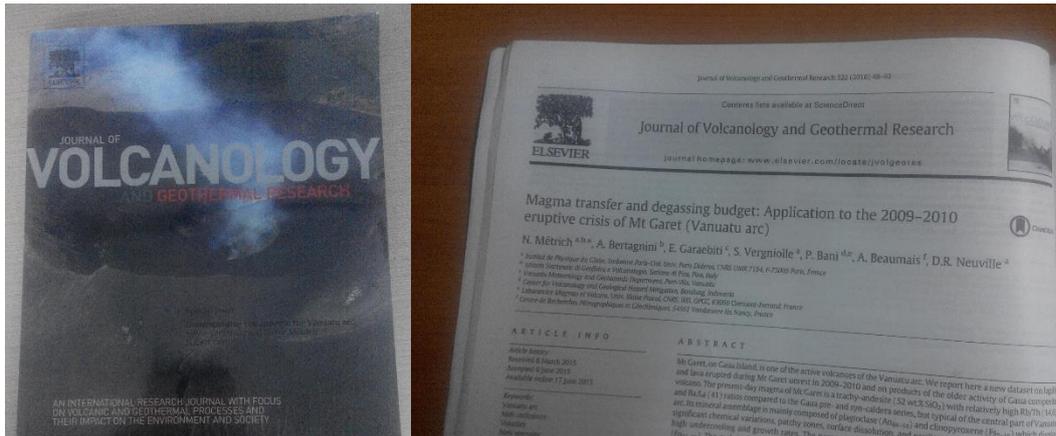


*Balloon deployment on yasur tanna, July 2017: The Balloon is filled with hydrogen. Geophones are attach on the balloon and measured explosions came out from Yasur Volcano*

- Factors influencing short and long term explosive variability at steady-state volcanoes, Tanna volcano, Vanuatu with Mr. Benjamin Simon, PHD and professor Shane Cronin, Auckland University, New Zealand. The study is based on the Yasur volcano in Tanna, it begun in October 2015. Simon had to stay in Tanna to run the network for data collection from September to December 2016.
- “Primitive Arc Magmatism: Experiment constraint and implication for subduction zone thermal structures” with Prof Jon Blundy, Dr Elena Melekhova, Dr Richard Broker, Dr Anne-Marie Lejeune Dr Ian Parkinson from the School of Earth Sciences, University of Bristol, United Kingdom. This research project field work was done by the responsible researchers through a sailing boat tour on Ambrym, Ambae, Gaua, Mere Lava, Vanua Lava, Mota Lava.
- “Understanding of the evolution of the Yasur volcano activity simultaneous thermal and acoustic records” with Dr. Sylvie vergniol, Director of Research CNRS IPGP, Viviane Souty, PHD student with Michel Lardy and Francis Gallois, the external collaborators to IPGP. Viviane Souty spent a 6 weeks in Tanna to collect data from September to November 2016.
- The PHD student Celine Madon, student of Dr. Bruce Christenson, Senior volcanic fluids chemists of GNS Sciences New Zealand had a field visit on Yasur volcano during the last week of October 2016 to sample volcanic fluids on Yasur volcano for her thesis that is based on the While island steam activity.

#### Scientific publication reviews

The manager of Geo-Hazards Division, Esline Garaebiti is co-author of 9 publications of the Journal of Volcanology and Geothermal Research (JVGR) special issue Vanuatu 2016, she participated in the review of these articles during the year 2016. The journal contains 18 scientific publications on Vanuatu volcanoes. Other reviews being undertaken on scientific abstracts to be presented in scientific conferences for which the Division participated.



*Journal of volcanology and Geothermal Research Special issue: Understanding volcanoes in Vanuatu Arc, published by Elsevier in August 2016.*

## I-2- Facilitate internal technical trainings relevant to Geohazards areas of work for Geohazards staff

Series of on the job trainings being organized for Geo-Hazards staff both internally and internationally:

- The media training from 7th to 8th March 2016 attended by Sandrine Cevuard for better awareness and education to media industry on technical terms in VMGD warning messaging.
- The ITP-Vanuatu: “Strengthening Tsunami Warning and Emergency Response using the PTWC Enhanced Products for National Tsunami Threat Decision-Making Port Vila, Vanuatu, 5-8 April 2016. This training was conducted by the International Tsunami Information center (ITIC) for Vanuatu tsunami warning center and stakeholders. This training was conducted for Geo-Hazards and Weather Forecasting Divisions and the National Disaster Management Office (NDMO) familiarizing the trainees on the PTWC enhanced products. The main lecturers were Dr. Laura Kong, Dr. Stuart Weinstein and Dr. Yamamoto Masahiro. All Geo-Hazards staff attended this training except Morris Harrison, Principal Scientific Officer.
- Basic training in seismology undertaken in April 1st 2016 for Geo-hazards staff particularly about Basic and necessary seismology for Tsunami Warning service and the fundamental Operation of the National Tsunami Warning Center. The training was provided by Masahiro Yamamoto. All Geo-Hazards staff are present except Morris Harrison, the Principal Scientific Officer Seismology.
- In-house Tsunami Warning system SOP training provided by Forecast Division Acting manager to Geo-Hazards Staff to familiarize ourselves in the Tsunami warning services. The training occurred in June 15<sup>th</sup> 2016. The objective of this training is to draw the understanding and harmonization of the services of the two Divisions. All Geo-Hazards staff are present except Morris Harrison, Principal Scientific Officer Seismology.
- An internal training session was organized in June 23<sup>rd</sup> 2016 particularly for Geo-Hazards staff with Sylvain Todman, the Geo-hazards Engineer to run through the whole volcano-seismic data management system to ensure that all staff understands the setup of the Geo-Hazards network in VMGD. The overview of SEISCOMP3 was also discussed as refresher training.



*Series of training sessions organized for Geo-Hazards staff*

### **I-3- Coordinate & facilitate training workshops and attachment with other counterparts in Geohazards field**

#### **International and Regional training**

- Training attachment for Sandrine Cevuard, the Volcanology Scientific Officer, from 8th August to 4 November 2016. The objective of this training was to ensure Sandrine gain more experiences in scientific works and emergency operations. The title of her training is computer analysis of volcano monitoring data undertaken at the Institute of Geological and Nuclear Sciences Limited (GNS Science), Volcanology Department, Wairakei Research Center, Taupo, New Zealand. This training program was coordinated between the Manager of the Geo-Hazards Division of VMGD, the Head of Volcanology Department of GNS Sciences, and the New Zealand High Commission of Vanuatu.

### **I-4- Participate in national, regional and international conferences, workshops and seminars**

#### **National workshops**

- Design workshop for the Pacific Risk Tool for Resilience under PARTnER project was held at Iririki, from 28<sup>th</sup> to 29 September 2016. Volcano and earthquake data analysts and manager Geo-hazards attended the workshop. This workshop identified three main case studies on three different hazards (Tropical Cyclone, Drought, and volcanic ash fall) to be studied and treated by the RISKCAPE tool as a learning process for the Vanuatu stakeholders.



#### **Regional**

- Technical meeting in IRD office, Noumea, New Caledonia from 10 to 12 March 2016. This meeting focus on the arrangements and the way how to better assist the Pacific Island countries Member of ORSNET in the efforts of seismic data sharing in the Pacific. Manager Geo-Hazards, Esline Garaebiti, and ORSNET engineer Sylvain Todman attended the meeting.
- The Divisional Manager and the Engineer attended The Pacific Islands Science and Technology Resources conference (STAR) held in Nandi, Fiji from 6<sup>th</sup> to 8<sup>th</sup> June 2016 to present the progress of the Tsunami warning system project of Vanuatu and the Oceania Regional Seismic Network.
- The Pacific Platform for Disaster Risk Reduction meeting was held in Suva from 24 to 26 October 2016. The side events of this regional meeting includes a session in the use of early Warning systems where manager Geo-Hazards presented the warning systems for earthquakes and volcanic eruptions in Vanuatu.

- Fourth Meeting of the ICG/PTWS Regional Working Group on Tsunami Warning and Mitigation System in the Southwest Pacific (ICG/PTWS WG-SWP-IV), was held Honiara, Solomon Islands, 22-23 August 2016. The Esline Garaebiti attended this meeting as the co-chair of the pacific regional working group of Tsunami warning system presenting the progress of the Vanuatu Tsunami warning system.
- The Third Meeting of the Oceania Regional Seismic Network (ORSNET), was also held in Honiara, Solomon Islands, 24-25 August 2016. This meeting was attended by Esline Garaebiti as the ORSNET project coordinator and Chair of this network meeting.
- The Technical meetings were held in Taupo and Wellington, New Zealand from 3 to 7 October 2016 between Manager Geo-hazards of VMGD, Esline Garaebiti, and the technical team of GNS Sciences Taupo on the next steps of the joint project VMGD-GNS. The technical teams met with the high officials of the Ministry of Foreign Affairs and Trade on the 6<sup>th</sup> of October 2016 to present their deliberations for further support.
- The GIS conference held in Fiji was attended by the principal Seismology Officer Mr Morris Harrison from November 28<sup>th</sup> to December 2<sup>nd</sup> 2016. This conference was an opportunity for Morris to show case the tsunami evacuation mapping works for Luganville and Port Vila.



*Setting of the ORSNET meeting (left and middle) and the STAR meeting (right)*

### International

- The Intergovernmental Coordination Group (ICG) for Tsunami Warning System Steering Committee met in Hawaii from 27<sup>th</sup> June to 1<sup>st</sup> of July to make decisions on the coming ICG meeting in Hawaii and discuss other urgent matters related to Tsunami warning systems in the Pacific. The Manager Geo-Hazards Division attended the meeting as the Co-Chair of the Seismic data sharing in the pacific and the Co-chair of the Pacific Regional Working Group for Tsunami warning system. This mission was also the opportunity to connect the Oceania regional Seismic network to Pacific tsunami warning center (PTWC) of Hawaii to improve tsunami warning services for the south west pacific.
- The Asian Seismological Commission (ASC) conference held in Melbourne from November 24<sup>th</sup> to 27<sup>th</sup> was attended by the Manager Geo-hazards and the earthquake data analyst Juanita Laga. This meeting was the opportunity to show case the ORSNET to the wider community. Esline Garaebiti was then elected by this seismology Community as representing the pacific in the ASC steering committee.
- Global Facility for Disaster Reduction and Recovery (GFDRR) Fall 2016 Coordination Group Meeting was held from 9<sup>th</sup> to 14<sup>th</sup> November 2016 in Marrakesh, Morocco, in parallel with the COP22 sessions. The Manager Geo-hazards represented Vanuatu in this meeting between GFDRR Donor partners. This was an opportunity for her to participate in co-chairing the Official Swiss side event at COP22 in Marrakesh entitled “demonstration in combining adaptation and Disaster Risk Management in Development”.



The international meetings attended 2016, the ICG meeting (left), ASC (second), GFDRR and COP (right)

## II. Scientific collaboration and partnership for Data sharing

### II-1- Strengthen trilateral and multilateral-agreements to address Geohazards Observations and data sharing

- Manager Geo-Hazards contributed in the development of the MOU between the Solomon Islands Ministry of environment, Climate Change, Natural Disasters and Meteorology and the Vanuatu Ministry of Climate Change. This was followed by the South-South Exchange between Solomon Islands and Vanuatu from the 11th to 15th April 2016 with the arrival of Solomon Islands high Officials.
- The Geo-Hazards Divisional Manager also strongly contributed in the drafting, review and finalization of the MOU between the Vanuatu Ministry of Climate Change and the Ministry of Lands, Survey and natural resources of the Kingdom of Tonga.
- Technical agreement of collaboration between IRD and VMGD in the management of the ORSNET server has been reviewed.

### II-2 Share seismic data with other Earthquake Information centres to encourage research and to re-enforce earthquake monitoring system in Vanuatu

The volcano-seismic data from all stations of the Vanuatu Geo-Hazards monitoring network available to all member countries of ORSNET, particularly Solomon Islands, PNG, Tonga, Samoa, Fiji, and New Caledonia. The same data is also shared to PTWC for tsunami Warning services. In 2016 an addition station of Ambanga, Ambae, is also added to the regional network of South west pacific.

### II-3 Cooperate with Regional Partners to maintain and enhance regional seismic network

Regular communication is maintained between the ORSNET countries for any station breakdown maintenance to ensure smooth running of the network for tsunami surveillance. The network status report is issued daily by the ORSNET server Host country to all member countries.

## III. Geo-Hazards Crisis response

### III-1 Liaise with NDMO, and other stake holders for disaster response plan and action in times of volcanic eruptions, earthquake and tsunami

Geo-Hazards Division maintained its strong partnership with the NDMO and its stakeholders during the earthquake crisis in 2016. This collaboration also remain during peace time to work together in the consultation of the volcano Hazard maps, the Port Vila and Luganville multi hazard maps and tsunami evacuation maps with local communities and authorities.

### III-2- Carry out hazard assessment in response to major volcano activity events

The biggest earthquake M7,6 occurred on the 27<sup>th</sup> of July at several kilometers South of Aneytium without major impacts though a small tsunami has been triggered and detected by the Port Vila tide gauge. The Second biggest earthquake of 2016 occurred on land in Malekula few kilometers from Lakatoro provincial center of Malampa. This earthquake caused severe impacts on the land, infrastructure, and buildings in Santo and Malekula. The surrounding islands also felt the earthquake.

Unfortunately no technical assessment done on site after the earthquake to measure the uplift in the south of Malekula due to the earthquake.

### III-3- Carry out earthquake intensity survey and hazards assessment in response to major earthquake events

Out of 27 major earthquakes occurred of magnitude higher than 5.5, only 10 out of 27 earthquakes have had their intensity surveyed by phone call. Unfortunately there was no technical assessment made on any of these earthquakes.

Earthquakes	Intensity Survey	Impact	Assessment Survey
2016/01/01 0315am M4.4 SE Ambae	Done (East Ambae)		
2016/04/03 0823am M6.9 NNW Port Olry, Santo	Done. (Phone call: Santo & Gaua)	Strongly felt by surrounding islands	-
2016/04/06 0658am M6.5 WSW Sola, Vanua Lava	Done. (Phone call: Gaua)		-
2016/04/29 0633am M7.1 E Lakatoro, Malekula	Done (Phone call: Lakatoro, Unmet)	Coastline surge in Malekula (<1m), damage in Malekula & santo, strongly felt by surrounding island	-
2016/06/20 0350am M6.0 W Anatom	Done (VMGD)		-
2016/06/29 0946am M5.7 NW Santo	-		-
2016/07/08 0622am M4.4 N Ambae	Done (North and East Ambae)		
2016/07/26 1904 M6.5 E Norsup, Malekula	Done (Phone call: Lakatoro, Unmet, West and North Ambrym-Ranon)		-
2016/08/05 1203pm M5.0 SW Efate	Done (VMGD)		-
2016/08/12 1226pm M7.6 SE Loyalty Is.	-	Yes, tsunami reading	
2016/09/17 1331 M5.9 N Lakatoro, Malekula	Done (Phone call: Lakatoro, Northwest)		-
2016/12/06 1221pm M5.5 NW Port Olry, Santo	Done (Phone calls: Santo)		-

### III-4- Carry out tsunami run up and hazards assessment in response to a major tsunami events

Two earthquakes that triggered small waves (less than 1 meters) but there was no tsunami hazard assessment in 2016.

### III-5- Undertake 24 hour analysis on the Geo-Hazards data in times of volcanic, earthquake or tsunami crisis.

Undertaking geohazards observations 24 hours and seven days a week is highly required to ensure appropriate crisis detection and response. In 2016, Geo-Hazards Division went through 24/7 operations from May to October 2017 where all staff are involved. This had to stop due to challenges faced by the Division with the seismology team being under resourced.

## IV. Geo-Hazards Early Warning system

### IV-1- Ensure Geohazards Warning Center operations up and running

Routines checks of the geo-hazards warning systems and tools are done and recorded daily by the technical team.

#### **IV-2- Contribute in the development of the tsunami signage project**

The PSO Seismology, Morris Harrison, represented the Division in this work. A number of signage, notice boards have been developed and printed through the assistance of Morris.



*Tsunami signage and notice boards printing delivered at VMGD, December 2016*

#### **IV-3- Contribute in the finalization and distribution of earthquake and Tsunami hazard maps for Luganville and Port Vila**

The tsunami, earthquake, flooding, storm surge, and wind hazard maps for Port Vila and Luganville were developed by the MDRR project contractor (BECA Company in collaboration with NIWA and GNS) under the guidance of the MDRR project steering committee. The multi-hazard maps consultations were completed for the finalization of the maps early 2016.

#### **IV-4- Contribute to the Development of the reviewed Hazard map and contingency planning for Tanna and Ambrym**

Consultation of the maps, signs and volcano information for Ambrym was done on 02nd to 14th February 2016 and for Tanna on 16th to 22nd July 2016. Final editing of these maps was done on 25th to 29th July with Dr. Graham Leonard.

All maps are in English, French and Bichelamar version. Softcopies of those maps are available at the Geohazards website ([www.geohazards.gov.vu](http://www.geohazards.gov.vu)) and Geohazards office (See Appendix Fig3. & Fig.4).

These maps were presented at the Department of Tourism with Jerry Spooner, the Principal Accreditation Officer, on 27th July 2017 to get his feedback on developed volcano products for tourism industry and also to discuss the volcanic risk management framework for tourism industry in Vanuatu. More, they are also presented to the MFAT office at Port-Vila on 29th July 2016, showing the result of the 4 years project in partnership with GNS.

The next stage is to print these maps for communities/villages.

#### **IV-5 Participate in the Tsunami siren installation in Port Vila and Luganville**

The PSO Seismology, Morris Harrison, undertook the Environment and social safeguard survey for the sirens in Port Vila and Luganville.

#### **IV-6- Ensure 24H/7 on call services for Geohazards Early Warning systems**

All Geo-Hazards staff who are in Port Vila are on standby at all times in case of an imminent earthquake, tsunami or volcanic eruption that requires a response. Yet the resources required to be able to react accurately in these circumstances are still to be considered by the Department.

#### **IV-7 Acquire a vehicle dedicated for the Warning Center operations for quick response services.**

No vehicle being acquired.

#### **IV-8 Carry out the observations of earthquakes and volcanoes in real-time 24H/7 for tsunami and volcanic eruptions early warning**

The volcano and earthquake data analysts are tasked to be on duty 7 days a week to ensure the ongoing daily processing and analysis of seismic data including reporting daily updates of activities and updating the earthquake and volcano databases. This duty is required to properly monitor geo-hazards data availability and quality. These two officers have 2 hours of duty each weekend and public holidays except in time of volcanic or earthquake crises when more than 2 hours are required.



*Earthquake detection system and volcano notice board well maintained and automatically updated daily*

### **V. Earthquakes and volcano monitoring**

#### **V-1- Establish agreements with provinces and landowners for the use of rural lands for Geohazards monitoring systems**

Land agreements being signed between VMGD represented by Esline Garaebiti, Manager Geo-Hazards Division, and the land owners of the sites of the volcano-seismic stations. The land agreements for the sites in Maewo (Marino village), Ambae (Ambanga and Lovuivili villages), Paama (Tavie village), Lopevi (Ngala village in Epi), were signed in 2015 between the land owners and Esline Garaebiti. Land agreements for the sites of Santo (Tanovoli village and Araki village), Malekula (Spigil Bay village), and Malo (Avunatari village) were signed between the land owners and the project management Unit manager, Brian Philips by the end of 2016. Land agreements for the sites in Tanna (yasur volano), Vanua Lava (Lalgnetak village), Gaua (Metsalowon village and Letas) were signed in May and June 2016 between Manager Geo-Hazards, Esline Garaebiti, and the land owners.

#### **V-2- Upgrade, maintain and install Real-time seismic monitoring system on Efate, Malekula, Maewo, Malo, Santo, Ambae, Gaua, Vanua Lava, Lopevi**

Vanuatu Meteorology and Geohazards Department has contracted Loly Construction Company under the IRCCNH project to build eight (8) seismic stations throughout Vanuatu islands. The work was carried out in Vanualava, Santo, Malo, Maewo, Ambae, Malekula, Lopevi, and Tanna under the supervision of Geohazards Technicians. All stations are built in standard structure that constitute a mini shed (it houses electronic equipment) and seismic pit (where the seismometer will be set on). The pictures below are taken during work on different sites. Only the shed constructions was undertaken this year.

#### **Tanna**

Technicians dismantled the YAS station at Melkem Hill to allow for permanent construction on the existing site. There was removal of the station box, the solar panels, the trillium sensor and Q330

digitizer. Later Ms Viviane Souty removed the infrasound sensor equipment.



Equipment dismantled (left) and the new shed under construction in Tanna (right)

### Vanualava

The station at Vanua Lava is called Lalgnetak acronym LAGNTC.VU. It is situated on the south south east of Vanualava. The station shed construction checks by Geo-hazards technicians were done from the 15<sup>th</sup> to the 19<sup>th</sup> of September 2019 to ensure conformity to the design. Different stages to completion of the shed from the digging of the shed foundation, the slab, and the erection of the shed. The seismic pit is about 40x40 square and was dumped with concrete mixed with sand and coral.



Seismic station shed and slab construction progress at vanua Lava

### Santo-Malo and Malekula

Technicians reconfirmed data transmission system for Tanovoli in South Santo and Avunatari in Malo. The team dismantle the existing stations at Saletui (South Santo) and Avunatari in Malo to allow for the permanent shed construction to upgrade these stations from temporary sites to permanent sites. The station of Saletui was then moved to Tanovoli in the South east of Santo with the acronym TANO.VU while Malo station is VAVUN. Shed construction work checks by the Geo-Hazards technicians continued from 16<sup>th</sup> to 30<sup>th</sup> of September 2016.



Different stages of station upgrade in SANMA and malekula from the removal of the temporary station to the completion of the permanent monitoring station shed

### Ambae-Maewo

New permanent station sites identified at Marino village , North Maewo and in Ambanga village, North of Ambae (acronym ABNG). The Mini-shed construction checks of these stations sheds occurred from the 8<sup>th</sup> to the 27<sup>th</sup> of August 2016 by two separate teams for around 10 days each. Guillaume Kasten and Julius Mala were behind the Marino construction works while Janvion Cevuard and Athanas Worwor were behind the Ambanga construction works.



*Stages of the shed construction at Ambae at Maewo from the seismic vault digging to the completion of the mini-shed*

The seismic station (ABNG) was removed to build a permanent station on its existing site. The station was then installed and transmit to Port Vila temporarily.

### Lopevi

In Lopevi, the existing station including set solar panels, seismic sensor and digitizer, and infrasound sensor were removed to build the mini shed on the existing site for an upgrade to permanent station status. The shed construction work checks was done from 12<sup>th</sup> to 15<sup>th</sup> October 2016 by Athanas Worwor and Julius Mala.



*Dismantling of the temporary Lopevi volcano monitoring station shed (left) and the construction of the permanent station (right)*

### V-3- Maintain and upgrade the Efate seismic network

Maintenance visits on Efate seismic stations at Mont Erskin (acronym MKV), Devil's Point (acronym DVP) and Rentapau (acronym RTV) occurred in several occasions in March, April and December 2016 for station maintenance. Therefore the regulator in RTV was replaced on the 29<sup>th</sup> of March 2016, the seismic sensor in Devil's point was also replaced in April 2016 and a temporary fence was built around the MKV station in December 11<sup>th</sup> 2016 to avoid animals to step on the station vault cover.



*Technician is replacing the regulator at RTV and a temporary fence at MKV station*

### V-5- Maintain the GEOSCOPE station for global earthquake monitoring network

The setup of the power supply to the Santo global station (acronym SANVU) was switch to Solar power in September 2016. The Seismic STS2 sensor was dismantle due to faulty. Athanas Worwor and Julius Mala participated in this maintenance work in collaboration with Sebastien Bonaime and Fred Presqueira from the institute Physique du Globe (IPGP), Paris, France at the end of September 2016. The cost of this work is borne by IPGP.



Solar power remote control and technician dismantle faulty seismometer with IPGP engineer Sebastien Bonaime.

## V-6- Daily volcanic hazards Assessment on Ambrym, Tanna, Ambae, Lopevi and Gaua

### V-7- Draft the initial proposal for a possible geodetic network for volcano and earthquake monitoring

The initial proposal for geodetic work in collaboration with the land survey Department has been discussed. This collaborative work is essential for closer monitoring of volcano deformation and the earthquake stress control.

### V-8- Maintain volcano monitoring systems

#### Tanna station maintenance

Technicians deployed to Tanna for an on-the-job job training and participation in the collaborative research work with GNS sciences team from July 27<sup>th</sup> to August 3<sup>rd</sup>. The field trip of the three Geo-Hazards technicians was jointly covered by GNS sciences and VMGD. It was an opportunity for technicians to be involved in a scientific assessment and field work but also to repair the Tanna station that was down for weeks due to heavy ash fall and data communication breakdown.



Free wave at Yash station was reconfigured and now transmitting to Port Vila

This was a great training opportunity for Julius Mala who joined the Department that month.

#### Ambae stations maintenance and data collection

The volcano seismic stations at Lovuinvili, east Ambae (acronym LVVL) and at Ambanga village, north Ambae (Acronym ABNG) were visited from 23 to 26 February 2016 for station cleaning and data retrieval at ABNG and Inspection at LVVL station to understand strange signals that polluted the seismic signals the data analysis.



Temporary station check at Ambanga (left) and the repair of the permanent station of Lovuinvilli (right)

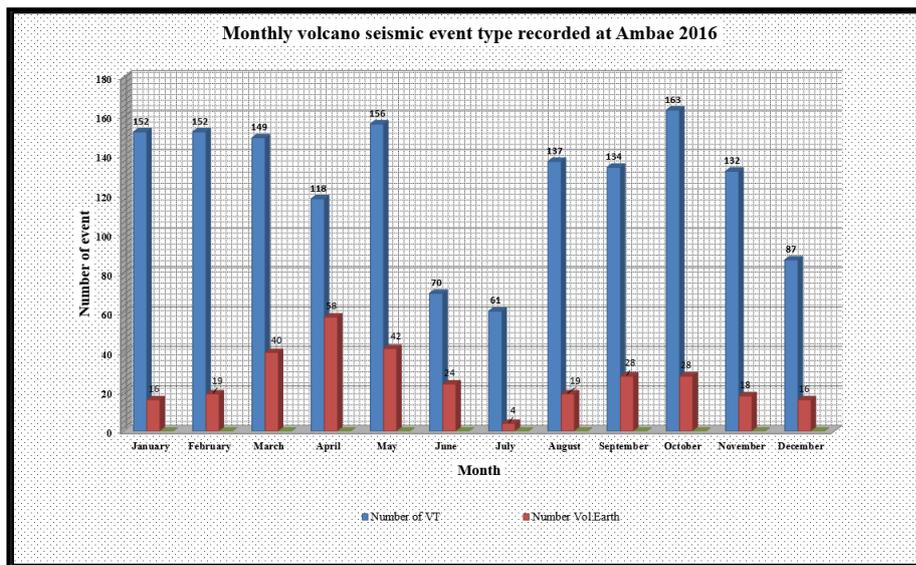
## VI. Geohazards data/product management

### VI-1- Collect, analyze, backup and store volcano data in a daily basis from national and international monitoring network

The volcano data analyst is tasked to be on duty 7 days a week to ensure the ongoing daily processing and analysis of seismic data including updating templates and volcano database. This duty is required to properly monitor volcano data availability and quality. This officer has 2 hours of duty each weekend and public holidays except in case of crises, more than 2 hours.

### Ambae volcano

Observations and seismic data analysis of Ambae volcano show gradual increase of the activity along the year with **1 823** volcanic events recorded at the vicinity of Manaro Voui within which there is **1 511** volcano tectonic earthquake (VT) and **312** volcanic earthquake (Vol.Earth). These are triggered by the volcano (see graph below) More, light to substantial daily flux of Sulfur Dioxide (SO<sub>2</sub>) and volcanic gas cloud are captured by the Ozone Monitoring Instrument (OMI) and satellite Modis-Aqua & Terra (NASA). This volcano underwent a major unrest phase in August 2016. Therefore, its Alert Level is increased from Level 1 to Level 2 on 21st August 2016.



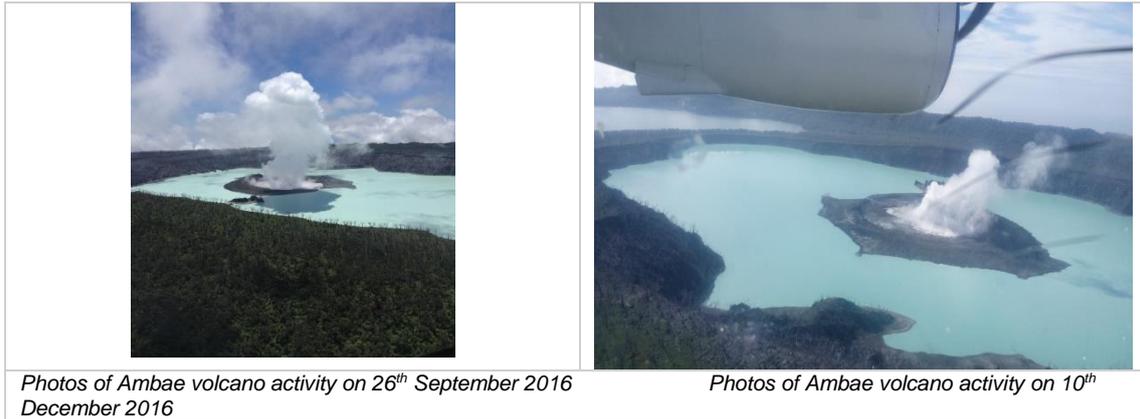
Annual volcano seismic event type recorded at Manaro Voui

Visually the volcanic activity evolved largely during the year 2016 between which active phases occurred, the volcanic cone was built and the water level of the Manaro Lake was dropped.



Aerial view of Ambae volcano on 12<sup>nd</sup> April 2016

Aerial View in 20<sup>th</sup> August 2016

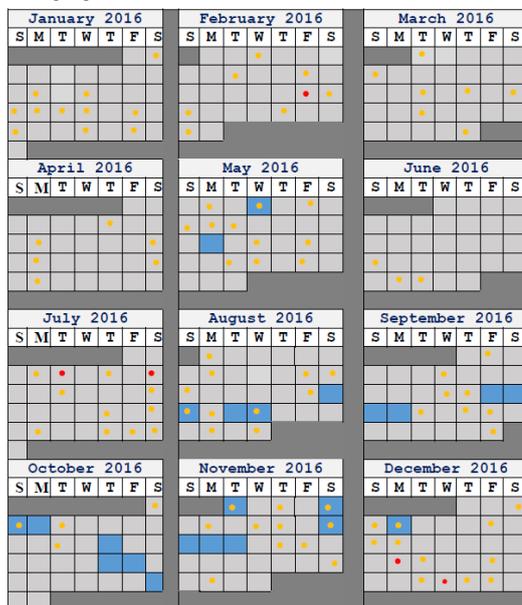


Photos of Ambae volcano activity on 26<sup>th</sup> September 2016  
December 2016

Photos of Ambae volcano activity on 10<sup>th</sup>

Significant aerial photos of observed volcanic activity taken by the webcam

The calendar below shows daily volcanic gas plume detected by the Modis-Terra & Aqua satellite and the flux of SO<sub>2</sub> detected by the Ozone Monitoring Instrument emitted in the atmosphere from Ambae volcano in 2016.



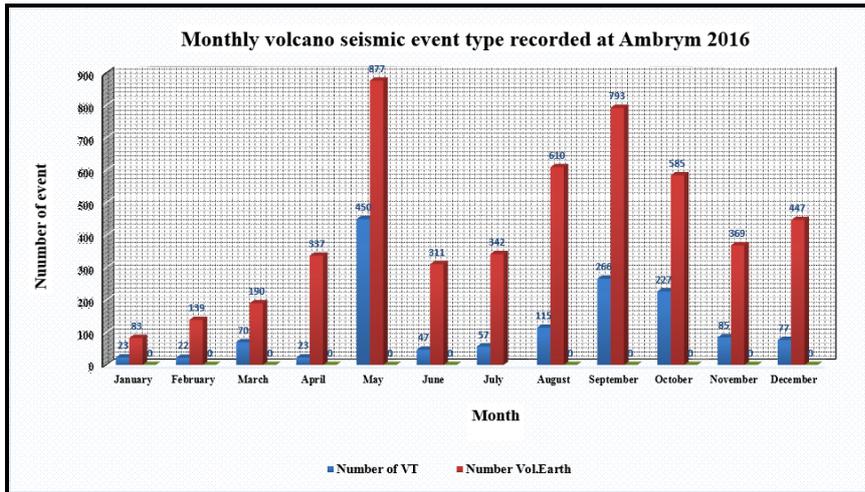
Legend: 0 (OMI): None / light / substantial: SO<sub>2</sub> flux in Dobson Unit

■ (Modis-Terra & Aqua): Volcanic gas plume detected

Fig.3: Satellite image data availability from Ambae volcano showing SO<sub>2</sub> flux and volcanic gas plume detection in 2016

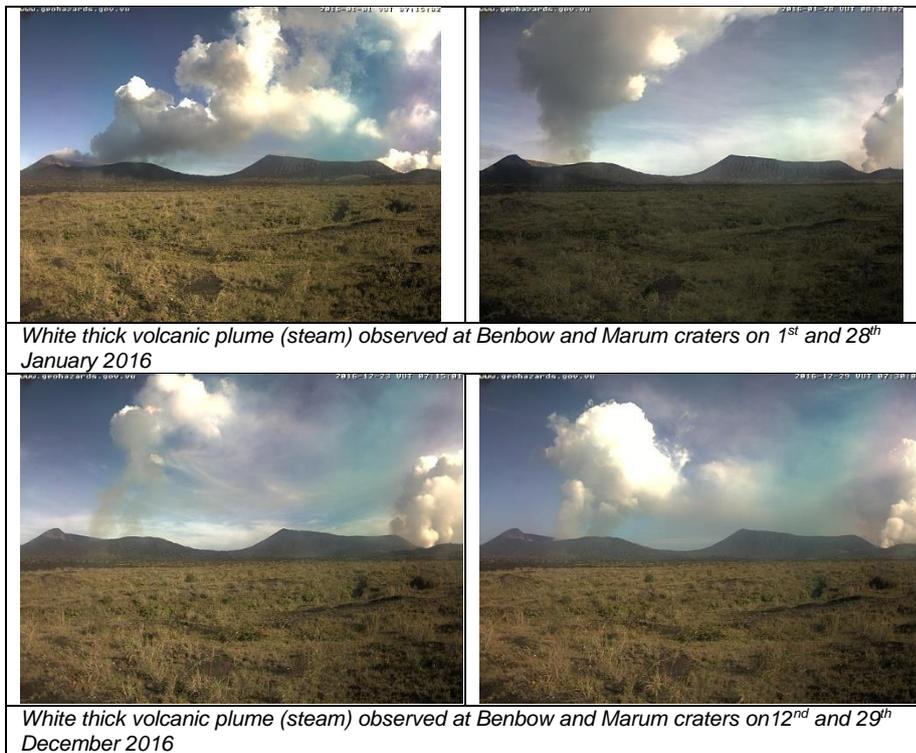
### Ambrym volcano

Observations and seismic data analysis of Ambrym volcano show gradual increase of the activity in level of major volcanic unrest with **6 545** volcanic events recorded at the vicinity of Ambrym in which there is **1 462** volcano tectonic earthquake and **5 083** volcanic earthquake that are the manifestation of the lava lakes and the continuous strong degassing. More, substantial daily flux of Sulfur Dioxide (SO<sub>2</sub>) and volcanic gas cloud are captured by the **Ozone Monitoring Instrument (OMI)** and satellite Modis-Aqua & Terra (NASA). Its volcanic Alert Level is maintained along the year at **Level 2**.



Annual volcano seismic event type recorded at Ambrym

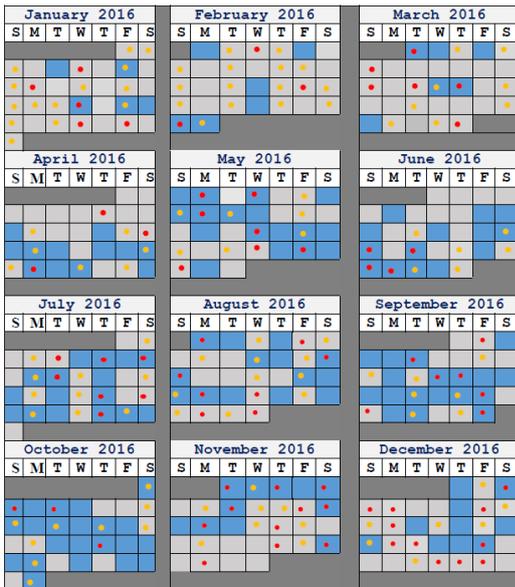
The photos below taken by the observation webcam at the station in the ash plain show volcanic activity at Ambrym with continuing steam plume emission and important degassing (blue color inside the cloud) all throughout the year.



the webcam

Significant photos of Ambrym volcanic activity by

Satellite images collected according to the calendar below shows volcanic gas plume detected by the Modis-Terra & Aqua satellite and the substantial flux of SO<sub>2</sub> detected by the Ozone Monitoring Instrument-Aura (NASA) emitted in the atmosphere from Ambrym volcano in 2016.



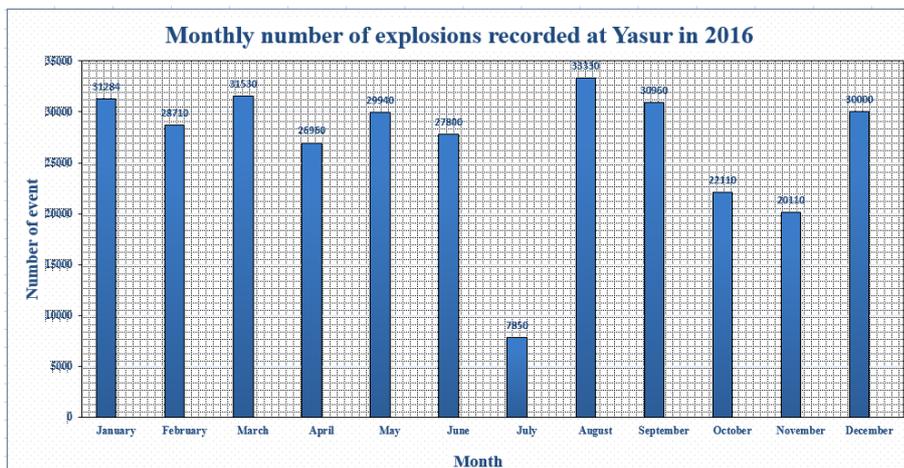
**Legend:** 0 (OMI): None / light / substantial: S02 flux in Dobson Unit

■ (Modis-Terra & Aqua): Volcanic gas plume detected

Satellite image data availability from Ambrym volcano showing S02 flux and volcanic gas plume detection in 2016

### Tanna volcano

Observation and seismic data analysis of Yasur volcano show continuing significant increase of the activity in level of major unrest with **320 584** volcanic explosions recorded on the Yasur volcano. More, light to substantial daily flux of Sulfur Dioxide (SO<sub>2</sub>) and volcanic gas cloud are captured by the **Ozone Monitoring Instrument (OMI)** and satellite Modis-Aqua & Terra (NASA). This volcano underwent a minor eruption phase in October 2016. Therefore, its Alert Level is increased from **Level 2** to **Level 3** on 15<sup>th</sup> October 2016 then dropped to **Level 2**.

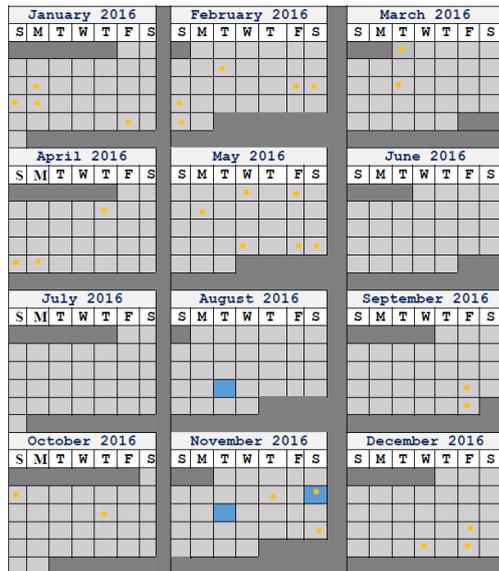


Annual number of explosion recorded at Yasur

Significant photos below taken from the webcam at YASH station show volcanic activity of Yasur with continuing ash and steam plume emission, light degasing and ash fall all throughout the year.



Despite the lack of monitoring system on site, the Modis \_Terra & Aqua satellites do indicate some activity and the daily flux of SO2 detection by the Ozone Monitoring Instrument-Aura shows some degassing from Gaua volcano.



**Legend:** 0 (OMI): None / **light** / **substantial**: S02 flux in Dobson Unit

**■** (Modis-Terra & Aqua): Volcanic gas plume detected

Satellite image data availability from Gaua volcano showing SO2 flux and volcanic gas plume detection in 2016

### Lopevi volcano

Lopevi volcano have no real-time volcano-seismic monitoring station. Its Alert Level is maintained at **Level 1** since 15<sup>th</sup> December 2014.

The webcam installed on Paama for Lopevi issued the photos below showing no volcanic plume observed at Lopevi during the year.

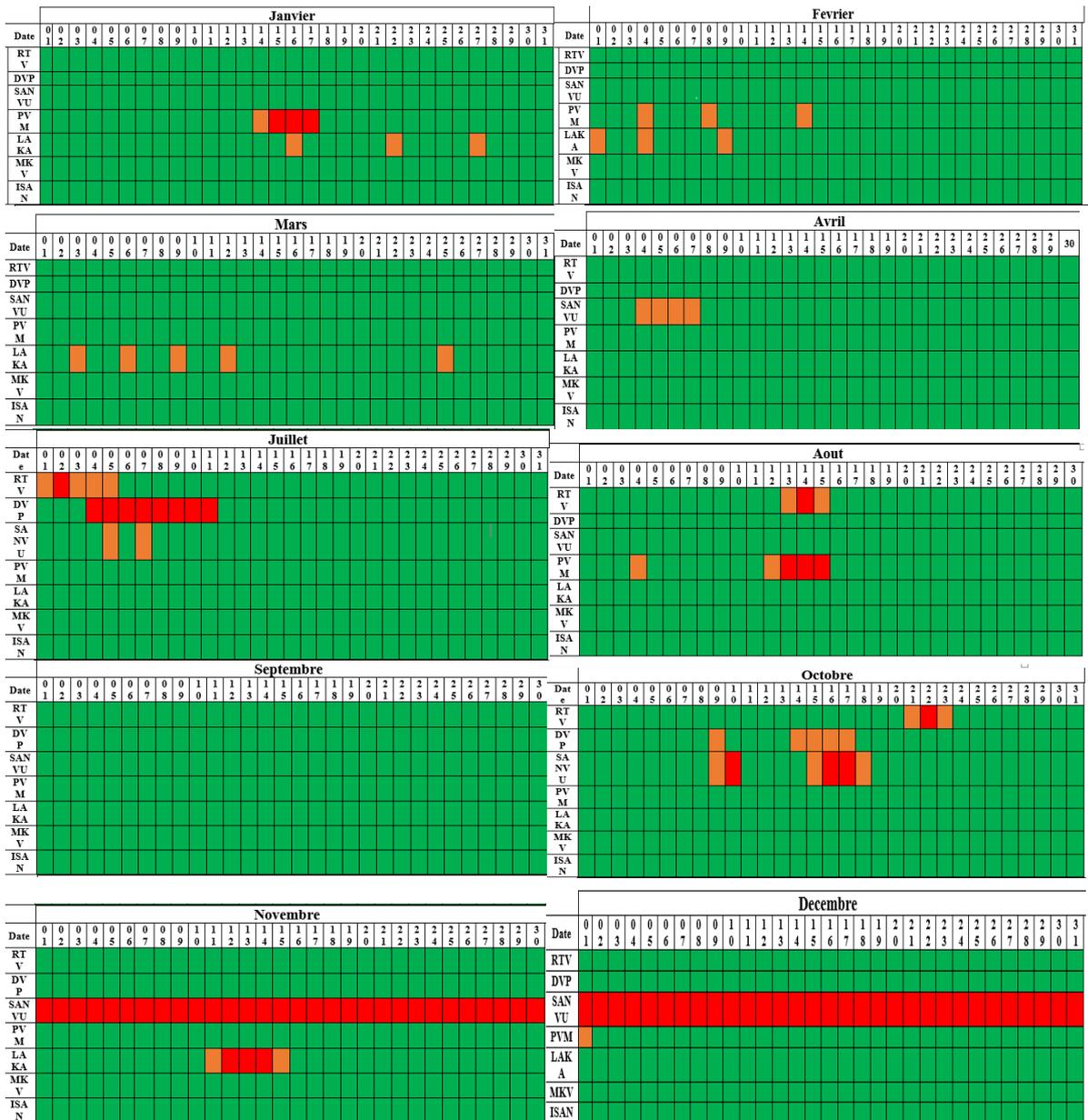


No significant event observed at Lopevi along the year (29<sup>th</sup> August and 01<sup>st</sup> December 2016)

Significant photos of Lopevi volcanic activity taken by the webcam

### **VI-2- Collect, analyze, backup and store earthquake and tsunami data in a daily basis from national and International monitoring network**

All data recorded by the national network is stored in the local computers of SEISMONAZE servers. Volcano-seismic data are stored in Back up at the ORSNET server in New Caledonia. The local network detected and located 4,402 earthquakes in the Vicinity of Vanuatu islands and the Pacific Region from which only 2,357 earthquakes from Vanuatu. The seismic data availability is recorded here below. Most stations are up and running throughout the year only SANVU station was out of service in November 2016.



Seismic data availability in all stations of Vanuatu in Tanna (ISAN), Efate (MKV, RTV, DVP), Malekula (LAKA), Santo (SANVU)

**VI-3- Ensure daily data quality checks on volcanic and Earthquake data**

Daily products issued are archived in the Volcano Database (Volnas\_Product) and strictly internal within Geohazards Division.

**Update Volcanology database and analysis tools**

Volcanology section is responsible to daily, monthly and annually update his database and also reviewed/improved programs or scripts for analysis.

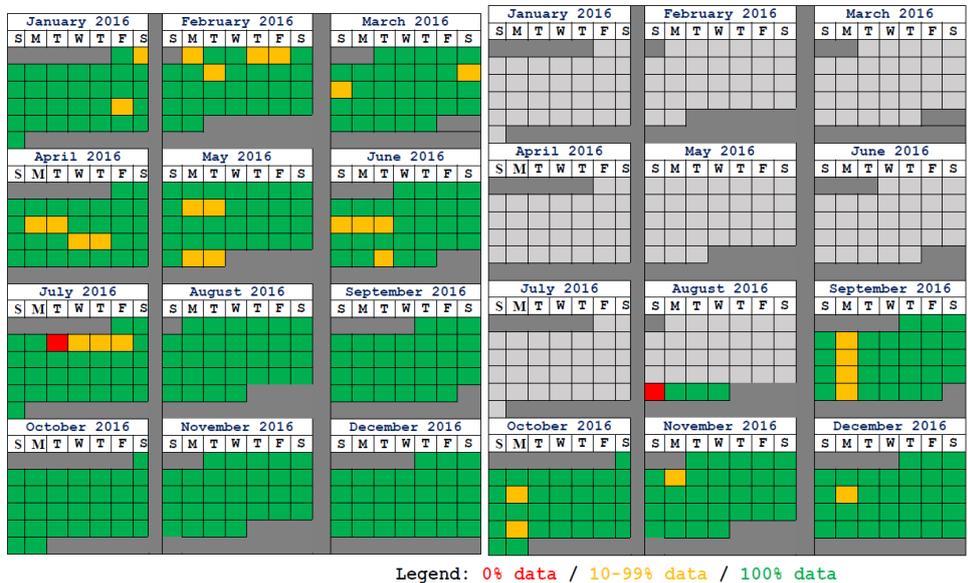
Data in the volcano Database are daily, monthly and annually update. The access of this Database is restricted only for few staff.

Manual and automatic analysis scripts/program (Bash Linux) for volcano seismic data analysis in real time (rsam, ssam, tremor, drum, color drum and calendar plots) are working properly. New scripts (using Anaconda and Python) was developed on August 2016 for display the number of daily volcano seismic event analysis.

**Volcano seismic data availability**

Volcanic data availability throughout 2016 was almost complete for Ambrym and Ambae. Only Yasur volcano data faced some gaps from the station breakdown due to significant volcanic ashfall. Calendars below show annual volcano seismic data availability from each volcano seismic stations.

**Ambae volcano data: LVVL and ABNG seismic station**



Volcano seismic data availability at LVVL (left) and ABNG station (right)

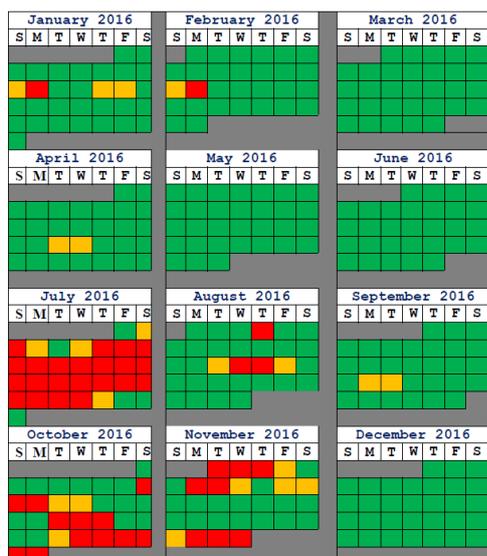
The ABNG station was installed at the end of August 2016

**Ambrym volcano data: AMB1 and WAMB seismic station**



Volcano seismic data availability at AMB1 station (left) and WAMB station (right)

**Yasur volcano: YASH seismic station**



Legend: 0% data / 10-99% data / 100% data

Volcano seismic data availability at YASH station

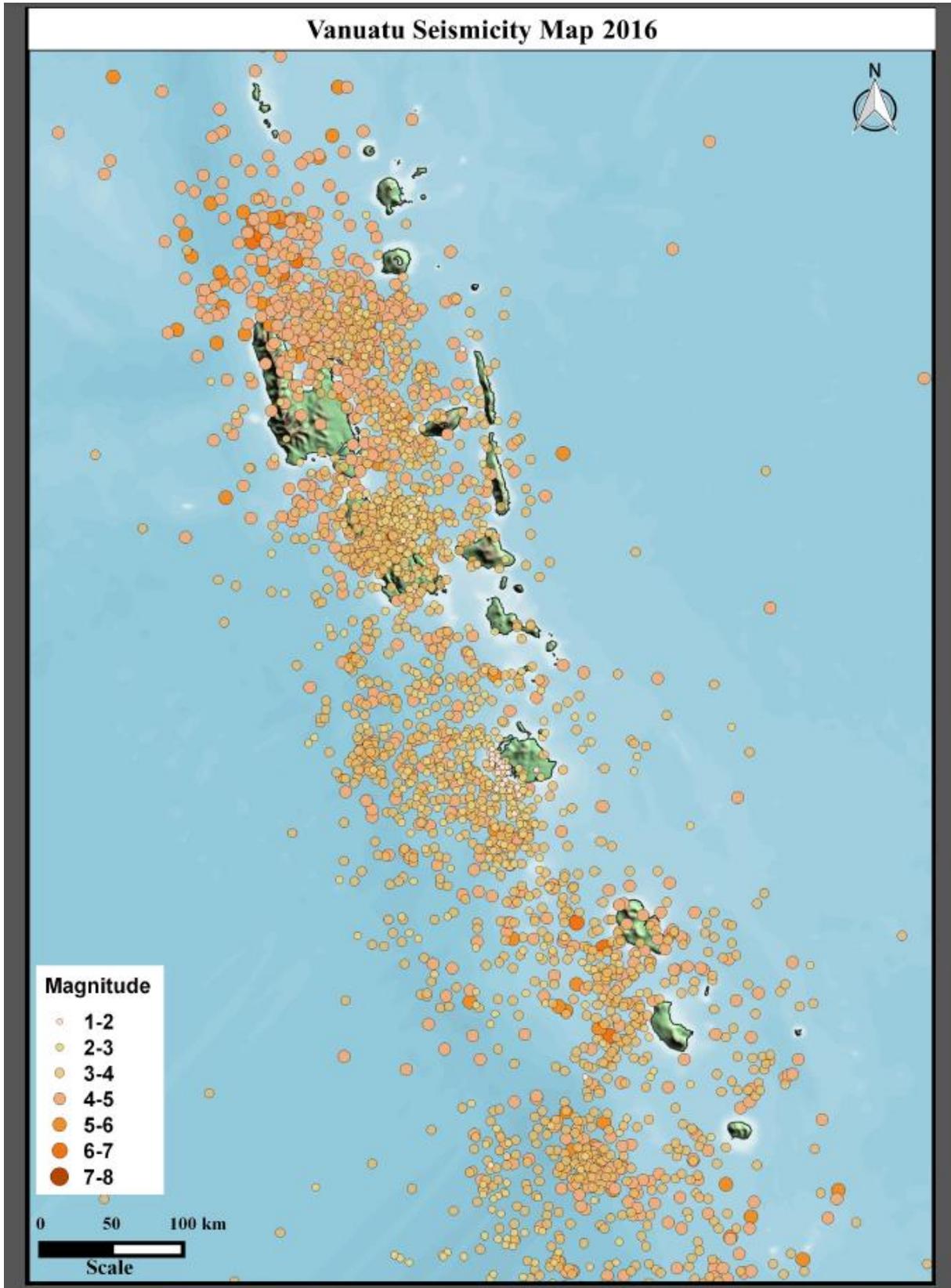
#### VI-4- Issue earthquake occurrence bulletins to relevant authorities, and media outlets

There were 27 earthquake occurrences that required issuance of earthquake bulletins, all bulletins are disseminated by email and telephone calls.

Earthquakes	Information Dissemination
2016/01/01 0315am M4.4 SE Ambae	Phone call (Ambae)
2016/02/01 0543am M5.1 W Emae	E-mail
2016/02/06 0112am M5.3 NW Tanna	E-mail
2016/02/26 1547 M5.0 SW Ambae	E-mail
2016/03/10 1316 M5.2 S Erromango	E-mail
<b>2016/04/03 0823am M6.9 NNW Port Olry, Santo</b>	<b>E-mail</b>
<b>2016/04/06 0658am M6.5 WSW Sola, Vanua Lava</b>	<b>E-mail</b>
<b>2016/04/29 0633am M7.1 E Lakatoro, Malekula</b>	<b>E-mail</b>
2016/06/05 0859am M5.5 S Efate	E-mail
<b>2016/06/20 0350am M6.0 W Anatom</b>	<b>E-mail</b>
2016/06/29 0946am M5.7 NW Santo	E-mail
2016/07/08 0622am M4.4 N Ambae	Phone call (Ambae)
2016/07/18 1007am M5.1 N Luganville, Santo	E-mail
<b>2016/07/21 0213am M6.0 W Erromango</b>	<b>E-mail</b>
2016/07/24 0521am M5.5 W Santa Cruz Is, Solomon Is	E-mail
2016/07/26 0638am M6.5 N Port Moresby, PNG	E-mail
<b>2016/07/26 1904 M6.5 E Norsup, Malekula</b>	<b>E-mail</b>
2016/07/30 1111am M5.6 S Anatom	E-mail
2016/08/05 1203pm M5.0 SW Efate	E-mail
<b>2016/08/12 1226pm M7.6 SE Loyalty Is.</b>	<b>E-mail</b>
2016/08/21 1330 M5.7 N Port Olry, Santo	E-mail
2016/08/29 1029am M5.1 SE Loyalty Is.	E-mail
2016/09/17 1331 M5.9 N Lakatoro, Malekula	E-mail
2016/10/28 0759am M5.0 W Ambrym	E-mail
2016/11/14 0900am M5.2 N Malekula	E-mail
2016/12/06 1221pm M5.5 NW Port Olry, Santo	E-mail
2016/12/20 1520 M5.6 NE Luganville, Santo	E-mail

#### VI-5- Issue monthly and annual earthquake bulletins for scientific communities

Twelve monthly bulletins were issued in 2016 showing the seismic activity in Vanuatu in a monthly basis. The annual bulletin issued shows the full year seismicity of Vanuatu with 2357 earthquakes located in the vicinity of the islands of Vanuatu in 2016. Most of these are extended in the northern part of the archipelago.



*The Vanuatu annual seismicity map for 2016*

**VI-6- Issue volcano Alert Bulletins for tourism industry, relevant authorities and media outlets**

The new monitoring tool called the “**Vanuatu Volcanoes Activities Indicators (VVAI)**” was set by the GeoHazards Observatory on January 2016. This help to rank the Volcanic Alert Level at each volcano especially the risk area in correlation with the analyzed data (See Appendix **Fig1. & Fig.2**)

### Volcano Alert Bulletin (VAB) issue for tourism, local communities and general public

Alert bulletin for monitoring volcanoes are monthly issued base on seismicity, visual (webcam) data and satellite images (OMI and Modis). This information is public and they are disseminated via:

- emails address list;
- GeoHazards Observatory website ([www.geohazards.gov.vu](http://www.geohazards.gov.vu));
- GeoHazards Observatory and Vanuatu Meteorology and GeoHazards Department Facebook pages;

Softcopies and hardcopies of these bulletins are accordingly printed and archived in appropriate databases.

### List of Volcano Alert Bulletin (VAB) issued

Table below shows dates of issuance of Volcanic Alert Bulletins (**VAB**) with respective Alert levels during the year 2016.

Volcanoes	Volcanic Alert Level	VAB issuance and dissemination dates
<b>Manaro Voui</b> (Ambae Island)	<b>Alert Level 1</b> (Signs of volcanic unrest)	5 <sup>th</sup> January 2016
		26 <sup>th</sup> February 2016
		31 <sup>st</sup> March 2016
		27 <sup>th</sup> May 2016
		28 <sup>th</sup> June 2016
		03 <sup>rd</sup> August 2016
	<b>Alert Level 2</b> (Major unrest)	21 <sup>st</sup> August 2016
		09 <sup>th</sup> September 2016
		10 <sup>th</sup> October 2016
		11 <sup>st</sup> November 2016
		14 <sup>th</sup> December 2016
<b>Benbow and Marum</b> (Ambrym Island)	<b>Alert Level 2</b> (Major unrest)	5 <sup>th</sup> January 2016
		26 <sup>th</sup> February 2016
		31 <sup>st</sup> March 2016
		27 <sup>th</sup> May 2016
		28 <sup>th</sup> June 2016
		02 <sup>nd</sup> August 2016
		09 <sup>th</sup> September 2016
		10 <sup>th</sup> October 2016
		11 <sup>st</sup> November 2016
		14 <sup>th</sup> December 2016
<b>Yasur</b> (Tanna Island)	<b>Alert Level 1</b> (Signs of volcanic unrest)	5 <sup>th</sup> January 2016
		26 <sup>th</sup> February 2016
	<b>Alert Level 2</b> (Major unrest)	31 <sup>st</sup> March 2016
		27 <sup>th</sup> May 2016
		28 <sup>th</sup> June 2016
		02 <sup>nd</sup> August 2016
		09 <sup>th</sup> September 2016
	10 <sup>th</sup> October 2016	
	<b>Alert Level 3</b> (Minor eruption)	15 <sup>th</sup> October 2016
<b>Alert Level 2</b> (Major unrest)	18 <sup>th</sup> October 2016	
	11 <sup>st</sup> November 2016	
	14 <sup>th</sup> December 2016	
<b>Mont Garete</b> (Gaua Island)	<b>Alert Level 1</b> (Signs of volcanic unrest)	27 <sup>th</sup> May
		28 <sup>th</sup> June 2016
		03 <sup>rd</sup> August 2016
		09 <sup>th</sup> September 2016
		10 <sup>th</sup> October 2016

		11 <sup>st</sup> November 2016
		14 <sup>th</sup> December 2016
<b>Suretatai</b> (Vanua Lava Island)	<b>Alert Level 1</b> (Signs of volcanic unrest)	27 <sup>th</sup> May
		28 <sup>th</sup> June 2016
		03 <sup>rd</sup> August 2016
		09 <sup>th</sup> September 2016
		10 <sup>th</sup> October 2016
		11 <sup>st</sup> November 2016
		14 <sup>th</sup> December 2016

#### **VI-7- Issue monthly and annual volcano activity bulletins for scientific communities**

Monthly and annual volcano bulletins issued are archived in the Volcano Database (Volnas\_Product) and strictly internal within Geohazards Division.

#### **VI-8- Issue monthly volcano activity update bulletins for general public**

#### **VI-9- Issue weekly report of Geo-hazards monitoring systems and operations**

Weekly records of the monitoring system is kept in the Geo-hazards data base

#### **VI-10-Contribute in the VMGD warning dissemination platform activities and add a display screen of tide data in the warning center**

Morris Harrison, the Seismology Principal Scientific Officer and Sandrine Cevuard, the Volcanology Scientific Officer have been nominated to assist in the development of the new VMGSD website to cover the Seismology and the volcanology parts of the website.

#### **VI-11- Review and develop specific education and awareness materials for specific audience using specific software**

Various materials have been developed for specific audience, particularly for the local communities, the general public and the tourism industry.

#### **Volcano signs**

Volcano signs shows dangers zones around the volcanic area or cone which 3 zones are identify:

- Permanent Exclusion Zone : this zone is always closed;
- Danger Zone A and Zone B: These zones are closed depending of the activity;

Volcano signs consultation and final editing was done for Ambrym and Tanna only. The printing and the installation is not done due to the budget.

#### **Volcano information board**

Volcano information board contains important information's including Volcanic Alert System, Backgrounds Hazards and Safety Map, Volcano Alert Bulletin, volcano sketch with signs and volcanic hazards photos and explanation.

Volcano information board consultation and final editing was done for Ambrym and Tanna only. The printing and the installation is not done due to the budget.

#### **Volcano visitor Fact Sheet**

Information contains in these Fact Sheet are more specific for each volcano and give a summary description of the volcano, existing volcanic hazards and its monitoring system; it can be used by visitors.

Yasur and Ambrym Visitors Fact Sheet were finalized from 25th to 29th July 2016 with Dr. Graham Leonard and available at the Geohazards website ([www.geohazards.gov.vu](http://www.geohazards.gov.vu)) and Geohazards office.

On March 2016, the drafted Visitors Fact Sheet for Gaua, Lopevi, Ambae and Vanua Lava have been reviewed.

### **Volcano Safety maps**

Volcano Safety Maps shows safety zones for a specific crisis for a specific part of volcano and this link with the information content in a Volcano Alert Bulletin (VAB) in which identifying the open/closed zone. This can be used by visitors, tourist and communities.

### **Volcano Scenario maps**

Scenario map shows possibility of scenario activity (based on past activity) – crisis and explain what kind of hazards, when they can happen and what to do; this link with the information content in a Volcano Alert Bulletin (VAB) in which identifying the open/closed zone. This can be used by visitors, tourist and communities.

### **Gaua, Ambae, Lopevi and Vanua Lava volcano hazard maps**

On October 2016 the volcanoes background hazards and safety maps for Gaua, Ambae, Lopevi and Vanua Lava was drafted using QGIS software

### **Brochures**

English brochures about volcano were created with the help of two attachment students from Leicester University in the UK, by Eleri Simpson and Ben Clark, on 11st August 2014 using INSCAPE software were **translated** into French and bislama version on September 2015. The next stage is to do the finale editing before printing for communities and villages awareness tools.

### **Glossary**

The volcano glossary finalized on June 2016 in three languages (French, English and bislama).

### **Terminology**

The Terminology is finalized on June 2016 in three languages (French, English and bislama).

## **VI-12- Participate in Community Outreach Partnership (COP) activities**

### **Ambrym island awareness on Ambrym volcanic hazards**

The awareness was conducted at Ambrym from 02nd to 14th February 2016 under the activity of volcano hazards maps consultation funded by the Red Cross. The awareness team comprises representative of NDMO (Phillip Meto), Red Cross (Isabelle Choutet and Steven Tom) and Geohazards division (Sandrine Cevuard). A total of 5 villages and their neighboring villages were visited at Ambrym (Indu, Penapo, Lalinda, Craig-Cove and Makam communities). The awareness topic is on Ambrym volcano, its monitoring system, volcanic hazards, products and services provide by the Geohazards division. Mass awareness materials were distributed during the awareness.

### **Gaua island awareness on Gaua volcanic hazards**

Under the activity of IRCCNH survey for GAUA station from 9th to 13th May 2016, the awareness was conducted at 3 communities with their neighboring villages, Naveto, Namasari and Nemeng. The team compromises representative of Geohazards Division, Mme Esline Garaebiti Bule, Guillaume Kasten and Sandrine Cevuard. Mass awareness materials were distributed during the awareness.

### **Vanua Lava island awareness on Vanua Lava volcanic hazards**

Under the activity of IRCCNH survey for LAGNTC station from 16th to 18th May 2016, the awareness was conducted at 1 community (Lalnetang) including the introduction of the Vanua Lava monitoring system and frame work in future to TVET, Tourism Department and the provincial government at Sola. The team compromises representative of Geohazards Division, Mme Esline Garaebiti Bule, Guillaume Kasten and Sandrine Cevuard. Mass awareness materials were distributed during the awareness.

### **Tanna island awareness on Tanna volcanic hazards**

Under the activity of IRCCNH survey for YASH and YAS station from 16th to 22nd July 2016, the awareness and the Hazards Maps Consultation was conducted at 6 communities and their neighboring villages were visited, Lowiapeng, Kwarmanu, Imaio, Isaka, Enimah, Entani entrance (guide), Tafea College including the introduction of the Yasur monitoring system and frame work to the Tafea Province. The team compromises representative of NDMO (Steven Noel), and Geohazards Division (Mme Esline Garaebiti Bule and Sandrine Cevuard). The awareness topic is on Yasur volcano, its monitoring system, volcanic hazards, products and services provide by the Geohazards division. Mass awareness materials were distributed during the awareness

## **VII. Geo-Hazards management and operating procedure**

### **VII-1- Update Draft SOPs/ instructions/templates Geohazards response, emergency response, Issuance of Geohazards products**

### **VII-2- Review Tsunami detection and operation procedures**

This review has been discussed during the internal tsunami SOP training between Forecast Division and Geo-Hazards division. The changes are yet to be considered and approved by the VMGD administration to be utilized.

### **VII-3-Update Geo-Hazards operating manual/Geo-Hazards Directive including all hazards/Geo-Hazards monitoring systems Manual**

The draft SOPs for volcanology operations, analysis, emergency responses and issuance of products have been reviewed and updated to gather for the current status of operations. They are yet to be finalized and standardized. Those reviewed from the 25th to 29th July 2016 with the assistance of Dr. Graham Leonard (GNS Science, NZ) are particularly the for the Vanuatu National Volcano Plan, the VMGD & NDMO Inter-Agency Plan and for VMGD-NDMO – Volcano Hazards Mapping.

In September 2016, other SOPs have been improved particularly for the Volcanology Operation manual, Volcanology Operating System manual, the Volcanology Methodology and Analysis Tools manual including Templates and for the creating Volcano Hazards Maps in QGIS

### **VII-4 Engage in the VMGD Business/corporate planning and annual budgeting for 2016/2017**

The Divisional Manager contributed in the planning process of the Department during a retreat in April 2016. The Geo-hazards team met in June 2<sup>nd</sup> 2016 to draw the Geo-Hazards Business Plan 2017.

### **VII-5 Report annually and bi-annually on the Geo-hazards operations and achievements 2015**

The Geo-hazards Division Annual Report 2015 was finalized and submitted to the Director's office on the 30th of March 2016. This report was the combination of the reports from the three main teams of Geo-hazards, the seismology team, the volcanology team and the technical team.

### **VII-6 Assess staff through staff appraisal**

The work plan development of the Division was done in March 2016. The mid- term review of the work plan for all Geo-Hazards staff was completed in October 2016.

### **VII-7 Control the Geohazards assets**

All Geo-Hazards assets provided by Recurrent and projects funds by MDRR, IRCCNH, New Zealand Partnership project and others are recorded in a dedicated 12 pages inventory list that also tracks the mobilization of the equipment concerned.

### **VII-8 Address Geo-Hazards capacity building in collaboration with Aid Donors and Scientific partner**

There were possibilities of addressing the Geo-hazards staff' capacity building requirement through dialogue with donor partners as the New Zealand High Commission and JICA. Other discussions with the external partners particularly GNS Sciences New Zealand in October 2016 as the possible trainer in areas of needs, particularly in Seismic data analysis, Geo-Hazards networks and systems, Geochemistry sampling and analysis and many more. Other possibilities are open for south-south exchange between Vanuatu and Tonga, Vanuatu and Solomon Islands, Vanuatu-PNG and Vanuatu New Caledonia Geohazards teams.

### **VII-9 Ensure the Geo-Hazards business plan is well implemented within means and timeframe**

Most Geo-hazards activities in 2016 were bound to project funds. Therefore the activities were implemented within the project timeframe. Unfortunately some delays on certain activities occurred due to certain cooperation barriers.

## **VIII. Project Management**

### **VIII-1- Contribute to the IRCCNH and MDRR project implementation planning**

The Divisional Manager was part of the MDRR project executive committee that was responsible to propose decisions to the Director's office. The PSO Seismology was representing the Division as the key person in the implementation of the MDRR project. Many of the activities under the IRCCNH project have been planned, budgeted for and implemented within available means. The main activities implemented were the site surveys and seismic stations shed construction. The main activities of the MDRR project that were achieved in 2016 were the finalization of the multi-Hazard maps, the development of the tsunami signage, the Environment and Social Safeguard survey for the Signage and siren sites, the development of the Tsunami evacuation maps and tsunami notice board.

### **VIII-2- Manage the ORSNET project**

The ORSNET project is coordinated for the South West Pacific Island Countries by the Geo-hazards Divisional manager. The main activities were the project agreement meetings and the ORSNET annual technical meeting. Another funding request have been submitted to Donor.

### **VIII-3- Manage the VU-NC Cooperation project**

Additional funding under this project came as a response from the IPGP in Paris to support VMGD services and maintenance of the GEOSCOPE seismic station in Santo.

### **VIII-4- Contribute in the new project development**

-There were new project development discussions between the Division and the Ministry of foreign affairs and trade of New Zealand for the extension of the joint project VMGD-GNS.

The JICA project of cooperation is another new project that have been discussed at the management level to support the Geo-hazards network.

Few meetings have been convened to discuss the Green Climate Fund project that may contribute in some ways in the development of the division.

### **Achievements Comment**

The main achievements of the Division in 2016 includes the completion of the new monitoring stations sheds on 8 sites under the IRCCNG project. Secondly the tsunami warning system products including the completion and the printing of the Tsunami signage and notice boards, the multi hazard maps for Port Vila and Luganville and the tsunami evacuation maps drafts. These are the first ever products that can be duplicated in future for other areas and islands of Vanuatu. Moreover the whole volcanic risk management framework tools like the volcano hazard maps and brochures, tourist's fact sheets and the volcano alert system are also the first of its own in Vanuatu. The recruitment of the new staff, the Tsunami Scientific officer is another achievement in increasing human resources under the Geo-hazards division for further developments in Seismology and tsunami fields.

### **Challenges Comment**

Main challenges faced in the Division in 2016 were the lack of capacity within the seismology team to be able to undertake the technical assessment required in times of crisis as well as the lack of cooperation that was clearly felt only from one staff member within the team that hindered the team work spirit and the progress of some of the Division work plans. The second challenge faced was the sudden termination of contract of the Geo-hazards Engineer without consideration of the needs of the Division. This still remains to be resolved. The transfer of expertise from him to the Divisional staff was still not complete. This downgraded the morale and motivation of many Geo-Hazards staff. Moreover there were 3 staff who had to be removed from the Division before the end of the year: the engineer was terminated, the earthquake data analysts went on sick leave for the half year and the assistant technician resigned for another job.

## Staffing

The following tables provide information about staffing of the Geo-Hazards Division in 2016.

Staffing	Details
Numbers:	<p><b>Total staff present in January 2016</b>[ 10] – Permanent [9], Contract including a TA [1]</p> <p><b>Total staff present in December 2016</b>[ 8] – Permanent [8] (one on sick leave since July 2016)</p>
Performance Appraisals Conducted	Annual appraisal was not done in March 2016 for permanent and contract staff, in October 2016 for the TA
Study Leave:	No study leave sought
Secondment:	No secondment at this stage
Annual Administration Leave:	<p>Total number of staff taking <b>Administration Leave</b> [8]</p> <p>Esline Garaebiti..... 26</p> <p>Sophie Turere..... 27</p> <p>Morris Harrison..... 25</p> <p>Jeanvion Cevuard..... 30</p> <p>Athanas Worwor .....24</p> <p>Julius Mala.....4</p> <p>Juanita Laga.....15</p> <p>Melinda Aru..... 1</p>
Other Leave/Resignation/Retirement:	<p><b>Sick leave</b> have been sought by a number of staff</p> <p>Esline Garaebiti .....9</p> <p>Sophie Turere .....126</p> <p>Jeanvion Cevuard.....10</p> <p>Athanas Worwor ..... 1</p> <p>Julius Mala..... 8</p> <p>Juanita Laga..... 3</p> <p>Melinda Aru..... 9</p> <p><b>Compassionate leave</b></p> <p>Sophie Turere.....10</p> <p><b>Maternity leave</b></p> <p>Juanita Laga.....64</p>

## 5. Observations Division

### 2016 Priority Activities and Results

Programs and Objectives required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Observation Division (Business Plan)			
Programs	Objective (Targets)	Result ✓✘	Result Summary
Provision of Weather & climate Monitoring	365 days & 24/7 recording and measurement of land and Atmospheric conditions	✓	All sites staff continue to provide 24/7 weather monitoring despite some short falls.
VCAP Climate Early warning systems	Sites Assessment	✓	Site Assessment Completed for all Sites.  Report submitted to Director Office
Improve Upper air Building at Bauerfield Office	Source a Contractor to remove old damaged roof and install new roofing	✓	New Roofing Completed.  Repair Report Submitted
Develop Work plan of all Observations staff (PMS)	To Manage Staff Performance	✓	2016 Performances appraisal completed and submitted to HRM, CSU
Improve of Data Network in Rural Weather Offices	Provide structural Maintenances for all outer island weather Offices.	✓	All Renovations works completed on most sites except Sola/Lamap
	Installations of Solar systems	✓	
	Installation of PCs, Internet etc...	✘	
Improve Combinations Link & Coms Links	Install PCs, Display screens and other equipment on all Sites	✘	This will done during 2 <sup>nd</sup> /3 <sup>rd</sup> quarter of 2017
Data Quality	Review & Amend Current QMS	✓	No changes Made, likely changes this year to accommodate for AWS procedures.
Trainings Development	External & Internal Training for staff	✓	Willie Molisa attached with Pacific desk in Hawaii for 4 weeks.  A refresher course on Metar and SPECI was conducted at the airport
AWS Training	To introduce the understanding of the new Technology to onsite staff	✘	Will be carried out in 2017

#### 24/7 Weather and Climate Monitoring.

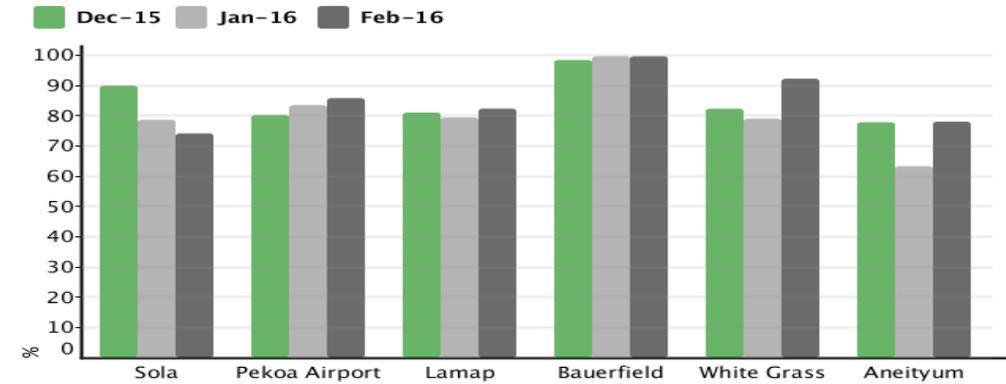
This is the principal responsibilities of the observations divisions, During 2016 staff on all sites continue measure, record, decode and disseminate weather data on 24/7 basis. The data are then decoded into Synops and Metar and transmitted to Bauerfield for disseminating to the forecasting, climate division

and Control tower. Data are also disseminated to Regional and International Meteorological communities and partners via email to Bureau of Meteorology in Melbourne, Australia (BOM), which then switch the data onto the Global Telecommunications Systems Link. Despite the continuity of the data collection, we did face some difficulties such as Coms breakdown, Retards etc....

Graph Below indicates all site Performance during 1<sup>st</sup>/2<sup>nd</sup> QTR of 2016

**Percentage received RBSN synops, last 3 months (Vanuatu)**

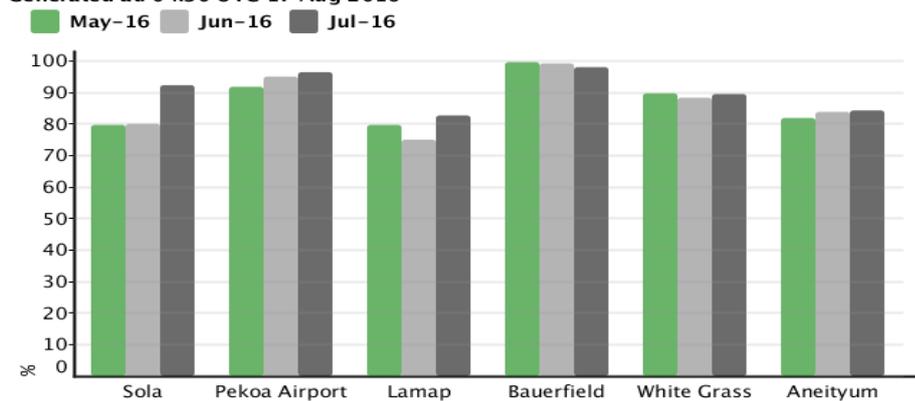
Generated at: 03:30 UTC 06 Mar 2016



Performances of Sites for the 1<sup>st</sup> quarter of 2016

**Percentage received RBSN synops, last 3 months (Vanuatu)**

Generated at: 04:30 UTC 17 Aug 2016



Performance of Weather sites for the 2<sup>nd</sup> quarter of 2016

**VCAP Project Automatic Weather Systems and Upgrade of Provincial Weather Offices.**

Component 2 of the Vanuatu Climate Changes Adaptation Program (VCAP) requires the installation of 6 AWS, Maintenances of provincial offices, increase power supply using solar power and improving communications links and office setup. This requires a site assessment before the project is rolled out. A team comprised of the Project Coordinator, Manager of Observation Division and a Technician carried this Activity.



Rainfall Collector in Santo Agric.



Lamap Office run down



School awareness at Analgauahat, Aneityum

After a successful Tender process through the Vanuatu Central Tenders Board (VCTB), the bidder that met the criteria financially and technologically was NIWA. This is a New Zealand based company that supplies Meteorological equipment's and trains technicians. So far, NIWA has trained 2 VMGD ICT and Engineering staff as per the terms of the AWS contract. Module 1 of the course covered a wider objective of the adaptation project needs, infrastructure and service's needs. While modules 2 – 5 provided operational requirements and component tasks of CLEWS. Module 6 covered the full running of the whole system and to deliver information and customized outputs. This two staff, Jeremy Bani and Patterson Naut, were certified after a one month training from January 16<sup>th</sup> through to 10<sup>th</sup> of March, 2017.



NIWA Trainee, Patterson & Jeremy, VMGD Technicians

Procurement and Installation of Warning Dissemination System in the Premises of the Five (5) Weather Observations Stations of White grass, Lamap, Sola, Analgahat and Saratamatta. This will include solar panels robust computer system, radio HF system upgrades; and construction/upgrade of an equipment shelter.

#### **Renovations of Provincial Meteorological Offices:**

Due to the need for maintenance elaborated by the site survey report it was decided to renovate the existing VMGD provincial offices, namely Analgahat, Whitegrass, Lamap, Pekoa, Saratamata and Sola prior to refurbishments. Contractors were than selected by the Local Senior officer in each islands and contracts was drafted for the budget estimate they provided. All the facilities are completely renovated however Sola Meteo Station had to change Contractors so work was delayed. After the completion of the renovations, the VCAP project and VMGD will open Aneityum and Saratamatta whilst others will be open later upon installation of AWS.



Pekoa Office, Santo



Saratamata Office, Ambae

#### **Solar Panels**

Upon the VMGD ICT request for a quote, Power Communication Solution Limited (PCS) provide the lowest quote and was selected by the VMGD ICT according to the desirable scope of works requested to install Solar panels in at Aneityum, Lamap, Saratamata and Sola. The company has already installed Solar Panels in Aneityum and Saratamata. For Lamap, due to the Maintenance work done on ship MV Roina, the roofing iron arrived late so upon completion the PCS Technicians will fly over and complete the work. For Sola the Senior Meteo Officer Alvin WOTLOLAN on site wants the renovation to be fully complete before installing the panels.



Saratamata Office, Ambae



Anatom Solar power

### Improve Upper Air Building

The upper building is a very old building that has been constructed around the 70s or 80s. TC Pam did a lot of damage. This building houses mainly the hydrogen Generator for production of hydrogen gas. The Gas is then used to inflate weather balloons that observations used to measure the up parts of the atmosphere with by attaching a measuring device called RS92 Radiosonde .

View of the building before repairs



### Achievements Comment

- VCAP Project.
- Bauerfield building renovated.
- Molisa attend a 4 week training in Hawaii.
- Patterson Malsale attended a 2 weeks works in Indonesia.
- All sites renovations also completed.

- Installation of Solar power almost completed.

### Challenges Comment

6. Communications links not reliable in the islands.
7. Radio Network are down.
8. Staff shortages at Sola and Bauerfield.

## ICT and Engineering Division

The ICT and Engineering Division contributes to the VMGD purpose by having qualified, skilled and motivated staff to enable VMGD adapt to technology changes and use up-to-date, modern and sound infrastructure and ICT to support all of VMGD's services.

Highly resilient and reliable information and communications technology (ICT) underpin all aspects of VMGD's operations. These systems must operate continuously to support 24/7 operations and Vanuatu's leading weather,

climate science, climate change and geo-hazards research.

The key strategic outcomes for the ICT and Engineering Division are as follows:

- Transmitting amounts and diverse types of meteorological and GeoHazards related data from the weather, volcanic and seismic network the VMGD's data centre and regional centres within tight time frames

- Promptly communicating forecasts and warnings accurately and reliably to users, including through various mediums in particularly VMGD's website and social media
- Observation data networks, stations, systems, sensors and equipment are automated and providing VMGD Divisions with updated data and information for various products and services.
- Verification schemes for aviation weather forecasts and tropical cyclone products services and warnings are established and automated where possible.
- Automated and centralised points for in-coming weather, climate, water, volcano, seismic and other related environment and geo-hazards observation data and information are developed.
- Automated access to and use of Vanuatu real-time observations data and information by each VMGD Division.
- Databases of climate, volcano, seismic/earthquake data and information and other related databases, including historical tropical cyclone data, forecasting systems, platforms and applications, are updated and maintained.
- Providing a stable, efficient, resilient and a central computing infrastructure

that supports forecasting, climate and GeoHazards activities.

- Systematic inspections and maintenance of observing infrastructure
- Near to rapid response and return-to-service for damaged or faulty equipment
- VMGD communication network throughout the country is improved.
- Automated delivery of VMGD's weather, climate, flood, volcano, seismic/earthquake and related environment and Geo-Hazards information, forecasts, services and warnings.
- Electronic infrastructure is supported and expanded accordingly.
- Automated redundancy/back-up systems are active and in place for all VMGD Divisions.

These were delivered through 4 different programs:

- Data and Computing Services
- Telecommunications;
- Infrastructure Management; and
- Operations Management & Policies

The performance of each of these programs during 2016 are discussed below.

### Priority Activities and Results 2016

Programs and Objectives required by the 2016 Business Plan and results are summarized in the table below with commentary provided.

ICT and Engineering Division (Business Plan)			
Programs	Objective (Targets)	Result ✓✘	Result Summary
Data & Computing services	Robust ICT and Administrative support systems	✓	Target for 1% comms outages reached
	Manage and improve VMGD LAN/WLAN monitoring network	✓	VMGD VLAN redesign and implemented.
		✓	Security cameras installed and operational
	Improve data redundancy and storage	✓	VMGD's central standard database server obtained and operational
	Maintenance of VMGD's Data Centre.	✓	Data Centre's equipment undergone maintenance
		✓	Data Centre's Environment Monitoring plan developed
		✘	

	Ensure VMGD, NDMO & Energy Depts employs a fully off-site redundant system	✓	Project proposals yet to be for offsite backups Automatic schedule backups updated
	Improve Data Security Services	✓	Firewall policies tightened DNS services supported Proxy environment services supported Security and data protection application subscription service supported
<b>Telecommunications</b>	Redesign and upgrade VMGD's website and intranet	✓	Website redesigned and under development. (planned for live production on April 2017) Intranet under development
	VMGD's Provincial monitoring stations connected online	✓	Saratamata, Pekoa, Isangel, Lakatoro & Litzlitz connected on new VLAN
		✓	2 new AWS & 2 Tide Stations connected online. Site surveyed & Equipment ordered for Norsup, Sola, Longana, Whitegrass and Aneityum
	Outstation's HF Communications reception as backup be made available	✗	New reception yet to be catered for WGrass, BField and Aneityum by VCAP Project
	GTS communications MSS operational	✓	GTS MSS maintained
	Upgrade VMGD Exchange server	✓ ✗	Server purchased and installed. Licensing issues to be rectified and fully operational in 2016
<b>Infrastructure Management</b>	Maintenance and support to the Observations network to meet WMO/ICAO requirements	✓	Routine bi-annual maintenance checks trips made to Tanna, Aneityum, Santo and Malekula. The rest included in 2016.
	Upper Air operations rectified and fully functional	✓	Done. Stocks of sondes required
	Provision of Engineering workshop environment	✗	Project proposals yet to be created for this
	Provision of automatic weather station transitions are met	✓	Transition of manual to AWS data infrastructure and communications for Isangel, Lenakel, Litzlitz, Lakatoro, Pekoa and Bauerfield completed.
		✓	Wind system upgrade for Bauerfield and Pekoa
Provision of regular preventative maintenance	✓	Carried out for BField, Pekoa and WGrass	
<b>Operations Management &amp; Policies</b>	To develop and complete Divisions' operational procedures	✓	Main Division SOPs are completed, while policies works to be included in 2017
	Formalise contingency plans for cases of power and communications failure	✗	Yet to be completed due to lack of human resources. Forwarded to 2017.

	Management of ICT/Engr resources, plans and reporting	✓	Engaged in VMGD Business, Corporate and Strategic planning.
		✓	Budget planning done
		✓	Annual and bi-annual reports submitted
		✓	Staff appraisals done
		✓	Control ICT and weather instrument assets
		✗	Address technicians' capacity building in collaboration with Aid Donors. Re-emphasized in 2017.
		✓	2016 Division's business plan well implemented
	Long Term human resource development	✗	Yet to be initiated by VMGD HRO
	Adhere to update and revise respective QMS documentations	✓	Done

## I. Data & Computing Services

### Objective:

*To provide computing and data storage services to support all VMGD operations*

The core of VMGD's ICT Infrastructure is its Data Centre at the VMGD HQ, Port Vila. Included in the facility are gigabytes of data storage and hosting various webservers including nab.vu, the climate change portal for Vanuatu. Weather, marine and aviation forecast preparation and warnings dissemination platforms are also housed at VMGD's data centre. Vanuatu's GTS message switching system (MSS) also collects, processes and distributes vast amount of daily data from Vanuatu's observation network. Data from around regional World Meteorological Organisation (WMO) members are also ingested every minute via VMGD's FTP server to be used in both operational forecasting products and research, and is stored in Climate's archive for the their use.

Volumes of gigabytes of Vanuatu's volcanic and seismic data from various stations throughout Vanuatu are also exchanged and transmitted within VMGD's data centre. Exchange of volumes of data from neighboring countries are also processed and monitored by scientists within for ensuring Vanuatu citizens are well informed and warned.

The Division is providing support to over 2,000+ devices inclusive of desktops, Servers, laptops, smart devices, video, network devices, electrical appliances, and telecommunications support to over 100+ staff from VMGD, NDMO, Energy and Environment Department, Project Officers and Ministry staff. The Division staff has worked tirelessly to minimize, as much as possible, systems downtime.

### Performance measures

#### Deliverables

- Operational systems and infrastructure were supported and maintained to a high level in 2016. All computing systems performance targets were met in term of their 'uptime' – that is the percentage of time that systems operated satisfactory.
- The unscheduled downtime associated with system changes were kept below 10%.

Computing Systems Uptime	Target	Results 2016
GTS MSS system	99%	99%
Operation Forecast Systems	99%	99%
Operational data storage systems	99%	100%
File system services	99%	100%
DNS services	99%	99%

<b>Firewall system</b>	99%	100%
<b>Web hosting services</b>	99%	99%
<b>FTP services</b>	99%	90%

- VMGD data storage capacity in addition to various network attached storage devices were utilized to improve data redundancy and storage
- Over 1500+ devices currently on VMGD domain. A 70% increase from 2015.

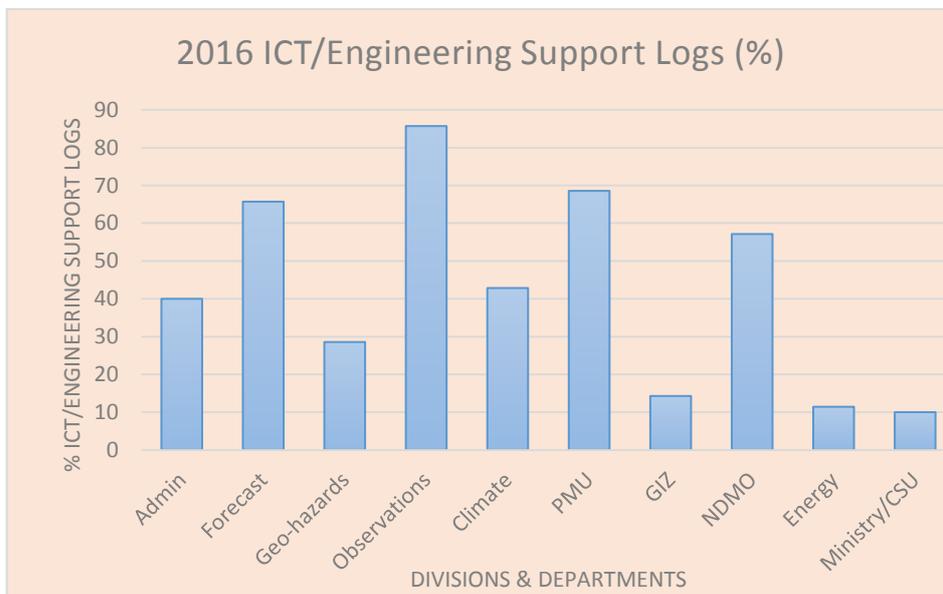
VMGD Domain Environment Charts



Device manufacturers on VMGD domain

Desktops OS on VMGD domain

- Website hosting service available 24/7 and maintained
- System administration support.



- In addition to daily systems administration and respective equipment and instruments maintenance within the Division, the above graph illustrates the percentage (%) of ICT and Engineering Support Logs given for each Divisions and departments throughout 2016. Support are inclusive of equipment maintenance, upper air operations, desktops support, telecommunications including voice-over-ip and HF communications support, electrical support, daily network support, wireless access, internet access, printing support and applications support. Additional extensive roles included web programming, utilities programming and configurations, compilation of reports and to electrical support are given.

With VMGD's expansion on the Government's broadband network, VMGD is fully utilising this service to safeguard the nation in providing a timely, quality and accurate daily weather services for public alike, shipping, aviation and tourism services industries. The realtime monitoring of the atmosphere and

surrounding seas, inclusively are climate services and realtime geohazards monitoring services for our volcanoes and seismic stations thus adds onus to having establish VMGD's own domain separated from the Government domain with a direct WAN connection.

## Performance targets

Despite a few network incidents in 2016, overall the VMGD's systems delivered high availability with the increase of various data inceptions from various projects.

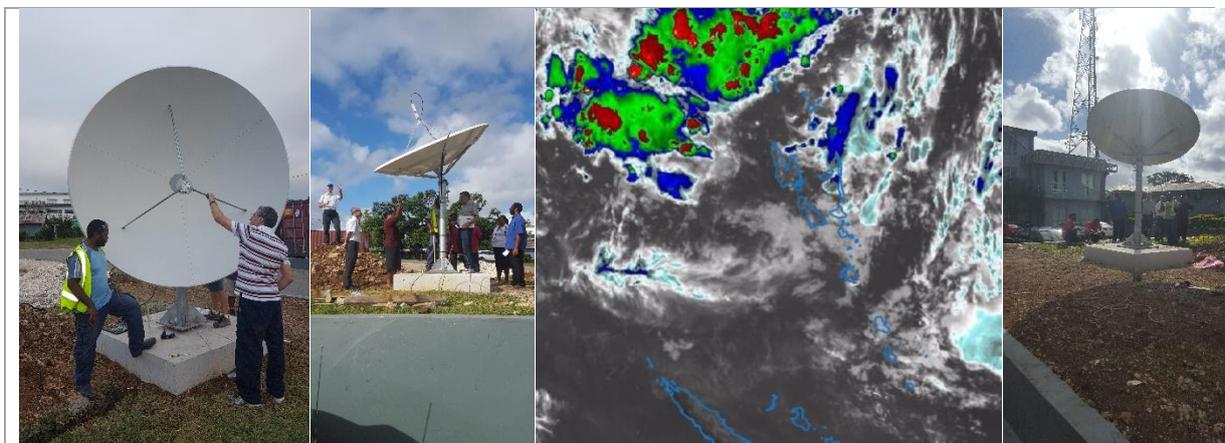
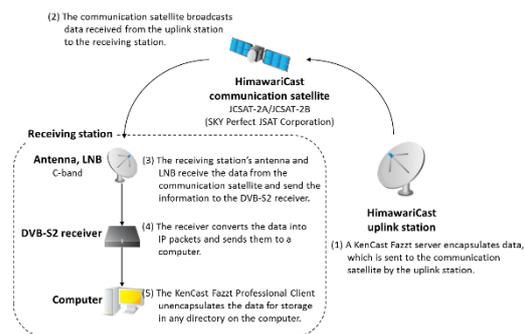
## Highlights

### ❖ Virtualisation

- During 2016, some computer server infrastructure were virtualized. This was assisted by a server hardware purchased under the MDRR Project in 2015. This is just the start of some upgrades of computer infrastructure in VMGD.

### ❖ Himawari-8 Data Reception

- Funded through JICA, VMGD is very fortunate to be equipped with Himawari-8 images satellite reception installed in 2016. Himawari-8 is Japan Meteorological Agency's (JMA) latest geostationary satellite, with the Advanced Himawari Imager (AHI) as the main instrument on board. The AHI provides full earth disk scans every ten minutes, collecting data over 16 bands, with a spatial resolution ranging from 0.5 to 2.0 km.
- With these increases in temporal, spectral and spatial resolutions, the Himawari-8 mission has ushered in a new era of high-quality satellite data. With the additional bands and higher resolution of data, it will be easier for weather forecasters to detect and monitor meteorological and atmospheric phenomena: tropical cyclones; thunderstorms; fog; fire and smoke; volcanic ash; and deliver timely warnings of the associated hazards. Vanuatu through its C-band satellite antennae receiver, 6-minute data can now be used for weather prediction models instead of accessing these images via Gov broadband. This will provide useful guidance to weather forecasters, with improved daily, weekly and seasonal forecasts. The public can view these images to the newly developed VMGD's website to be launched in 2017.



Satellite antenna reception installation, training and image reception

### SmartMet & SmartAlert System

- VMGD was fortunate also to receive the SmartMet system funded under the FinPac Project implemented by the Finnish Meteorological Institute and SPREP. This aid weather forecasters in early warning information dissemination system together with ensuring products were WMO CAP compliant for public access. Moreover the inclusion of GeoHazards alert services as products for this system.
  - Server and production desktops are also provided.
  - Presence of products produced on this system is provided online.
  - SmartAlert a web based alert system provided to enable multi-hazard alert be provided automatically online via the web, social media and other media outlets



SmartMet & SmartAlert installation, data inception and training

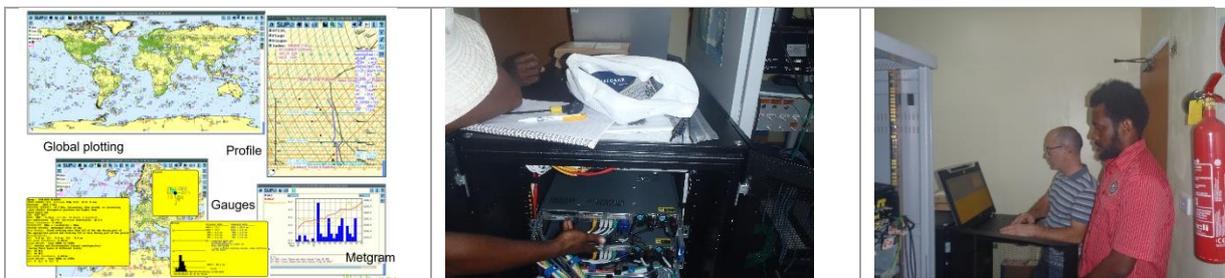
### MFI's Synergie System Upgrade and Meteofactory Data Inception

- Funded through World Bank's MDRR & UNDP's VCAP Project, VMGD is privileged to be able to benefit in 2016 an upgrade of Weather forecast's Synergie system through the Meteo France International (MFI). This system strengthens Vanuatu's forecasting capability with the Synergie System Tool and the MeteoFactory Early Warning and Public Weather Services.
  - Meteofactory is an Integrated Early Warning Solution for the generation and the dissemination of weather alerts and warning maps, fully compliant with WMO recommendations for meteorological and hydrological alert (MHEWS). It also includes cyclone and aviation modules to aid forecasters in their public productions.

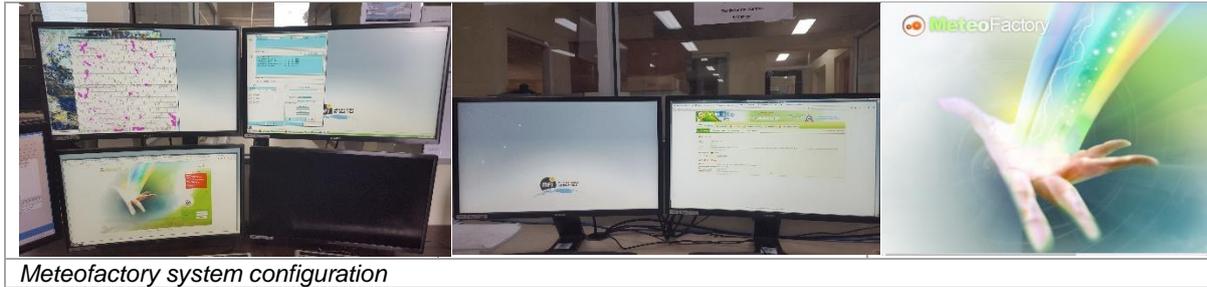
#### MFI and Vanuatu: a long history!



MFI and Vanuatu have a long history together since their first collaboration goes 10 years back. MFI then provided observation equipment (especially for aviation meteorology) and forecasting systems (Synergie) in order to allow the country to better deal with severe weather events, the archipelago being situated in a high-risk area for tropical cyclones. Today, in cooperation with Météo-France's regional office in New-Caledonia and in the frame of a World Bank project, MFI is once again collaborating with Vanuatu's Meteorology and Geo-Hazards Department. One year after catastrophic damages caused by tropical cyclone PAM, the objective is to strengthen Vanuatu's forecasting capacity with the supply of 2 Synergie workstations, but also improve its Early Warning capacity as well as its Public Weather Services with the implementation of a MeteoFactory® license. The project was launched in March and all systems will be operational before the end of 2016.



Synergie system upgrade



## II. Infrastructure Management

### Objective:

*To maintain a robust and sustainable national weather, climate and GeoHazards observations infrastructure, electrical infrastructure and capability to meet VMGD's needs.*

This program is responsible for ensuring that the infrastructure and equipment supporting VMGD's observing system operates as maximum efficiency and effectiveness. This is achieved through various visits from technicians to stations to ensure the equipment and instruments are thoroughly serviced and tested.

These activities are undertaken by technical staff who trained to handle such equipment. Additionally, close links are maintained with respective Divisions for understanding the interface between the equipment outputs and the requirements of VMGD scientists.

Safety considerations are a major factor in the operation of observation and communication infrastructure as it frequently comprises of delicate equipment that operates around the clock. Monthly Division meetings where safety consultations of work health and safety is maintained to ensure that safety is taken into account at all stages of observing facilities and communications infrastructure.

### Performance measures

#### Deliverables

- ✧ Routine maintenance of stations and preventative maintenance of equipment done to most stations
- ✧ Electrical wiring of Bauerfield renovated office

#### Performance targets

- 80% of stations are being maintained
- 50% of tide stations fenced
- 100% of JICA funded seismic station concrete wall repair
- 100% of AWS stations serviced

#### Highlights

- ✧ **Lenakel Tide Station Fencing**



Lenakel Tide station fencing works

### ✧ Bauerfield Station Renovation LAN Re-wiring



Network cabling re-wiring

Operation test

Air condition cleaning

### ✧ Pekoa Station AWS Maintenance



AWS cleaning

Thermometer checks

Cabinet works

### ✧ Litzlitz Tide Station



Routine checks

Solar panel maintenance

Litzlitz Tide station works

## III. Telecommunications

### Objective:

To provide and maintain VMGD's telecommunications network to transmit observations from weather, seismic and volcanic instrumentation located throughout Vanuatu to VMGD's Data Centre, and to distribute warnings, forecasts, climate and GeoHazards data nationally and to WMO members worldwide together with Geoscience regional centres.

VMGD's communications systems via the Government's Broadband network together with other ISPs to/from remote locations, supports data communications between staffed offices and many other data collection units across Vanuatu's observing network. The capability has been accomplished by implementing a mixture of communications technologies to provide primary and redundant solutions. Primarily is Government's broadband, HF Radio and ADSL to meet the service levels required for VMGD's operations.

### Performance measures

- AWS data security and routing through GTS MSS and via WMO hub in Australia Bureau of Meteorology
- Observations were received from:
  - 2 automatic weather stations
  - 6 synoptic stations
  - 4 sea level stations via DCP and GTS
  - Seismic stations
  - Volcanic stations
- Forecast products provided daily online via website and social media
- Climate products provided online and social
- Geohazards products provided online and social media
- For 2016, most communications systems performed at or above 'uptime' levels. A few hiccups but were dealt with promptly.

Communications systems uptime	Target	Results 2016
Internet services	90%	95%
AWS connections to data centre	90%	80%
Website service	90%	100%
WMO Global Telecommunications System via GTS-MSS	90%	99%
HF Radio Communications	90%	80%

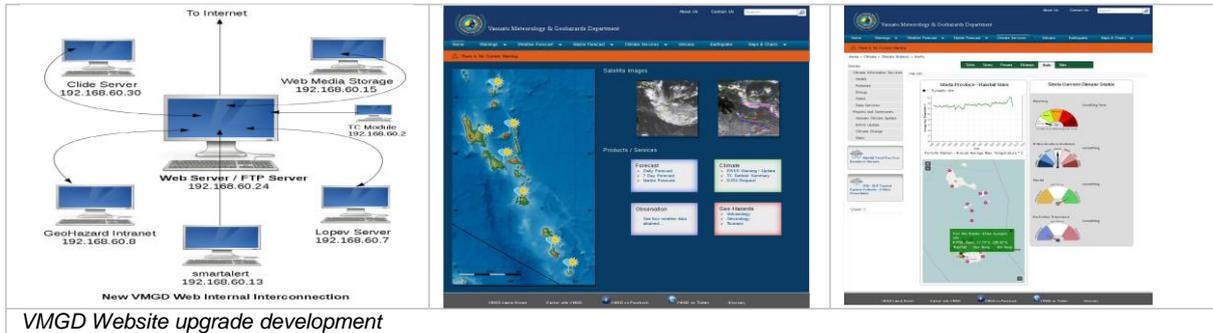
- Improved interconnection of VMGD observation particularly for Saratamata, Pekoa and Whitegrass Stations.
- Efforts to ensure secure, compliant and cost-effective ICT systems and services have continued to be a high priority

### Performance targets

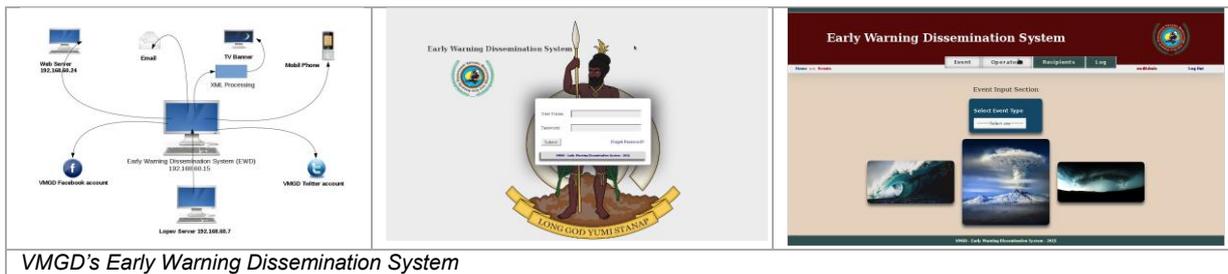
Under the CAP Project, all weather observations sites together with new AWS sites were surveyed for communication upgrade for internet service and voice communications via Government's VOIP services. Implementation of such upgrades are put forward for 2017 business plan. Summarised below are highlights of such communication survey in preparation for upcoming automatic weather stations to be installed in 2017.

### Highlights

- ✦ **VMGD Website upgrade development and Early Warning Dissemination Platform**
  - Funded under MDRR, a contractor assisted the Division in upgrading the website. The website will go live in 2017.
  - Representatives for each Division were provided training to edit and update their Division's interfaces



- EWDP is also under development for CAP formatted products to made available automatically to website and social media for public access. All will go live in 2017.



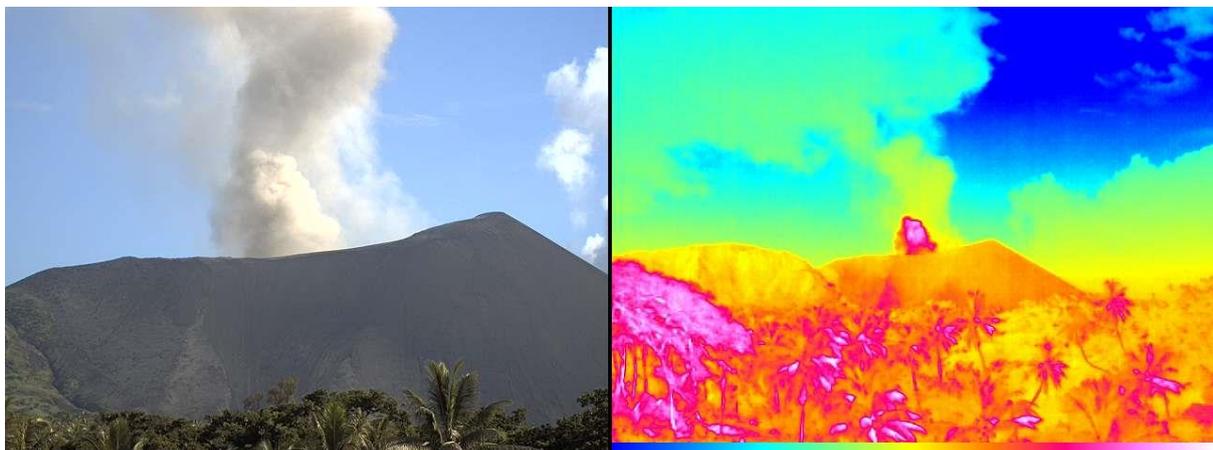
### ❖ VMGD Whitegrass Station Communications

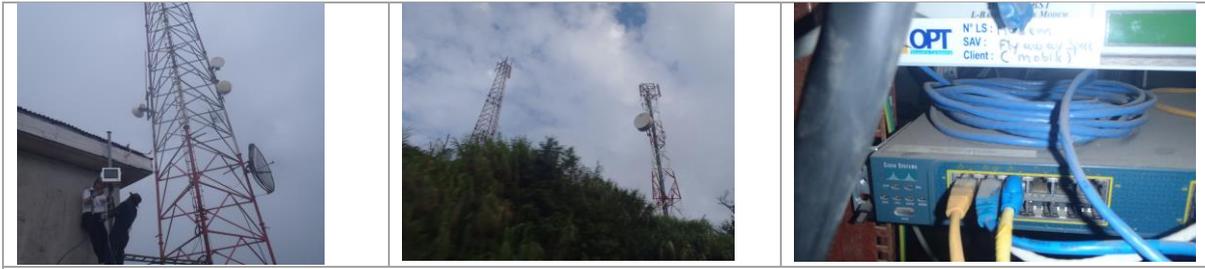
- Funded via APT Project with TRR and OGCIO, the station are now equipped with desktop and internet service.



### ❖ Yasur Volcano Realtime HD Thermal Camera

- Funded under APT, ITU through JTEC and implemented by TRR, OGCIO and VMGD, a high definition thermal camera was erected at Hill 552. This aids the GeoHazards Division for their real-time volcano monitoring. Additional HD cameras were also erected on other sites. All images are transmitted live to VMGD.





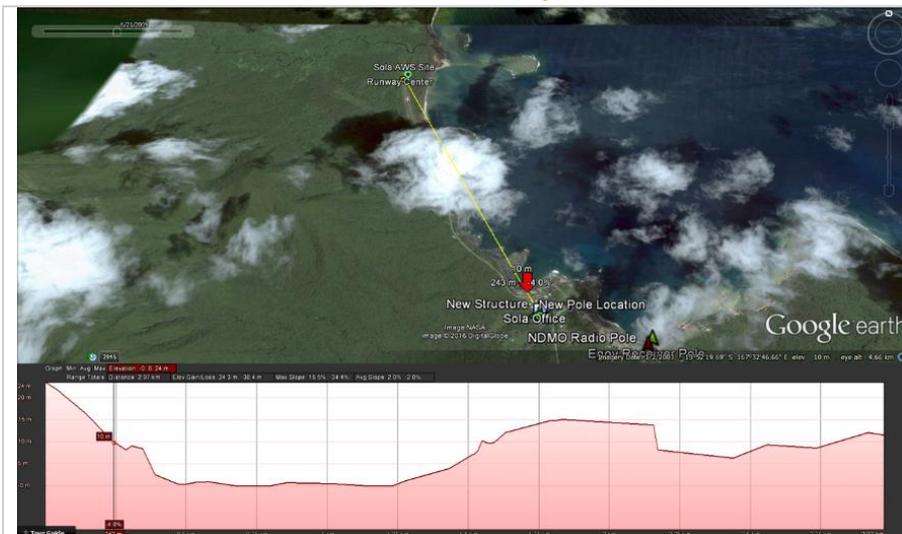
HD Thermal Camera installation

✧ Bauerfield HF Radio Antenna upgrade



Installation on new HF Radio Mast at

✧ Sola Station Communication Survey



From the survey, similar with Aneityum station, an agreement was made with TVL will see a dedicated VPN connection via 3G will be established to ensure VMGD's WAN is expanded to Sola Met Station and back to Port Vila VMGD HQ. All implementation works are scheduled for the first half of 2017.



Tests on runway, province and tower site

✧ Longana Airport Broadband Survey



Respective spots around the Longana aerodrome was tested for VMGD's WAN expansion onto the runway to cater for a new AWS funded under VCAP Project. The VMGD's WAN expansion will extend from Saratamata iGov tower to the AWS site.



iGov Tower test to Longana



Longana airport test

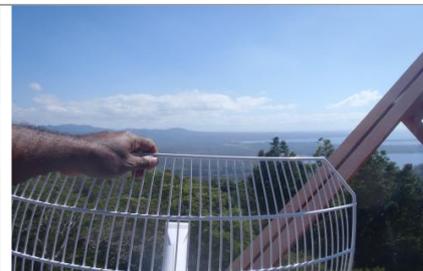


Tower test

✧ Norsup Airport, Malekula Broadband Survey



Norsup AWS site radio test

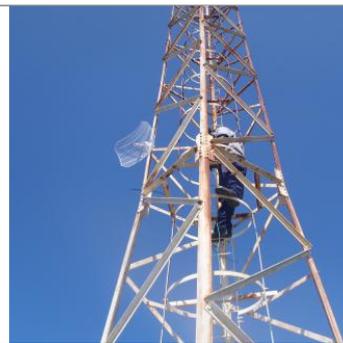
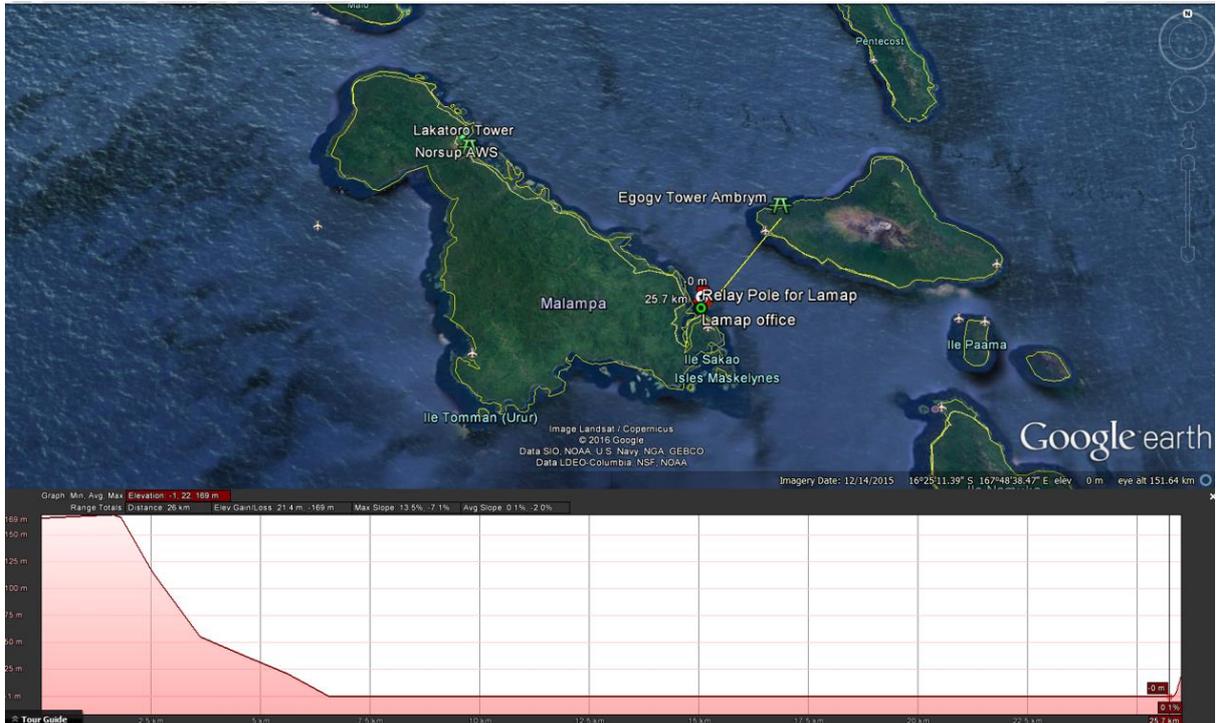


Lakatoro iGov tower radio test to Norsup site

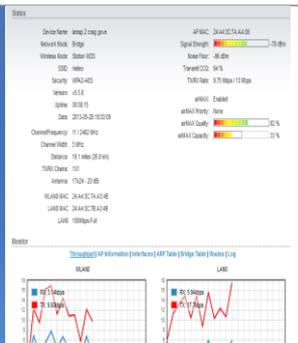


Test results

✧ Lamap Station Broadband Survey



Lamap Relay tower tests to Craigcove



Test Results



Relay tower tests

❖ Lamap Relay Site Broadband survey



Lamap VMGD Observation site

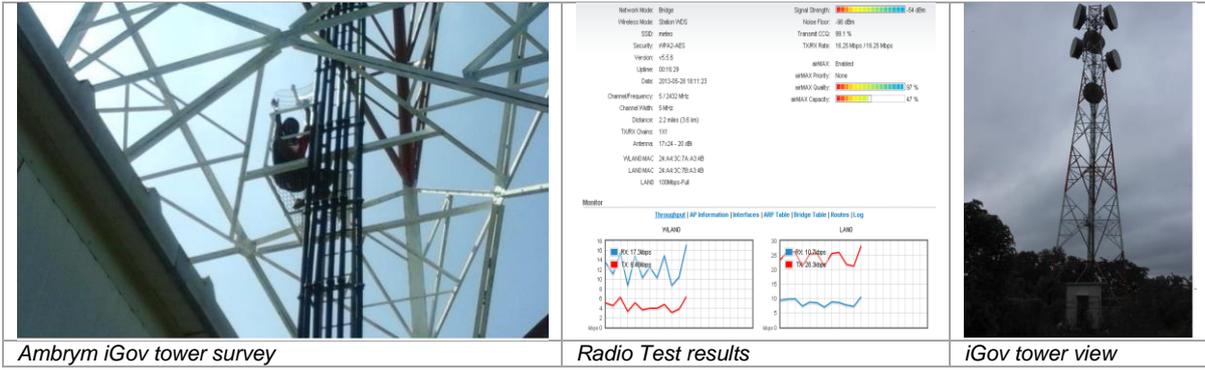
D25-192.168.111.101 * MAC=00:07:E7:83:97:12 * Serial#=8623890	
admin From 192.168.111.110	
<b>Hardware Information</b>	
Fireware Version	2.22 Feb 16 2011
Wireless Version	+8.74d9
Software Boot Version	2
Hardware Version	1
Uptime	0 days 0 hours 4 minutes 24 seconds
<b>RF Stats</b>	
Connected To	8626814
Signal	-104
Noise	-114
Upstream signal	0
Upstream Noise	0
Voltage	11.43v
RX Success Rate	56.08%
TX Success Rate	0.00%
Reflected Power	7
Disconnect Count	0
Temperature	-31°C ~ 88°F
Distance	-4193 meters or 2.6 miles
<b>Packet Stats</b>	
Received	235 packets - 25517 Bytes

Radio Test results to Lamap office from relay site



Proposed antenna site

❖ Craigcove iGov tower to Lamap Comms Survey



Ambrym iGov tower survey

Radio Test results

iGov tower view

Whitegrass Airport Runway Radio Test



Respective spots around the Whitegrass aerodrome was tested for VMGD's WAN expansion onto the runway to cater for a new AWS funded under VCAP Project

Office LOS testing

Tests results

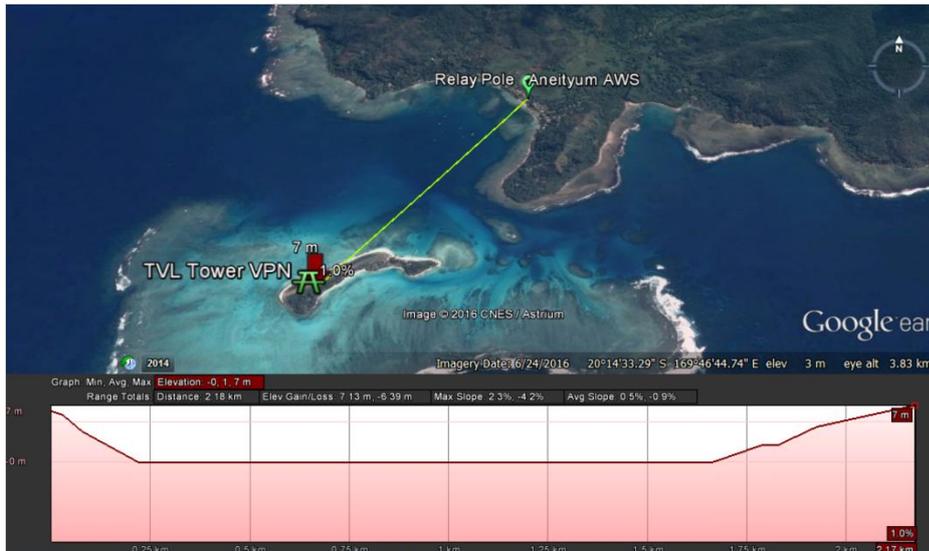
South direction view tower

AWS site radio test

Tests results

Runway threshold radio test

Aneityum Communications Survey



From the survey, similar with Sola station in Vanua Lava, an agreement was made with TVL will see a dedicated VPN connection via 3G will be established to ensure VMGD's WAN is expanded to Aneityum station. All implementation works are scheduled for the first half of 2017.

All of these broadband expansion and communications as scheduled will be operational by April 2017.

#### IV. Operational Management

##### Objective:

*To provide the strategy, policy and standards for ICT and Engineering Services within VMGD and to provide operational services that align the delivery of ICT and Engineering capability with VMGD's objectives.*

This program was established to provide the strategy, policy and standards for ICT, Metrology and electrical works within VMGD. The program provides services and roadmaps aligning the delivery of ICT capabilities to enable VMGD business services. If VMGD is to keep pace with end-user demand, then planning the effective delivery of digital products and services are essential.

This program ensures the following:

- The network is operated efficiently and effectively
- Quality management is performed on weather instruments and its operations

##### Performance measures

##### Deliverables

This initial focus was to establish the underpinning standards and services foundations for the effective and efficient delivery of ICT and Engineering support services throughout VMGD. Good progress was made towards completing instrument database and ICT inventory web-based system. A reviews of ICT service management tool was discussed and to improve more on in 2017.

In addition are the following administrative management

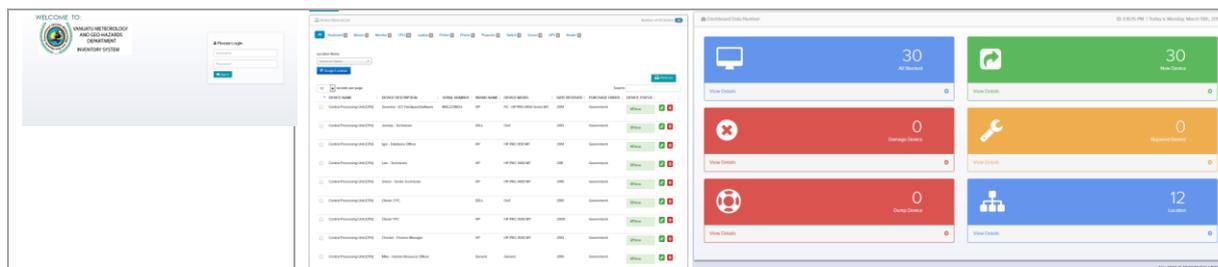
- 3 appraisals per year done for each staff
- Reports submitted
- system monitoring made available
- contingency plan under development
- meetings attended
- ICT security policy under development
- Backup and storage policy under development
- Draft equipment and backup storage procedure and policy
- User manuals developed for EWDP & Website
- QMS documentation updated

##### Performance targets

- Delays in purchases of instrument replacement and processes consequently most stations lacks spares. Hence some QMS processes were not met and to be addressed in 2017
- Report and appraisals done and submitted as expected.
- Major ICT & Engineering procedures and policies under development be polished and implemented as planned for 2017

## Highlights

- **ICT Inventory system**
- Build in-house is VMGD's ICT Inventory database system. This database is managed by the ICT Officer whom populates and



## Climate Change and Disaster Risk Reduction Division

### 2016 Priority Activities and Results

The Climate Change and Disaster Risk Reduction Division contributes to VMGD purpose by being an effective Division in the management, operation and integration of climate change and disaster risk reduction activities and projects, by way of qualified, skilled and motivated staff appropriately trained and participating actively in national, regional, and international climate change programs, and working effectively with local, regional and international partners.

The Climate Change and Disaster Risk Reduction Division implements and operates an effective and efficient Climate Change Project Management Unit deploying qualified, skilled and motivated staff with appropriate access to sufficient resources, to manage and operate the implementation and integration of climate change and disaster risk reduction programs and projects to support national, regional and international commitments to Climate Change and Disaster Risk Management multilateral agreements.

Apart from the institutional support of the VMGD, 7 projects directly managed and or implemented by the division were vehicles for the delivery of the priority activities for 2016. These projects include;

1. The Increasing Resilience to Climate Change and natural Hazards (IRCCNH) Project
2. The Mainstreaming Disaster Risk reduction (MDRR) Project
3. The Forest Carbon Partnership Facility (FCPF) REDD+ Project
4. The Vanuatu Coastal Adaptation (VCAP) Project
5. The Pacific Risk Resilience (PRR) Project
6. The iCLIM Project
7. Second National Communications Project

## Climate Change and Disaster Risk Reduction Division Priority Activities and Results 2016

Programs and Objectives required by the 2016 Business Plan and results are summarized in the table below and commentary is provided in the following text.

Programs	Objective (Targets)	Result ✓✘	Result Summary
Services and support for the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) transferred to the established NAB secretariat	<p>NAB is recognised as an on-going decision-making and advisory body</p> <p>NAB secretariat will function independently from PMU</p>	✓	<p>a. All relevant functions of the NAB secretariat handed over to the NAB secretariat proper under the CSU of MCC</p> <p>b. Handover of templates and SOPs completed</p> <p>c. 2 trainings conducted to facilitate hand over including handover of iCLIM project activities</p> <p>d. NAB updated and fully coordinated by new NAB Secretariat</p>
Support the coordination, management and implementation of relevant CC and DRR projects endorsed by the NAB	<p>PMU and NAB is aware of all CC &amp; DRR projects being undertaken or planned in Vanuatu and coordinates to ensure complementarity</p> <p>PMU supports and facilitates the implementation of CCA/DRR programmes and projects with NAB stakeholders</p>	✓	<p>a. Projects Operational Manual finalised</p> <p>b. Micro-Projects Manual finalised</p> <p>c. Financial Management Manual Finalised</p> <p>d. Adjustment of Vanuatu Gov FMIS to meet standard donor reporting requirement completed and being utilised by 3 projects</p> <p>e. GIS database directory and SOP developed</p> <p>f. Baseline database for Tanna developed and maintained</p> <p>g. Progressive reporting of all projects directly managed through PMU</p> <p>h. Engagement with UNEP, IsraAid and UNDP to develop and implement new projects</p> <p>i. Strengthened working relationships with implementing partner agencies through establishment of multi-sector Operational Teams on the ground and executing joint missions at technical, policy and political levels.</p>
Advisory Services	<p>PMU is recognised as an informed, accurate source of best practice knowledge for CC and DRR</p> <p>PMU provides timely and appropriate advice to GoV, NGO and CSO actors on CC and DRR issues</p>	✓	<p>a. Information management system established with key resources and data with an open access policy for all stakeholders (key reports, LiDAR data, GIS data, multi-hazard maps, Vanuatu coastal risk tool)</p> <p>b. Direct input into the NAB Project Screening Committee as Chair to review and support key CC/DRR</p>

Programs	Objective (Targets)	Result ✓✘	Result Summary
			perspectives in new project proposals and work plans
Policy and Strategy	Support the implementation of CCDRR Policy.  Support the development and implementation of CCDRR Policy action plan.	✓	a. Support and input of CC & DRR priorities into VMGD and NDMO legislative frameworks as well as NDMO strategic plan. VMGD Bill passed by parliament in Dec 2016. NDMO legislation ready for parliament.
Project Management and Operations	Effective PMU coordination and project management  PMU adequately staffed	✓	a. Projects Operational Manual finalised b. Micro-Projects Manual finalised c. Financial Management Manual Finalised d. Adjustment of Vanuatu Gov FMIS to meet standard donor reporting requirement completed and being utilised by 3 projects e. GIS database directory and SOP developed f. Assets register developed and maintained g. Conflict of interest register developed and utilised h. Contracts management process established i. Monitoring and evaluation framework drafted j. Retention of key staff through existing projects achieved
International CC & DRR obligations	Support the national implementation of international CCA/DRR obligations	✓	a. Contribute to UNFCCC obligations through the NAB and the UNFCCC Task Force b. Facilitated the ratification of the Paris Agreement and subsequent deposition with the UN HQ in New York.
Participation in international agenda	Support to raise capacity of GoV representatives to participate in international fora	✓	a. Attended the UNFCCC Subsidiary Bodies meeting Bonn, Germany.
Adaptation & DRR	Support CCA & DRR initiatives in Vanuatu	✓	a. Progressed implementation of existing CCDRR initiatives - Increasing Resilience to Climate Change Hazards (IRCCNH) Project, Mainstreaming Disaster Risk Reduction (MDRR) Project, Forest Carbon Partnership facility (FCPF) REDD+ Project, Vanuatu Coastal Adaptation (VCAP) Project, Pacific Risk Resilience (PRR) Project

Programs	Objective (Targets)	Result ✓✘	Result Summary
			<ul style="list-style-type: none"> <li>b. Supported new CCDRR GCF Climate Early Warning Project through SPREP</li> <li>c. Engagement of IsraAid to execute projects in Shepherds</li> <li>d. Design NAPs project with UNEP</li> <li>e. Design new adaptation project for GCF with UNEP and KEI</li> <li>f. Support start-up of ACSE Aquaculture Project with QUT and Department of Fisheries</li> </ul>
Climate Change Mitigation	<p>Support Improved GoV oversight of CC mitigation projects in Vanuatu</p> <p>Support mainstream CC perspectives into energy-related projects and improve CC mitigation outcomes</p>	✓	<ul style="list-style-type: none"> <li>a. Continues World Bank Client Connection system support to World Bank administered Energy Projects</li> <li>b. Consistent involvement in the REDD+ Steering Committee and backstopping implementation of the National REDD+ Programme</li> </ul>
Financial Management & Procurement	<p>Establish PMU capacity to manage donor funds</p> <p>Support NAB oversight of all GoV managed CC&amp;DRR funding</p>	✓	<ul style="list-style-type: none"> <li>a. Projects Operational Manual finalised</li> <li>b. Micro-Projects Manual finalised</li> <li>c. Financial Management Manual Finalised</li> <li>d. Adjustment of Vanuatu Gov FMIS to meet standard donor reporting requirement completed and being utilised by 3 projects</li> <li>e. Assets register developed and maintained</li> <li>f. Conflict of interest register developed and utilised</li> <li>g. Contracts management process established</li> <li>h. Monitoring and evaluation framework drafted</li> <li>i. Retention of key staff through existing projects achieved</li> </ul>
Monitoring, Evaluation and Reporting	<p>Monitor progress and outcomes of government and externally funded CC &amp; DRR projects</p> <p>Monitor and evaluate the work of the PMU</p>	✓	<ul style="list-style-type: none"> <li>a. Baseline surveys completed for Tanna and database created</li> <li>b. M&amp;E frameworks drafted</li> <li>c. Training conducted for key staff and stakeholders in M&amp;E processes, reporting and database for Tanna</li> </ul>
Information management	Collect, manage and make accessible data and information on CC & DRR knowledge and activities relevant to Vanuatu	✓	<ul style="list-style-type: none"> <li>a. Information management system established with key resources and data with an open access policy for all stakeholders (key reports, LiDAR data, GIS data, multi-hazard maps, Vanuatu coastal risk tool)</li> </ul>

Programs	Objective (Targets)	Result ✓✘	Result Summary
Communication & Engagement	Build partnerships with VMGD sections, NDMO and NAB stakeholders Ensure appropriate visibility of all PMU managed projects	✓	<ul style="list-style-type: none"> <li>a. Full engagement with COP Working Group</li> <li>b. Implemented Visibility Plan for MDRR and IRCCNH projects</li> </ul>
Training and capacity building	Increase PMU, VMGD & NDMO staff capacity to implement CCDRR agenda	✓	<ul style="list-style-type: none"> <li>a. Facilitated and supported training for 2 procurement officers with ILO training centre, Turin, Italy</li> <li>b. Facilitated postgraduate DRR course for 1 PMU staff through Fiji National University</li> <li>c. Facilitated postgraduate DRR course for 1 NDMO staff through Fiji National University</li> </ul>

## 2016 Projects Summary Annual Report

Increasing Resilience to Climate Change and natural Hazards (IRCCNH) Project																																																																																																																																																																																																																																																																	
Component	2016 Outputs	Pics/Charts/Maps																																																																																																																																																																																																																																																															
Component 1.1 Strengthening PMU	<ul style="list-style-type: none"> <li>Phase out of 5 TA positions – Project TA, CDD Advisor, GIS Specialist, EWS Advisor &amp; M&amp;E Advisor</li> <li>PMU Manager position recruited</li> <li>Water specialist recruited</li> <li>Procurement Officer and Community Outreach contracts budgeted and incorporated into PP</li> <li>Renewal of M&amp;E and PDO Officers contracts Torba</li> <li>Renewal of FM Advisor &amp; Procurement Advisor</li> <li>Budget revised and updated</li> <li>Procurement Plan revised and updated</li> <li>FMM developed</li> <li>2015 Audit completed for IRCCNH and VARTC</li> <li>VMC contracted and baseline surveys completed</li> <li>Facilitated 2 missions of the Bank, May/June and November 2016</li> <li>International Training of 3 PMU staff, Engineer, Procurement Goods &amp; Services, Procurement HR through ILO Training Centre, Turin Italy</li> <li>Communications officer Post Grad training on DRM through Fiji National University</li> <li>2 GIS trainings conducted for Gov Implementing agency partners for IRCCNH</li> <li>1 M&amp;E Baseline training conducted in Tanna</li> <li>IT &amp; Office equipment procured, shipped and delivered to PDOs</li> <li>2 PDCs launchings facilitated in May (Tanna) and Nov (Torba)</li> </ul>	<div data-bbox="1108 383 1848 694"> <p>IRCCNH PROJECT 2016 TANNA BASELINE SURVEY VILLAGE QUICK PROFILE SORTED BY AREA COUNCIL AND TRIBES TANNA MEETING September 13th</p> <p>NORTH EAST TANNA KASARU 57 Villages</p> <table border="1"> <thead> <tr> <th>ID</th> <th>VILLAGE NAME</th> <th>POP</th> <th>WATER</th> <th>ELECTRICITY</th> <th>ROAD</th> <th>HEALTH</th> <th>AGRICULTURE</th> <th>LAND USE</th> <th>AGRIC</th> <th>WATER</th> <th>HEALTH</th> <th>AGRICULTURE</th> <th>AGRICULTURE</th> <th>AGRICULTURE</th> </tr> </thead> <tbody> <tr> <td>103</td> <td>BINIBANI</td> <td>28</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>104</td> <td>KASARU</td> <td>28</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>105</td> <td>LIMAWADU</td> <td>18</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>106</td> <td>MALIKUNIBARA</td> <td>87</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>107</td> <td>IPUKANGIAN</td> <td>88</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>108</td> <td>IPUKUFI</td> <td>48</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>109</td> <td>IBINANI</td> <td>39</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>110</td> <td>ENAPUAS</td> <td>18</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>111</td> <td>LIPALU</td> <td>18</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>112</td> <td>PONU TOTO</td> <td>8</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>113</td> <td>IMALIT (STEPART)</td> <td>18</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>114</td> <td>LOKUNIBARAI</td> <td>7</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>115</td> <td>BIYU</td> <td>8</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>116</td> <td>ENUKAKEL</td> <td>76</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>117</td> <td>LAKUNIBARAI</td> <td>48</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>118</td> <td>IMALE</td> <td>81</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> </div> <p>Extract of Baseline database for NE Tanna</p> <div data-bbox="1108 726 1848 949"> <p>CHART SHOWING VILLAGES PREFERENCE OF PRIORITY NEEDS IN WEST TANNA 2 AREA</p> <p>PRIORITY NEEDS</p> <p>NUMBER OF VILLAGES</p> </div> <p>Analysis of a single village priority needs</p> <div data-bbox="1108 981 1848 1316"> <p>Village survey being conducted</p> </div>	ID	VILLAGE NAME	POP	WATER	ELECTRICITY	ROAD	HEALTH	AGRICULTURE	LAND USE	AGRIC	WATER	HEALTH	AGRICULTURE	AGRICULTURE	AGRICULTURE	103	BINIBANI	28	2	0	0	1	0	0	0	0	0	0	0	0	104	KASARU	28	2	0	0	1	0	0	0	0	0	0	0	0	105	LIMAWADU	18	0	0	0	1	0	0	0	0	0	0	0	0	106	MALIKUNIBARA	87	2	0	0	1	0	0	0	0	0	0	0	0	107	IPUKANGIAN	88	2	0	0	1	0	0	0	0	0	0	0	0	108	IPUKUFI	48	2	0	0	1	0	0	0	0	0	0	0	0	109	IBINANI	39	0	0	0	1	0	0	0	0	0	0	0	0	110	ENAPUAS	18	0	0	0	1	0	0	0	0	0	0	0	0	111	LIPALU	18	2	0	0	1	0	0	0	0	0	0	0	0	112	PONU TOTO	8	2	0	0	1	0	0	0	0	0	0	0	0	113	IMALIT (STEPART)	18	2	0	0	1	0	0	0	0	0	0	0	0	114	LOKUNIBARAI	7	0	0	0	1	0	0	0	0	0	0	0	0	115	BIYU	8	0	0	0	1	0	0	0	0	0	0	0	0	116	ENUKAKEL	76	1	0	0	1	0	0	0	0	0	0	0	0	117	LAKUNIBARAI	48	2	0	0	1	0	0	0	0	0	0	0	0	118	IMALE	81	0	0	0	1	0	0	0	0	0	0	0	0
ID	VILLAGE NAME	POP	WATER	ELECTRICITY	ROAD	HEALTH	AGRICULTURE	LAND USE	AGRIC	WATER	HEALTH	AGRICULTURE	AGRICULTURE	AGRICULTURE																																																																																																																																																																																																																																																			
103	BINIBANI	28	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
104	KASARU	28	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
105	LIMAWADU	18	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
106	MALIKUNIBARA	87	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
107	IPUKANGIAN	88	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
108	IPUKUFI	48	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
109	IBINANI	39	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
110	ENAPUAS	18	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
111	LIPALU	18	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
112	PONU TOTO	8	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
113	IMALIT (STEPART)	18	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
114	LOKUNIBARAI	7	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
115	BIYU	8	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
116	ENUKAKEL	76	1	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
117	LAKUNIBARAI	48	2	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			
118	IMALE	81	0	0	0	1	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																			

Component 1.2

- Completion of works for 2 Provincial Disaster Centers, Tanna (Isangel) and Vanua Lava (Sola)
- 2 PDO launchings facilitated in May (Tanna) and Nov (Torba)
- IT & Office equipment procured, shipped and delivered to PDOs
- NDMO legislative review consultant recruited
- Paid for Red Cross consultant to support legislative review (airfare & DSA)
- NDMO legislative review completed and draft submitted to NDMO
- Support for operational costs of legislative review through financing of 2 consultation workshops



*Hon. Ham Lini Vauaroroa, Minister of Climate Change delivering statement on the occasion of the opening of the Sola PDC*

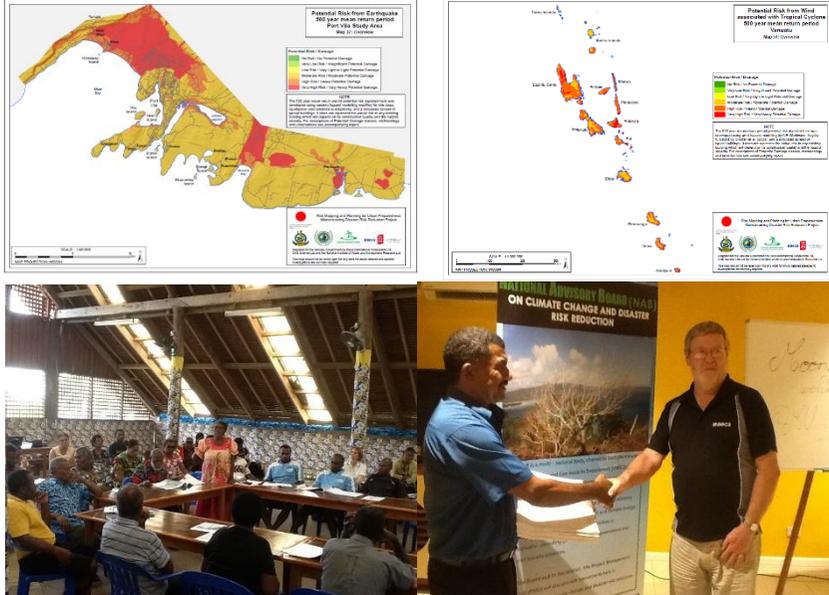


*Sola PDC completed and opened to commence functions*

<p>Component 1.3</p>	<ul style="list-style-type: none"> <li>• Contracting and completion of construction of 8 seismic stations</li> <li>• Installation of seismic equipment programmed</li> <li>• ESMF Training with Geo-hazards staff</li> <li>• Recruitment of engineer to review VMGD EWC extension design</li> <li>• Review of VMGD EWC extension design for procurement by engineer</li> </ul>	 <p><i>New seismic stations on Vanua Lava, Santo, Ambae &amp; Maewo</i></p>
<p>Component 2.1 Standards and Protocol – Micro-projects</p>	<ul style="list-style-type: none"> <li>• Closure of Community Driven Development (CDD) specialist contract</li> <li>• Completed initial feasibility study for 6 micro-projects in 3 area council of Tanna island ( South East, North East and West Tanna Area Councils)</li> <li>• Review and update of Micro-projects operational manual to guide engagements and interventions. Review based on new institutional arrangements and processes</li> </ul>	 <p><i>Map of initial focus areas and Feasibility study summary for 1 site</i></p>

<p>Component 2.2 CBA &amp; DRM in Coastal and Volcanic Areas</p>	<ul style="list-style-type: none"> <li>• Establishment of Operational Team for Tanna micro-projects and resourcing of OT</li> <li>• Support Tafea PTAC to select 50 micro-projects</li> <li>• Rollout plan for 2<sup>nd</sup> round of projects developed</li> <li>• 5 micro-projects completed and launched (4 gravity feed water systems and 1 rain water catchment)</li> <li>• Rollout plan 2 updated and rollout plan 3 for micro-projects developed</li> <li>• Feasibility studies for projects as part of rollout plan 2 commenced</li> <li>• Procurement for rainwater catchment micro-projects as part of rollout plan 2 completed</li> <li>• Contract executed with IsraAID to implement projects on Tongoa</li> <li>• IsraAID commencement of consultations on Tongoa with 3 key communities</li> <li>• Consultations with Shefa province to identify additional projects for Shepherds</li> </ul>	 <p><i>Tafea PTAC selecting 50 sites for micro-projects from baseline survey</i></p>     <p><i>Opening of 4 completed micro-project water systems in Tanna</i></p>
<p>Component 3.1 Improved Plants</p>	<ul style="list-style-type: none"> <li>• VARTC roads upgraded of 2 km completed</li> <li>• Yam breeder contracted to support VARTC, 1 mission successfully conducted in 2016</li> <li>• Successful output of yam breeding as a result of engagement with yam breeder</li> <li>• Propagation of improved yam in Santo and Efate conducted</li> <li>• 6 improved kumala varieties developed</li> <li>• Distribution of improved planting materials to 1000+ farmers</li> </ul>	   <p><i>Roads upgrade complete and successful propagation of improved yams</i></p>

<p>Component 3.2 Extension and On-farm Distribution</p>	<ul style="list-style-type: none"> <li>DARD component closed in 2016 after more than 30 million vatu support to TC Pam recovery through the procurement of emergency agriculture tools in 2015. The agriculture tools were distributed by DARD in collaboration with the “food security cluster” set up after TC Pam.</li> </ul>	 <p><i>Official handover of over 30 million vatu worth of agriculture tools by Director of VMGD to Director DARD</i></p>
<p>Component 4.1 Water Supply capacity</p>	<ul style="list-style-type: none"> <li>Component closed and delivered through micro-projects</li> <li>Closed position of RWS water coordinator central based out of DGMWR – Port Vila</li> <li>Closed contract for Database officer based out of DGMWR – Port Vila</li> <li>Closed contract for water planner south based on Tanna</li> </ul>	 <p><i>Key micro-projects activities now led by new project Operational Team established in 2016</i></p>
<p>Component 4.2 Installation of RWC and storage systems</p>	<ul style="list-style-type: none"> <li>Report of 20 water tanks distributed in Santo, Ambae and Efate as part of TC Pam completed by DGMWR</li> </ul>	
<p><b>Mainstreaming Disaster Risk Reduction (MDRR) Project</b></p>		
<p><b>Component</b></p>	<p><b>2016 Outputs</b></p>	<p><b>Pics/Charts/Maps</b></p>

<p>Component 1.1 Risk Mapping to support Urban preparedness and planning</p>	<ul style="list-style-type: none"> <li>• Risk and hazard maps developed and delivered</li> <li>• Urban growth trend report completed and delivered</li> <li>• Urban growth strategy report completed and delivered</li> <li>• 2 training of trainers workshops conducted (Vila &amp; Santo)</li> <li>• 2 wrap up workshops conducted (Vila &amp; Santo)</li> <li>• Coordinated with 6 communities for consultations</li> <li>• 18 community consultations conducted in Santo</li> <li>• 23 community consultations conducted in Port Vila</li> <li>• Coordinated with 11 communities for consultations</li> <li>• Establishment of new CDCs for Port Vila and Santo</li> </ul>	 <p><i>Hazard map samples, consultations in Santo and official handover of urban growth trend and urban growth strategy reports to Director NDMO on behalf of the NAB</i></p>
<p>Component 2.1 Tsunami Warning System</p>	<ul style="list-style-type: none"> <li>• Procurement and contracting for Tsunami systems and equipment</li> <li>• Commencement of works for tsunami systems</li> <li>• Completion of signage installation for Port Vila</li> <li>• World tsunami awareness day events conducted for Santo and Port Vila</li> <li>• VMGD Rebranding contract procured and executed</li> <li>• Gencom TV broadcasting contract procured and executed</li> <li>• Meteo-France contract procured and executed for VMGD IWS</li> <li>• SOP for EWC developed</li> </ul>	

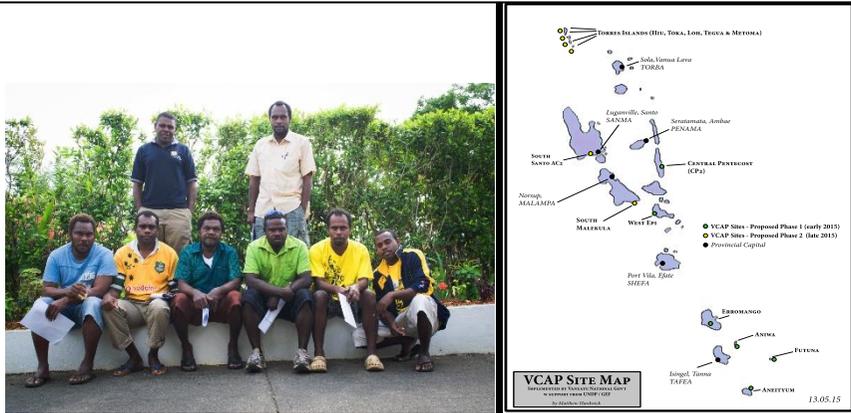
		 <p><i>Tsunami information boards and evacuation signs completed for Port Vila</i></p>
<p>Component 4. Project Management</p>	<ul style="list-style-type: none"> <li>• Convened 4 executive committee meetings</li> <li>• Closed Project Coordinator contract</li> <li>• Closed Admin Officer contract</li> <li>• Closed Procurement Officer contract</li> <li>• Closed Finance Officer contract</li> <li>• Closed Warning Centre Operations Advisor contract</li> <li>• Completed 2015 audit</li> </ul>	 <p><i>Executive Committee of the MDRR Project in session and executive committee member for Luganville Municipality supporting community consultations in Santo</i></p>
<p><b>Forest Carbon Partnership Facility (FCPF) REDD+ Project</b></p>		
<p><b>Component</b></p>	<p><b>2016 Output</b></p>	<p><b>Pics/Charts/Maps</b></p>

<p>Component 1.1 Institutional strengthening for REDD+ Management Arrangements</p>	<ul style="list-style-type: none"> <li>• Recruitment of CSO Coordinator</li> <li>• Recruitment of Structural Engineer</li> <li>• Recruitment of REDD+ Tech specialist</li> <li>• Recruitment of Website designer</li> <li>• Recruitment of cartoonist</li> <li>• Renewal of Outreach and Extension Officer</li> <li>• Procurement of office equipment's</li> <li>• 1 FM &amp; P training conducted for REDD+ Unit staff</li> <li>• Facilitated 2 World Bank missions (March &amp; September 2016)</li> <li>• Audit for 2015 completed</li> <li>• Assessment and design for rehabilitation of provincial offices</li> <li>• Procurement and commencement of forestry building extension</li> </ul>	 <p><i>Procurement and FM Training conducted with REDD+ Unit with REDD+ Technical Specialist, CSO Coordinator and others attending</i></p>
<p>Component 1.3 set-up of REDD+ Committee</p>	<ul style="list-style-type: none"> <li>• Workshops conducted with CSOs and key stakeholders</li> <li>• Fuel procured for Forest Extension offices in provinces</li> </ul>	 <p><i>Workshops conducted with CSO/Community groups</i></p>
<p>Component 2.1 Strengthening of decentralization structures for stakeholder engagement</p>	<ul style="list-style-type: none"> <li>• 6 Workshops conducted with provincial governments and provincial stakeholders</li> <li>• 6 Workshop conducted with farmers association</li> </ul>	 <p><i>Workshops conducted in Malekula, Santo and Erromango</i></p>

<p>2.2 Assessment and strengthening of FGRM</p>	<ul style="list-style-type: none"> <li>• Procurement and contract executed</li> </ul>	 <p><i>FGRM consultations already underway</i></p>
<p>3.1 Analytical studies</p>	<ul style="list-style-type: none"> <li>• Procurement complete and negotiations commenced for execution of contract</li> </ul>	 <p><i>Analytical studies consultations already underway</i></p>
<p>3.2 SESA</p>	<ul style="list-style-type: none"> <li>• Procurement complete and negotiations commenced for execution of contract</li> </ul>	
<p>3.3 Consultation on participation activity</p>	<ul style="list-style-type: none"> <li>• Communications materials developed</li> <li>• Media awareness on Radio and TV</li> <li>• Communication strategy developed</li> <li>• Website development commenced</li> <li>• National Forest day event conducted</li> </ul>	  <p><i>National Forest Day event organized and supported by FCPF project</i></p>

## Vanuatu Coastal Adaptation (VCAP) Project

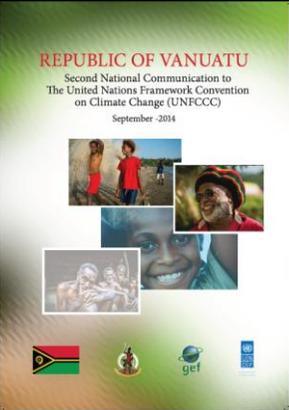
Component	2016 Outputs	Pics/Charts/Maps
Fisheries	<ul style="list-style-type: none"> <li>• Complete verification of detailed ecosystem baseline for Epi</li> <li>• Establish and extend 3 Tapu areas on Epi</li> <li>• Community consultations, workshops and awareness conducted on Epi</li> <li>• Deployment of 4 bamboo raft FADs</li> <li>• Development of ICZM Plan and community action plan for Epi</li> <li>• Complete verification of detailed ecosystem baseline for Aniwa</li> <li>• Community consultations, workshops and awareness conducted on Aniwa</li> <li>• Deployment of 1 bamboo raft FAD</li> <li>• Development of ICZM Plan and community action plan for Aniwa</li> </ul>	 <p style="text-align: center;"><i>Workshops, baseline surveys and FAD deployment</i></p>
Infrastructure	<ul style="list-style-type: none"> <li>• Scoping for 6 drift crossings complete</li> <li>• Scoping for 2 vehicle bridge complete</li> <li>• Scoping for 2 hilly road concrete pavements complete</li> <li>• Scoping for 7 road rehabilitation complete</li> <li>• Scoping for 11 pedestrian bridges complete</li> <li>• Scoping for 7 culverts complete</li> <li>• Scoping for 1 river bank stabilization complete</li> <li>• Scoping for 24 staircase &amp; railing complete</li> <li>• Scoping for 2 jetties complete</li> <li>• Scoping for 1 airport runway stabilization complete</li> <li>• Scoping for 1 new airport complete</li> </ul>	

	<ul style="list-style-type: none"> <li>Tenders for Epi prepared, submitted and approved by CTB</li> </ul>	 <p>Scoping of infrastructure interventions</p>
<p>Vanuatu Meteorology &amp; Geo-Hazards</p>	<ul style="list-style-type: none"> <li>Procurement of 5 Automatic Weather Stations completed</li> <li>Procurement and installation of IWS completed</li> <li>Scoping for renovation of observation stations completed</li> <li>Renovation works for observation stations complete</li> </ul>	 <p>Saratamata Weather Observation Office – before &amp; after renovations</p>
<p>Department of Local Authorities</p>	<ul style="list-style-type: none"> <li>Site coordinators recruited</li> <li>Induction workshop for site coordinators conducted</li> <li>Community profiles completed</li> <li>V&amp;A assessments for remaining islands completed (Malekula, Santo &amp; Torres)</li> <li>Area council building sites secured for Epi, South Santo and Central Pentecost</li> <li>Tender processed and contracts signed with Port Vila Hardware to supply materials for area council buildings</li> </ul>	 <p>Site coordinators induction workshop and assessments sites</p>

<p>Upland/Agriculture/Forestry</p>	<ul style="list-style-type: none"> <li>• Agroforestry nursery on Epi completed</li> <li>• Selected plants/trees raised in nursery for rehabilitation of coastal sites and slopes</li> <li>• Root crop collection established</li> <li>• Vetiver grass distributed on Epi</li> <li>• Rehabilitation of coastal erosion sites on Epi</li> <li>• Agroforestry awareness and training conducted on Epi and Pentecost</li> <li>• Vetiver grass multiplication plot set up in central Pentecost</li> <li>• Distribution of Fence (cattle/pig) at East Pentecost</li> <li>• Distribution of vegetable seeds at West Epi &amp; Central Pentecost</li> <li>• Purchasing of 2 quad bike (Pentecost/Epi)</li> <li>• Fruits and Vegetable strategy ( in progressed to complete)</li> <li>• Training of students from RTC in Ambae</li> <li>• Development of UMCCA plans for Aniwa, Epi and Pentecost (Agroforestry &amp; water Catchment)</li> </ul>	 <p><i>Upland activities implemented in 2016</i></p>
------------------------------------	--	---

**Second National Communications (SNC) Project**

Component	2016 Outputs	Pics/Charts/Maps
-----------	--------------	------------------

<p>Report Development</p>	<ul style="list-style-type: none"> <li>• SNC draft report developed</li> <li>• SNC draft report reviewed by and endorsed by the NAB</li> <li>• SNC report presented and endorsed by the CoM</li> <li>• SNC report professionally edited and published by UNDP Fiji</li> <li>• SNC Report officially submitted to UNFCCC and published on UNFCCC website</li> <li>• Formulation of Third National Communications project prepared and submitted for funding through UNDP</li> </ul>	
<p><b>iCLIM Project</b></p>		
<p><b>Component</b></p>	<p><b>2016 Outputs</b></p>	<p><b>Pics/Charts/Maps</b></p>
<p>NAB Portal Upgrade</p>	<ul style="list-style-type: none"> <li>• Request for support through SPREP RTSM to finance NAB Portal upgrade</li> <li>• Development of ToR for consultant</li> <li>• Recruitment and mobilization of consultant with 2 missions to Vanuatu</li> <li>• Training of key VMGD/MoCC staff on new portal features and handover</li> <li>• M&amp;E of RTSM support to Vanuatu based on portal upgrade</li> </ul>	 <p><i>Training with VMGD ICT division</i></p>



# DEPARTMENT OF ENERGY



*This document comprises a collection of reports submitted by responsible officers of different programs within the Department of Energy and compiled by the Director. These reports are against the 2016 Business Plans as required by PSC through the Director General's office of the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management.*

## Director's Message

---

The year 2016, without realizing, was consumed by very hectic schedules and activities and went just like a blink of an eye. As usual, the Department continues to commit itself to fulfill its obligations and deliver the targets for the Energy sector as iterated in the National Energy Road Map (NERM) 2013-2020.

Post Cyclone Pam in 2015, Climate Change and Energy (seen as remedies for Climate Change issues), have become part of the global agenda. This is especially so after the COP 21- Paris Agreement where out of 194 countries that signed the Agreement, only 132 nations as of the 21<sup>st</sup> September 2016 ratified the Agreement including Vanuatu. With this particular commitment, we could see a lot of effort and focus made to the energy sector as compared to previous years.

New projects continue to emerge as most bilateral and multilateral partners see energy as a flagship sector for them. Major projects began implementation and some have been successfully commissioned as reflected in this Annual Report. We celebrate seeing more families in the rural and urban areas of Vanuatu connected to electricity in 2016 and the testimonies of this achievements are the outcomes of the dedicated work of the staff and consultants of the Department, and the private sector who have contributed significantly to energy development in Vanuatu.

With an increase in the recurrent budget compared to 2015, the Department managed to recruit two permanent staff, the Manager Finance, Procurement and Administration and the Driver-Messenger. Additional human resources were provided as local consultants to manage or coordinate the various development partner funded projects. These additional resources have boosted the pace of delivering projects and contributed immensely to building the capacity of the young team of the Department. It is promising to see our local consultants building the capacity of their country fellows.

As one of the key achievements for 2016, the NERM 2013-2020 was successfully updated and launched in October 2016 by the Honorable Minister for Climate Change Ham Lini Vanuaroroa (MP). The update now provides a more realistic vision of the energy sector priorities, updates timing for each of the sector priorities and a clear roadmap of investment that will enable the Government through the Department and private sector to successfully deliver its set targets in the NERM.

It has truly been a busy year and I applaud all the staff and consultants of the Department for the effort and support provided to this Department. I look forward to another year of more achievements in 2017.



Antony Garae, Director  
Department of Energy

## Overview

---

### About Department Of Energy

The Department of Energy (DoE) is one of the Departments under the Ministry of Climate Change Adaptation, Meteorology, Geo-hazards, Energy, Environment and National Disaster Management Office. Its mandate is vested in Vanuatu's National Energy Roadmap (NERM) and the activities, policies, programs and projects implemented by the Department all contribute to achieving the policy priorities and targets stipulated in the NERM. DoE's role is beyond policy and legislative development for an effective energy sector. As part of its ongoing responsibilities, the DoE also identifies, implements, manages, evaluates and monitors energy programs including projects. Hence, the composition of its staffing resources are a reflection of this multitasking role.

### Vision

The vision of the DoE is the vision of the NERM, which is "to energise Vanuatu's growth and development through the provision of secure, affordable, widely accessible, high quality, clean energy services for an Educated, Healthy and Wealthy Nation".

### Mission

DoE's mission is "an Effective, Equitable and Efficient Energy Sector", the mission of the NERM.

### Principles

The guiding principles of the DoE and operation of the Department and its staff are as follows:

**Trustworthy:** A trusted Department, staff and the quality of its services are trusted.

**Respect:** The Department, staff and consultants respect all beliefs, views and allow for these different opinions to form the core of how work is approached and the quality of the service provided. Every individuals including

stakeholders that interact with the Department, staff and consultant are treated with respect, regardless of status, gender, age etc.

**Young team:** An energetic young Department and staff who have the passion for work and deliver high quality results, while growing in maturity to take on higher challenges.

**Team work:** An environment where everyone plays a role in supporting each other regardless of different areas of works. Our focus is to strive for high quality service that is reflecting a team work approach.

### Objectives

The DoE's objective is to ensure that all residents of Vanuatu have access to clean and affordable power, and energy is efficiently utilized. This will be achieved through the following:

- An enhanced service delivery by the department;
- Explore greater diversity of energy sources;
- Improved current access to electricity;
- Advanced energy efficiency and conservation methods;
- Strengthened energy linkages with other Government stakeholders, industries, private sector and communities to achieve better developmental outcomes; and
- Promoting a reliable, secure and affordable petroleum and gas supply chain to residents of Vanuatu.

### Areas of Responsibility

The DoE is the main Government arm for all matters relating to the energy sector. This includes but is not limited to, energy policies, energy legislations, electrification, petroleum, energy efficiency & conservation, and energy advocacy and trainings.

## Programs, Functions and Sectors Served

The DoE has three (3) units:  
 1. Administration, Finance & Procurement;  
 2. Energy Security Unit; and  
 3. Electrification Unit.

Efficiency & Conservation, Petroleum, Subsidy Scheme, Rural Electrification and Urban Electrification. The Table below shows the functions for these 6 programs

There were six (6) main programs under these three units, namely; Administration, Energy

**Table 1: DoE Programs & Functions**

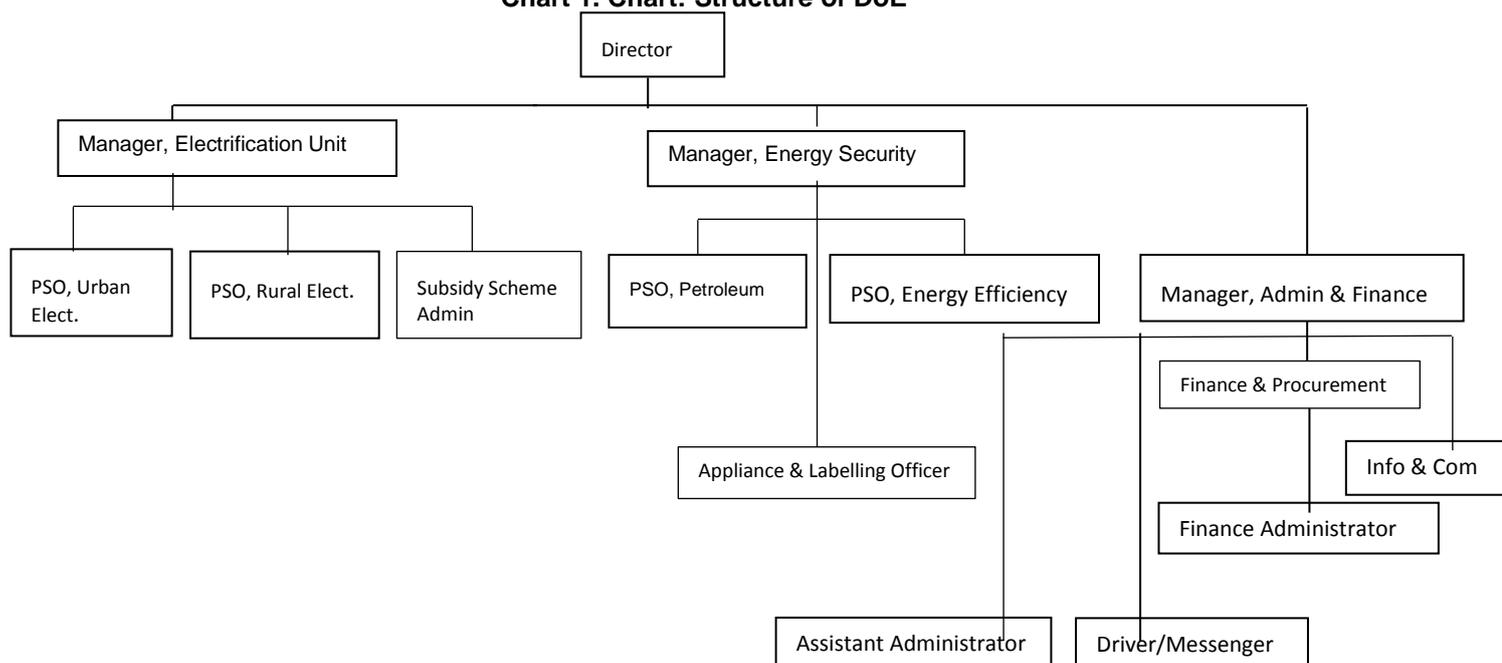
Administration	Electrification	Energy Security				
Administration	Urban Electrification	Rural Electrification	Energy Efficiency & Conservation	Petroleum	Subsidy Scheme	Programs
<b>Office Administration</b>	Grid extensions	Resources assessment	Energy audits	Data collection	Implementation of Subsidy	Functions
<b>Policies</b>	Household connections	Electrification	Data collection	Supply & Price Monitoring	Data collection on subsidy	
<b>Finance &amp; Procurement</b>	Legislation	Trainings	Legislation	Trainings	Monitoring, Evaluation & Verification	
<b>Assets management</b>	Trainings	Awareness	Trainings	Awareness		
<b>Capacity training</b>	Awareness		Awareness			
<b>The overall energy sector development</b>	Urban energy sector or concession areas	Rural energy sector (outside of concession areas)	Urban & Rural energy sector	Petroleum Sector	Rural and Urban energy sector	Sectors

## Structure and Staff

Figure 1 below is a schematic of the DoE approved structure in 2016. While there were 15 established positions in the DoE structure in 2016, only 7 positions were filled by permanent staff. The Table below lists the names of the staff in permanent positions. While the Director's position was filled in 2016, the promotion of Mr Garae resulted in the PSO Urban Electrification left vacant. As a result, all activities relating to urban electrification were carried on by the Director. In addition, the

retirement of Manager (Energy Security) later in 2016, also left the responsibilities having to be shared within the staff of the Department. On the positive side, the move by the former Project Finance Officer to the Manager, Admin and Finance position was a smooth transfer resulting in the section further strengthened. Project finances were also not affected as the Manager, Admin and Finance position also has an oversight responsibility over project finances.

**Chart 1. Chart: Structure of DoE**



PSO – Principal Scientific Officer

Elect. – Electrification

Admin – Administration

Info & Com – Information & Communications

DoE in 2016 was also heavily staffed with consultants recruited on contract to support the implementation of a number of projects and programs. In most cases, these contracted officers also performed responsibilities of permanent positions while also undertaking their contracted services. While this is not usually expected, this approach created a

stronger team approach to work and within the Department and thus, obligations required by DoE was completed, depicting to public of a strong capacity within DoE. It is also equally important to note that assigning DoE responsibilities to contracted staff is a strategy to also expose them to roles in permanent positions. This could facilitate applications for the role once advertised.

**Table 2: Permanent DoE Staff**

Name	M/F	Position	Date of Entering PSC/Assignment	Employment Status
Antony Garae	Male	Appointed as Director of the Department later in 2016.	October 2013	Permanent
Leo MOLI	Male	Energy Security Manager	February 1982	Permanent but later retired in 2016
Emma MALA	Female	Finance Administrator	June 2000	Permanent
Terry MAEL	Male	PSO Petroleum	October 2013	Permanent
Kathy KANAS	Female	Finance & Procurement	December 2013	Permanent
Christopher SIMELUM	Male	PSO Rural Electrification	January 2014	Permanent
Joseph TEMAKON	Male	PSO Energy Efficiency & Conservation	January 2014	Permanent

**Table 3: Contract Staff of DoE**

Name	M/F	Position	Date of Entering PSC/Assignment	Employment Status
Jerry LAPI	Male	GPOBA IVA	November 2014 Renewed Nov 2015	Contract and did not renew contract towards end of 2016
Willie WILSON LEWA	Male	PALS Local Support Officer	August 2016	Contract ( Funding from PALS –SPC)
Elizabeth WAIWAI	Female	Project Implementation Assistant	September 2014, Renewed June 2015 and contract was further extended in 2016	Contract (funding from ESDP)
Paul KAUN	Male	GGGI National Expert	March 2015	Contract with GGGI
Hellen WILSON	Female	Project Finance Officer Finance Manager	March 2015 August, 2016	Originally recruited on Contract (under ESDP) since March 2015 and later was appointed to the Finance Manager position with DoE
Brett RAKAU	Male	Communication Officer	2 <sup>nd</sup> November 2015 Renewed Contract Nov 2016	Contract (funding from ESDP)
Leith VEREMAITO	Male	VREP Program Manager	September 2015	Contract
Joshua NARI	Male	VREP Independent Verification Agent (IVA)	January 2016	Contract
James ALICK	Male	Project Officer		Contract not renew in 2016

## Funding Basis

For permanent officers, their personnel emoluments were being met from the 2016 recurrent budget allocation. For contract officers, their remunerations were being met from respective development partner funded projects.

Goods and services of the Department were met from both Government recurrent budget as well also allocations from some of the project funding.

### **Breakdown of Total allocation from Government Recurrent Funding:**

Personnel Emoluments was 22,298,856 Vatu  
Operations (goods & services) was 5,357,836 Vatu

### **Total Government budget allocation was 27,656,692 Vatu**

For Projects, Table 4 below provides the lists of ongoing, implemented, managed or monitored by the DoE team in 2016. Note that total amount of donor funded projects is quite significant for a newly created Government institution to manage and the roles of contracted staff was important to ensure that these projects continue to be implemented to support Vanuatu's development. In addition to these ongoing projects, DoE team were also heavily involved in developing policies and legislations to create the platforms for the sustainability of these projects and those in pipeline.

**Table 4: List of Projects managed by the Department of Energy**

Project	GIP Code	Donor	Amount (Vatu) in '000	Status
Global Partnership on Output Based Aid (GPOBA)	14D363	World Bank	400 million	Ongoing
Energy sector Management Assistance Program (ESMAP)	14B963	SIDS fund through the World Bank	100 million	Ongoing
Talise Micro Hydro Project Phase II	09I263	Italian Fund through IUCN	20 million	Ongoing
Pacific Appliances & Labeling Standards (PALS)	13D163	SPC	8 million	Ongoing
Technical Advisory Services to Department of Energy	16B263	Government of Australia Fund managed through Governance for Growth	65 million	Ongoing
Solar PV Grid Connected Systems for Parliament Complex and Meteo Complex	14C963	UAE	500 million	Completed in 2015 Operational at site – Meteo Complex & parliament House
Vanuatu Rural Electrification Project (VREP I)	O9I263	New Zealand funding managed by World Bank	470 million	Ongoing
Biofuel Projects for Malampa, Penama & Torba	13A464	European Union GoV	191 million 218 million	Ongoing
Total			<b>1,972 million</b>	

## Ministry and Policy Framework

### Ministry, Minister and Director General

As compared to previously where the Ministry of Climate Change was under the leadership on a number of Ministers, 2016 was a more stable period. The Ministry was only under leadership of one Minister since his appointment in early 2016. A Parliamentary Secretary for Climate Change was established and an experienced former Director of the Department of Environment, Protection and Conservation was appointed to that position but later the changes in personnel did not affect much the Ministry and the DoE.

DoE however, was fortunately to have its former Director appointed to the Director General position for the Ministry. This proved

quite useful for the Department unfinished and major activities planned under his Director leadership were continually carried on and supported from the DG's level. Furthermore, this allowed for the Power On-grid offices to be appointed into the Directorship role thus further reinforce the capacity within the Department.

### Policy Frameworks - National, Regional and International

The Government policies that guided the work of the Department in the period January to December 2016 were:

1. National Energy Road Map 2013 – 2020
2. Updated National Energy Road Map 2016 - 2030

3. Priorities & Action Agenda 2006 – 2015, Chapter 9.4
4. National Energy Policy of 2007
5. Rural Electrification Policy of 2003

The National Energy Road Map (2016-2030), in particular is the policy document for the DoE. The updated version which was developed and finalized in 2016 was a review of the energy sector achievements and status to date and provided a road map going into 2030 and able to achieve the targets. These targets fed into

the National Sustainable Development Plan (NSDP) that was developed as the overarching national policy for the Vanuatu Government.

In addition, 2016 also saw the new Government develop its 100-day plan. The plan documented what was to be achieved within 100 days from their appointment. For DoE, a number of important activities were listed to be achieved, all of them were achieved within the required timeframe in 2016.

## About this Report

---

This 2016 Annual Report outlines the activities and projects implemented by DoE in the 2016 calendar year and reports on the achievements from implementing the activities.

### Reporting Requirements

This Annual Report is a requirement from the Public Service Commission for all institutions to provide on an annual basis.

### Reporting Processes

The Annual Report comprises of a collection of feedbacks from all the staff of DoE and the contractors. This report is a reporting against the 2015 Business Plan as required by PSC through the Director General's office of the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management.

## Performance 2016 Review

---

**Table 5: Department Performance**

Key Area	Key Results and Highlights
Institutional	<ul style="list-style-type: none"> <li>• Appointment of the new Director of DoE</li> <li>• Finalisation of a new design of DoE building and completion of the tendering of the works</li> </ul>
Policy	<ul style="list-style-type: none"> <li>• Revision, Finalisation, Printing, Launch (October 2016) and Distribution of the updated Vanuatu National Energy Road Map 2016-2030</li> </ul>
Programs/Functions	<p><b>Administration</b></p> <ul style="list-style-type: none"> <li>• Appointment of a permanent staff to the Manager, Finance, Procurement and Administration</li> <li>• Recruitment of two (2) Project Officers – VREP Independent Verification Agent and PALS Project Officer</li> </ul> <p><b>Energy Efficiency &amp; Conservation</b></p> <ul style="list-style-type: none"> <li>• Bill for the Energy Efficiency of Electrical Appliances, Equipment's and Lighting Products Act of 2016 developed and approved by Parliament</li> <li>• Two (2) Energy Audit Report published for the Vanuatu Police Force &amp; Northern District Hospital</li> </ul> <p><b>Off-grid Electrification</b></p> <ul style="list-style-type: none"> <li>• VREP officially launched and products sold by two (2) approved vendors</li> <li>• 691 households (approx. 3,247 people) obtained access to electricity through VREP I</li> <li>• 50 community halls throughout Vanuatu provided access to electricity via VREP I</li> </ul>

	<ul style="list-style-type: none"> <li>• 74 households of Loltong community obtained access to electricity through Loltong pico-hydro system</li> <li>• An additional NZ\$7m allocated by New Zealand MFAT towards rural electrification in Vanuatu</li> <li>• Feasibility study document for Renewable Energy for Small Remote Islands finalized and distributed</li> </ul> <p><b>On-grid Electrification</b></p> <ul style="list-style-type: none"> <li>• Over 771 households connected to main grid on Luganville, Tanna, Efate and Malekula since the commencement of Global Partnership Outputs-Based Aid (GPOBA) Program</li> </ul> <p><b>Petroleum</b></p> <ul style="list-style-type: none"> <li>• Successful Regional Workshop in Energy, Efficiency &amp; Maritime Transport which agreed on the directions for consideration by the Pacific Regional Energy and Transport Ministers meeting in Tonga on April 2017.</li> </ul> <p><b>Subsidy</b></p> <ul style="list-style-type: none"> <li>• Over 700 VREP products roles through subsidy</li> <li>• Over 771 Grid customers connected through subsidised GPOBA funding</li> </ul>
Outreach	<ul style="list-style-type: none"> <li>• DoE twitter, Facebook and VREP Facebook sites created</li> <li>• Over 500 viewers; 20 followers of twitters</li> <li>• VREP webpage created and published</li> <li>• VREP awareness completed on islands of Santo, Malo, Aore, Ambae, Tanna, Malekula, Vanua Lava, Mota Lava, Emae, Ngunu and Pele</li> <li>• Over 7 radio awareness (including Tok-Back show) on VREP and renewable energy</li> <li>• Over 10 awareness conducted on PALS to public and schools throughout Vanuatu</li> <li>• Combined VREP, GPOBA and PALS to communities on Malekula</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• Completion of the installation on Loltong pico-hydropower project</li> <li>• 767 Kilowatt grid connected solar farms (Parliament Building and Meteo complex) operational after launch in early 2016</li> <li>• Signing of 1<sup>st</sup> Power Purchase Agreement (PPA) between Government of Vanuatu and UNELCO</li> <li>• Completion and commissioning of the five (5) biodiesel micro-grids on Ambae and Vanua Lava (i.e. Sola, Mosina, Saratamata, Lolowai and Longana Airport)</li> </ul>
People	<ul style="list-style-type: none"> <li>• Three (3) new Project Officers recruited to assist Project implementations</li> <li>• Former Project Finance officer appointed to Manager, Finance, Procurement and Administration</li> </ul>
International Meetings/Workshops	<ul style="list-style-type: none"> <li>• Intended Nationally Determined Contribution (INDC) workshop in Brussels (Joseph and Antony)</li> <li>• IRENA 6<sup>th</sup> General Assembly, Abu Dubai (Antony)</li> <li>• IRENA Innovation week – Bonn, Germany (Antony)</li> <li>• Training Program to support Renewable Energy Deployment in the Asia and Pacific Island Nations, Tokyo, Japan (Chris)</li> <li>• Pacific Regional Capacity Building Workshop on Energy Service Companies, Suva, Fiji (Antony &amp; DG Jesse)</li> <li>• Regional Dialogue on INDCs for the Pacific Islands, Nadi, Fiji (Joseph and Antony)</li> <li>• Regional Efficient Lighting Meeting, Bangkok, Thailand (Joseph)</li> <li>• Monitoring and Evaluation training, Canberra, Australia (Helen)</li> <li>• Join SPC APEC Regional Workshop on Energy Statistics for modeling for SDG, Nukualofa, Tonga (Antony)</li> <li>• Training on Minimum Standard Energy Performance Standards and Labeling Standards, Suva, Fiji (Alfred and Joseph)</li> <li>• Annual OPA Oil Spill Exercise, Pago Pago, American Samoa (Terry)</li> <li>• Field Study on Deployment of RE and integrations into local grids, Honolulu, Hawaii (Leith and Chris)</li> <li>• Energy Planning Meeting, Suva, Fiji (Antony, Paul, Chris, Joseph, Helen and Gregoire Nimbtik)</li> </ul>

	<ul style="list-style-type: none"> <li>Regional ISAC Meeting, Nadi, Fiji (Chris)</li> <li>Annual Clean Energy Forum, Manila, Philippines (Emma)</li> <li>Pacific Energy and International Maritime Organization (IMO) meeting, Port Vila, Vanuatu (Terry)</li> </ul>
Finances	<ul style="list-style-type: none"> <li>DoE Budget increased from VT22.65m in 2015 to 27.65m in 2016.</li> <li>Total donor funded projects increased significantly in total funds after approval of the additional NZ7m. Total funds managed in 2015 was over 1.9 billion Vatu</li> </ul>

## 2016 Priority Activities and Results

Programs and Objectives required by the 2016 Business Plan and results are summarized in the table below with further commentary provided.

**Table 6: Department (Business Plan)**

Programs	Objective (Targets)	Result ✓ ✗	Result Summary
<b>Administration</b>	Ensure an Enabling Working Environment	✓	<ul style="list-style-type: none"> <li>Design of new DoE building and costing finalised and submitted for tender</li> </ul>
	Strengthen Policy Planning and Legislative Framework	✓	<ul style="list-style-type: none"> <li>Funding for the new office was secured and tender commenced.</li> </ul>
	Ensure Timely and Quality Reporting	✓	<ul style="list-style-type: none"> <li>Updated NERM finalised, printed, launched and distributed</li> </ul>
	Strengthen Institutional Capacity	✓	<ul style="list-style-type: none"> <li>Reviews completed on the Electricity Supply Act, URA Act, Geothermal Act, Petroleum Act and Waste Management Act</li> <li>Draft concept for the National Green Energy Fund issued for review by Government and stakeholders</li> <li>Staff appraisals; project reports; mission reports and 2015 Annual Report were all completed and submitted</li> <li>Director and Manager, Finance and Procurement were recruited while interviews for driver were completed and submitted to PSC</li> <li>Train the trainer training for women on Tanna was successfully conducted and all women who attended were well trained on pico-solar management</li> <li>Standard report templates for DoE were completed and staff commenced using the template.</li> </ul>
<b>Urban Electrification &amp;</b>	Increase Household Access to Electrification in Concession Areas	✓	<ul style="list-style-type: none"> <li>Over 771 new household connected via GPOBA program since program commenced</li> </ul>
	Improve Affordability in Concession Areas		<ul style="list-style-type: none"> <li>Contract for Transaction Advisory Service support to</li> </ul>

Subsidy Scheme		✓	<p>the tender of Luganville awarded and team commenced assignment</p> <ul style="list-style-type: none"> <li>Request for Qualifications (RPQ) for the Tender of Luganville issued</li> </ul>
Rural Electrification & Subsidy Scheme	<p>Increase Households, Aid Posts and Community halls access to Electrification in Off-grid Areas</p> <p>Improve Affordability in off-grid Areas</p>	<p>✓</p> <p>✓</p>	<ul style="list-style-type: none"> <li>VREP I launched successfully and 2 vendors approved to sell VREP products</li> <li>74 households connected to Loltong pico-hydropower systems</li> <li>50 community halls connected via VREP</li> <li>691 households (approx. 3,247 people) access electricity via VREP products</li> <li>Over 50 sites identified and visited to assess their hydropower potential</li> <li>Contract for electrical reticulation systems for Talise micro hydropower awarded</li> <li>Over 300 meter boxes installed on Vanualava and Ambae via Biofuel project</li> <li>Five (5) VREP subsidy claims processed</li> </ul>
Energy Efficiency & Conservation	Ensure Effective Enforcement of the Legal Framework on Energy Security	✓	<ul style="list-style-type: none"> <li>Bill for the Energy Efficiency of Electrical Appliances, Equipment's and Lighting Products Act of 2016 developed and approved by Parliament</li> <li>Two (2) Energy Audit Report published for the Vanuatu Police Force &amp; Northern District Hospital</li> <li>Over 10 awareness conducted on PALS to public and schools throughout Vanuatu</li> </ul>
Petroleum	Support Reliable Options for Cost Savings in Petroleum and Gas Supply Chain	✓	<ul style="list-style-type: none"> <li>A memorandum of understanding between DoE and NETOIL was signed</li> </ul>

### Additional achievements beyond achievements of the Business Plan

**Table 7: Department (Additional Activities)**

Programs	Objective (Targets)	Result ✓ x	Result Summary
Administration	<p>Ensure an Enabling Working Environment</p> <p>Strengthen Policy Planning and Legislative Framework</p> <p>Ensure Timely and Quality Reporting</p> <p>Strengthen Institutional Capacity</p>	✓	<ul style="list-style-type: none"> <li>A finger print register machine was installed in the Department to accurately record attendance</li> <li>Over 3 general radio awareness were done on renewable energy for the Vanuatu public</li> </ul>

Urban Electrification & Subsidy Scheme	Increase Household Access to Electrification in Concession Areas Improve Affordability in Concession Areas	✓	<ul style="list-style-type: none"> <li>• A grid stability report undertaken for Luganville electricity concession and a separate one commissioned by UNELCO for Port Vila.</li> <li>• Feasibility study on viability of Sarakata River hydropower to receive additional generation capacity completed and submitted to Government</li> </ul>
Rural Electrification & Subsidy Scheme	Increase Households, Aid Posts and Community halls access to Electrification in Off-grid Areas Improve Affordability in off-grid Areas	✓	<ul style="list-style-type: none"> <li>• VREP II preparation documents finalised and submitted to the World Bank for submission to development partners;</li> <li>• A draft Green Climate Fund (GCF) proposal developed and shared with Government of Vanuatu</li> <li>• Wintua &amp; Lorlow villages on South West Malekula and Melsisi on Pentecost identified as potential for mini-grid systems to be funded through Austrian Government</li> </ul>
Petroleum	Support Reliable Options for Cost Savings in Petroleum and Gas Supply Chain	✓	<ul style="list-style-type: none"> <li>• Biogas project feasibility study on Onesua Presbyterian College completed and design underway</li> </ul>

## Department (Business Plan)

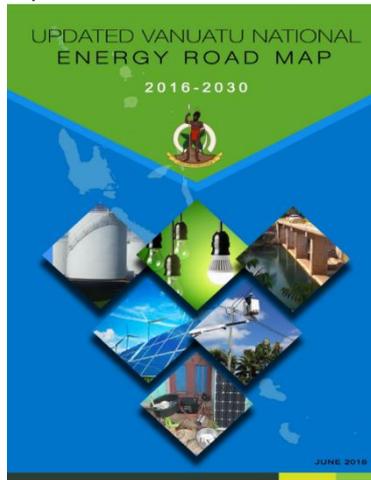
To Enhance Service Delivery of the Department: Following the amendment of the Department of Energy structure in August 2015, the DoE received a supplementary budget in 2016 for recruitment. In April 2016, the Director General of MoCCA appointed all Officers acting on the positions into the positions in the new structure. In November 2016, the process of recruitment for 4 posts were advertised: Electrification Manager, Finance & Administration Manager, PSO Urban Electrification and Driver & Messenger. The post of Finance & Administration Manager was successfully recruited while the other 3 posts will be completed in the first quarter of 2017.



Figure 1: DoE staff at end of year function .

In addition, a number of contracted officers were also recruited, particularly the Junior IVA for the VREP, Project Officer for PALS and Project Coordinator for ACSE Project. Other contract officers also had their contract extended. Unfortunately during this period, DoE also lost the former PALS Project Officer and GPOBA IVA and this had a negative impact on the workload of the Department. Nevertheless, the Department was able to cope with the loss and was able to

reprioritize its resources, successfully continuing the tasks required under the positions.



In an effort to align newly proposed Energy Sector strategic plans with the Government's National Sustainable Development Plan (NSDP-The People's Plan), the DoE updated the National Energy Road Map to capture recent developments in the sector, create new Energy Policy Objectives and incorporate Green Growth to support key economic sectors such as Tourism and Agriculture. The updated NERM (2016-2030) was prepared by the Department and supported by consultants. This was a huge achievement for the Department of Energy as it gave the opportunity for key energy stakeholders including development partners a view of energy partnership and growth for the next 15 years.

The transformation of the energy sector also required the Department of Energy to conduct review to the existing legislations. The DoE engaged a consulting firm to review the Electricity Supply Act, URA Act, Geothermal Act, Petroleum Act and the Waste Management Act. These reviews have been submitted to the State Law Office for legal reviews and will be submitted to the CoM for endorsement.

Improve Access To Electricity: Access to electrification are categorized into two parts:

### 1. Rural Electrification (for rural and remote households)

In January 2016, the Vanuatu Rural Electrification Project (VREP Phase 1) was launched on Tanna. As part of the launch, a Product Catalogue was published with 6 products and 2 local vendors. Phase 1 focuses on the 'Plug and Play 5-30 Watt Solar Home System' and by December 2016, there were over 50 community halls and 691 households (with an estimate of 3,247 residents) that were electrified through the VREP.



Figure 2: A VREP beneficiary (far right) smiling with her product.



Figure 3: Community at Lolong assist with Pico-Hydro Project installation.

Working to improve electricity access to rural people in Vanuatu requires collective effort from both the Department and the communities themselves. The connection of over 74 households (347 people) on Lolong community at North Pentecost is a classic example of a collaborative efforts of DoE, the community, which involves both men and women and two donors – MFAT and DFAT. The result of their efforts was a dream come true for the community when a new pico-hydropower system was installed and ready for launch in early 2017. Such collaborative engagement will be what will be encouraged moving into 2017 when more installations will be made to rural communities throughout

the country.

DoE was also involved in the tender of the electrical reticulation system for the Talise micro-hydropower project. Its strong involvement in the tender resulted in a contract awarded to a company to complete the electrical reticulation system for the min-hydropower project. This work will continue in 2017 before it is launched.

An outstanding and ongoing effort of the Department was to complete the installation of the biofuel mini-grid systems on Ambae and Vanua Lava. The result of the effort saw the installation of the grid system completed and several meters installed. Connections are expected in 2017 after the Project is launched.

To ensure that systems previously installed are continually functioned and provide access to electricity, DoE was also involved in a review of the M3P program, a South Pacific Community (SPC) funded initiative. A DoE staff officer was involved in the review as well as undertake training to the mamas on Tanna Island. The result of the efforts was that a number of women were trained in the systems.



Figure 4: DoE staff undertaking training with mamas on Tanna Island.

## 2. Urban Electrification (implemented in urban and peri-urban centers)



Figure 5: Vate Electrics staff carrying out household service connection process to a household on Tanna Island.

The target beneficiaries for the GPOBA Program are low income households who reside within the Electricity Concession of VUI Ltd in Santo and UNELCO Ltd in Malekula, Efate and Tanna. The GPOBA Program is administered by the World Bank and provides subsidizes of up to 80% of the household connection fee, thus making it affordable for Low Income Households to obtain a household connection. As at December 2016, there are now 771 new households (categorized as low income) were electrified via GPOBA program.

Achieve Greater Diversity Of Energy Sources: In 2016, the DoE commissioned a study to map out the potential for small hydropower systems in Vanuatu with a view to develop a database which can be utilized by Government and private investors. The result of the assigned was that more than 20 sites were identified with the potential to deliver electricity above 30 kilowatts. The complete GIS database and maps are expected to be completed in 2017. DoE also commissioned a Grid stability study on the Luganville electricity grid and the report is expected to be submitted in 2017. In parallel, UNELCO also undertook a grid stability study which hope once the report is published in 2017, will provide more information on the potential for adding of further renewable generation capacity to the current Port Vila grid.

To understand further the opportunities and challenges of delivering rural electrification in remote island communities, DoE was also involved in a feasibility study on renewable energy –based off grid electrification Master Plan for the Remote Islands. This study was useful in that it provided a greater understanding to the Department on the opportunities and challenges of these areas, which often is underestimated in previous inputs. Furthermore, the report serves useful as it enable the Department to feed the information into the design of VREP II, a much more substantial investment plan to electrified rural communities throughout the country through Solar Home Systems (SHS) as well as micro and mini-grids.

To Reduce Cost Of Energy In Urban Areas: As part of ongoing efforts to reduce cost of energy in urban areas, DoE held regular dialogues with the Utilities Regulatory Authority (URA) in 2016 on the review of its Act to explore areas in which the Act can be strengthened in order to enable URA to effectively undertaken its task with a view to regulate better prices and reduce the costs of electricity in urban areas.

DoE also undertook an energy audit on the Northern District Hospital (NDH) premises and provided recommendations to the Manager of the hospital. Through the implementation of the recommendations, NDH was able to report a savings of VT500,000 per month in its electricity bill (refer to quote). This is a remarkable result from an audit which only cost around VT50,000.

*“We have managed to halve our electricity bill, from paying an average of one million vatu per month, to now paying only half that amount and as a hospital, we are very grateful for the DoE’s support and cooperation in achieving this result,” Ms Tagaro remarked (Daily Post Issue of 3 December 2016).*

DoE's ongoing role in implementing the GPOBA program is an attempt to reducing cost to low income customers in the urban areas to connect to the grid. To date, the subsidy provided through this program has made electricity connection more affordable as compared to previously where cost of installing a meter is more than VT50,000. Low income earners are now paying just less than Vt20,000 to be connected to a Vanuatu Utilities Infrastructure (VUI) or UNELCO meter.

A clear example of reducing electricity costs is the installation of the 767-kilowatt solar panels which generate power to the grid while also offsetting the electricity bill for the Parliament Building and Ministry of Climate Change. Since the system is connected and the Power Purchasing Agreement (PPA) was signed in 2016, the two agencies have made major savings to their electricity bills.



Figure 6: Part of the 767 kW solar plant at the Parliament Park

Promote reliable, secure and affordable petroleum and gas supply: Having reliable, secure and affordable petroleum and gas supply for the country like Vanuatu is continually a challenge especially as most petroleum is imported. DoE's role in the sector has been more a monitoring role than directly involve in the gas and petroleum sector. Nevertheless, there are a number of important activities that DoE does in order to ensure that gas and petroleum continues to flow to Vanuatu. DoE's role has been checking the safety and environment operations of the major fuel and gas companies and through these efforts, no fires, spill or accident was experienced in 2016.

Furthermore, DoE has also an observation role in the quality of fuel that enters into Vanuatu. Through this monitoring role, no issues have been flagged to date regarding the quality of fuel in Vanuatu. Also through these efforts, Pacific Petroleum, the main supplier of fuel to Vanuatu, has announced that it will now consistently bring in cleaner diesel fuel of 10 ppm and premium unleaded petrol. Some efforts were also made in trying to ensure that reliability, security and affordability of gas and petroleum are also captured in the amendments to the legislative frameworks that were done in 2016. Although these amendments were not approved in 2016, they are now more likely to be considered in 2017 and once implemented, will have some major positive impacts. DoE's efforts have also resulted in Pacific Petroleum declaring its intention to establish a fuel storage on Malekula. While this is yet in infancy stage, the storage facility will assist with reducing cost of fuel, provide more secure transportation of fuel and enable people on Malekula can have a more reliable fuel supply.



Figure 7: DoE staff and Commissioner of Kiribati Oil on an observation deck.

Advance energy efficiency and conservation methods: In 2016, DoE was heavily involved in the development of the Minimum, Energy Performance, Standards and Labeling (MEPSL) Bill. As part of developing the Bill, a number of awareness were undertaken throughout the country to inform the public, private stakeholders and students on the Bill. Efforts were also made to brief the relevant Ministers and Parliamentarians on the Bill before the Bill was submitted to Parliament. The result of all the effort was the Bill being approved by Parliament in late 2016. The Bill will be gazetted and then enforced by the Department from 2017.

## Department (Additional Activities Not in Business Plan)

Enhance Service Delivery Of The Department: There were several key features within DoE had greatly enhanced service delivery for 2016 was:

- The installation of the figure print recognition register, replacing the old timecard machine. This device is connected to the Office Administrator's computers including the MoCCA's HR, thus monitoring staff attendance as required by PSC. This device has seen an overall improvement of staff attendance throughout 2016.
- Vehicle Log Books were introduced in 2016 for both vehicles. DoE staff are regularly reminded to use the Log Book at all times as there was no designated Driver and to ensure daily records of vehicle (in terms of fuel consumption, Kilometer per trip, etc) are effectively monitored and maintained.
- Creating more awareness through media. In 2016 DoE staff utilized Radio Vanuatu's Talk Back Shows to talk about existing and future Energy programs, thus raising Energy Sector portfolio as a means of sustainable economic development for Vanuatu. Talk back shows are encouraging as people throughout Vanuatu listen and are able to participate in the discussions.

Improve access to Electricity: In addition to the tasks mentioned in the 2016 Business Plan, DOE staff were also involved in a number of major initiatives which once implemented, will contribute a lot to increasing access to electricity throughout Vanuatu.

- Along with a team of interested Korean investor, DoE staff were involved in the preliminary study of the potential to provide electricity to villages of Wintua and Lorlo on Southwest Malekula, and Melsisi on Central Pentecost. A report is yet to be published and once published, will be pursued in 2017.
- In partnership with the GGGI and UNDP, DoE staff were also involved in the development of a draft Green Climate Fund (GCF) concept note to increase access to electrification throughout the country. The concept, if approved, will result in a substantial boost to the current access rates and will complete efforts already done in increasing access within the grid and off-grid areas.
- A major task was the development of VREP II concept and preparation of documents for the approval of the VREP II program. The VREP II program is targeting rural communities through SHS, micro and mini-grids. Once implemented, it paves the way for additional investments to be sourced using the same mechanism. In addition to the preparation work, DoE staff were also involved in lobbying donor investment to the Program. The result of the efforts was that New Zealand MFAT approved over NZ\$7million to be invested in the energy sector in Vanuatu. This is a remarkable achievement to attract the level of funding and especially, to attract NZ funding which has not been the experience in the past.



Figure 8: Sample of bigger solar systems that VREP II will be targeting.

Achieve Greater Diversity Of Energy Sources: In addition, continued progress was made in exploring other renewable energy sources for the country to tap into. These are researched as part of specific projects and also encouraged through the updated NERM. These efforts will continue with the hope to make the results available to the Government and investors for their investment. A result of these efforts is the installation and handing over of the 767 Kilowatt of solar panel systems which were connected to the grid in Port Vila. These solar systems are feeding additional power to the grid while also offset the electricity bills for the Ministry of Climate Change and Parliament House. To date, substantial savings have been made on electricity bills for the two institutions.

DoE through the recent reviews of the existing legislations and regulations affecting the sector, is also aiming to ensure that there legislative frameworks are conducive to enabling greater integration of the renewables and other energy sources to the current generation. A key electricity generation potential is geothermal on Efate which through the DoE in collaboration with other agencies, Government has requested the World Bank to provide support to the further development of geothermal on Efate. Work on the geothermal will continue in 2017.

To enable a greater understanding of the potential of available energy resources in Vanuatu, the DoE undertook a number of activities which includes the following:

- Field visit to South West and West of the island of Malekula. The visit comprised of a number of DoE staff combined with the VREP Project team. During the visit, the DoE team were able to visit a number of pico-hydropower systems installed by individuals on Malekula with a view to discuss lessons from the systems while also provide advice to the owners of the system. This field visit was perhaps the first of its kind to involve a number of DoE staff who took the opportunity to share experiences but also to learn from the operators the challenges of operating such systems.



Figure 9: DoE Pico-hydro field visit on Malekula

- DoE undertook an assessment on the potential for a biogas system at Onesua Presbyterian college on Efate. The result of the assignment was a design of the system completed and is expected to be procured and installed in 2017. The system when completed is expected to deliver savings to the college as there will be less money spent on purchasing gas for cooking.



Figure 10: Proposed Biogas system at Onesua Presbyterian College

- A team of Japanese consultants arrived in 2016 to support the DoE in undertaking a feasibility study on the possibility of additional generation capacity to the Sarakata Hydropower system. The result of the study was an Inception Report which confirmed that there is potential within the same river system to provide additional generation capacity.

## Achievements Comment

There were a lot of achievements for 2016.

During the first quarter, the new Coalition Government requested MoCCA-DoE to prepare and submit its 100 Day Plan. In the submission by DoE listed 2 priority areas; 1) Improve access to secure, reliable and affordable electricity for all citizens by 2030 and 2) Improve enabling framework for development of the energy sector. The 100 Day Plan was seen as a proactive tool towards better strategic planning. DoE listed actions and most of these transpired into achievements already listed into this Annual Report such as the revision of the National Energy Road Map.

The second, third and last quarter of the year was dedicated to accomplishing key milestone for the 2016 Business Plan, while providing ongoing support to major energy implementation programs such as GPOBA & VREP, and supporting RE and EE feasibility studies. This also includes the CoM endorsement on the National Green Energy Fund, which was welcomed by the MoCCA, Development Partners and Industry to support achieving NERM. A significant tasks undertaken in 2016 was the commencement of the tender of the Luganville electricity service. This tender is an important tender given that it emanated from a court decision as well as Government of Vanuatu would like to see the tender achieve some of the policy objectives as defined in the NERM. The tender process is underway and is expected to be completed in the early 2017.

The increase of the recurrent budget has enabled the recruitment of the Finance and Administration Manager and the Driver/Messenger. This has boosted the Department to a more stronger Department than previously.



Figure 11: Smiling faces of beneficiaries connected to electricity under the VREP and GPOBA Project.

Major projects that have been under preparation during the last 12-18 months entered into their commencement stages, such as the launch of VREP Product Vendor and Catalogue, and the ACSE Project. Those in preparation include GEF, GCF and VREP Stage 2 with assistance of development agencies World Bank, NZ-MFAT, Aust-DFAT, UNDP and GGGI. Many are making significant achievements as we see more people connected to electricity in the rural and urban areas. The smiles demonstrated their satisfaction to the work that DoE has contributed to their lives.

There were also of exposure and knowledge sharing opportunities where by DoE Officials attended regionally and international, especially on Micro Grid Development. The Pacific Energy Summit also in June 2016 in Auckland gave the opportunity for partnership between industry to raise the need for more RE Investment for small island states.

Regardless of the limitations and challenges, the cooperation and support provided to the Department were very valuable which have engineered this office to achieve some of the objectives of the planned 2016 activities. The Department expressed its highest appreciation to the Ministry of Climate Change with its Corporate Services Unit headed by the Director General and the Departments under this Ministry, the Public Service Commission, together with all those Government Authorities, Development Partners and Key Energy Stakeholders who have valuably contributed in the achievements made in 2016.

## Challenges Comment

While we can celebrate the achievements for 2016, there were some challenges relating to insufficient budget for operations for the Office, and limited staffing capacity among the contributing directly to only partial achievement of some activities in the 2016 Business Plan. There were also internal and external factors that were beyond the capacity and authority of this Department to address and even governmental factors that contributed in non-achievement.

The population of the country as citizens, voters, taxpayers and businesses have placed a responsibility-burden on the Government with high expectations to provide and or facilitate reliable, safe and affordable electrification to meet their needs. This is an ongoing challenge as this responsibility depends on the resource availability to make such expectations become reality. There were criticisms for slow to non-service delivery to the population but this was again the challenge that a small Department as the Energy Department had to face.

The mandate for DoE is to initiate dialogue between community electrification needs to project proposal and project implementation. Such information can be obtained through surveys and rather conducted through provincial Officers than Department staff. With greater financial support DoE may recruit Provincial Officers to ease Information Sharing, carryout awareness and capacity building. Since our country's chain of islands are disperse and scattered, it is difficult to gather information at all levels of communities and the associated cost transportation differs from island to island.

The DoE is housed in a small office in the Ministry of Climate Change building. An annex also houses some permanent and contracted staff. Even with these two buildings, office space continues to be an issue as most staff work on bench table arrangements and without proper office tables and meeting rooms. Despite this challenge, DoE staff and contractors continue to function, delivering energy to the people of Vanuatu. It is hoped that with the new building to be built in 2017, there will be better operational environment for the hard working staff.



Figure 12: DoE staff in a cramped section of the DoE Office.

As there is no legal instrument to empower the DoE for its decisions, that is an Energy Policy, the NERM sets for new Policy Objectives that should guide the delivery of energy in Vanuatu. Additional leadership from the PSC, Ministry and the Council of Minister can be a good driving tool for moving forward for an economic and prosperity of this nation.

## Staffing

Table 8 below provides information about staffing of the DoE in 2016.

Table 8. Staffing

Details

Numbers:	7 Permanent Staff plus 9 contract staff
Performance Appraisals Conducted	7 staff plus 4 contract staff
Study Leave:	1
Secondment:	Nil
Annual Administration Leave:	4 obtained annual admin leave
Other Leave/Resignation/Retirement:	1 (Program Manager, Energy Security)

Ms Kathy Kanas, the Finance and Procurement Officer obtained a Scholarship to study for her Bachelor of Commerce at the University of the South Pacific (USP), Laucala Campus. She is expected to complete her studies in December 2018. Mr Leo Moli, the former Energy Security Manager retired in August 2016, after serving the Government for over 33 years. Mr Moli was the former Principal Energy Officer for Energy Unit and was instrumental in the formation of the new Department of Energy in 2012.

The number of staff large for the Department is small in relation to vatu value and outreach of programs, inducing reliance on contracted staff. While this is quite a risk for sustainability of corporate knowledge and expertise, given that

these contracted staff are contracted to specific tasks, it has resulted in more benefits than risk. Both the contracted staff and permanent staff consider themselves as working as a team and working for the Department. It has created a sense of working collectively for the Department than segregating projects and the Departmental responsibilities. Nevertheless, the amount of the staff as compared to the amount of the Projects/Program funding that is being managed through the Department is significant and demands some consideration in the 2017 and 2018 budget. With the additional resources that needs to be injected into the Department, the targets in the NERM would not be realistically achieved.

## Appendices

### Appendix 1: Meetings, Workshops & Trainings Attended by staff of the DoE

Officer Attended	Objectives	Agency	Workshop/Training	Venue	Date	Outcome/Remarks
Chris	Providing an opportunity for government officials from Island Nations in Asia – Pacific to learn from experts and government officials both in and outside Japan With Effective Policies for the diffusion of available RE – application of policies, and financing schemes -	IRENA - International Renewable Agency	Training Program to Support Renewable Energy Deployment in the Asia – Pacific Island Nation	Tokyo, Japan	8th – 12th Feb 2016	Discuss from other SIDs on Renewable Energy Policies Applications of specific Renewable Energy Policies Vanuatu is embarking on appropriate Renewable Energy Policies to help achieve the (NERM/T) National Energy Road Targets
Leith, Chris & Hellen	VREP Catalogue and Product awareness for solar retailers – Lunching - for rural areas – outside concession blocks	VREP – Vanuatu Rural Electrification Project	VREP Launching (Vendor and Products)	Lenakel Tanna	29 <sup>th</sup> Jan 2016	Successful launch of VREP with promotion of products and immediate impact of sales.
Joseph	MEPS Monitoring, Verification and Enforcement scheme for Energy Efficient lighting	UNEP – United Nations Energy Program	Regional Efficient Lighting	Bangkok Thailand	31 <sup>st</sup> Jan – 5 <sup>th</sup> Feb 2016	Participate in a high level decision makers and discuss opportunities for a regional harmonization lighting practices and regulation – MEPS.
Hellen	Scope a comprehensive M&E Framework Develop a monitoring plan based on the program logic	ESMAP - Energy Sector Management Program	Monitoring and Evaluation	Canberra, Australia	7 <sup>th</sup> – 11 <sup>th</sup> March 2016	M&E is a great tool for transparency, improve planning and help us to learn from and improve on our activities and also monitor Funds.

<b>Antony</b>	Preparation for Energy Statistics for the COP 21 Targets	SPC - Secretariat of the Pacific Community	Joint SPC – APEC Regional Workshop on Energy Statistics for modelling for SDG	Nuku Alofa, Tonga	14 <sup>th</sup> – 18 <sup>th</sup> March, 2016	National and Regional Energy Data is complementary to COP 21.
<b>Alfred &amp; Joseph</b>	Energy & Customs – VALS Bill	SPC - Secretariat of the Pacific Community	Training on Minimum Energy Performance standards and Labelling Standards (MEPSL)	Suva, Fiji	11 <sup>th</sup> - 14 <sup>th</sup> April, 2016	VALS Bill contribute to an Energy Secure Future via importation of EE Products
<b>Terry Mael</b>	Petroleum Waste Management	Petroleum Office (American Samoa)  (Internal – GfG Support)	Annual OPA Oil Spill Exercise	Pago Pago, American Samoa	3 <sup>rd</sup> – 6 <sup>th</sup> May 2016	Oil spill drills(containment, control and management) is vital and should be enforced in Legislations
<b>Chris</b>	Regional Energy Standards	SPC - Secretariat of the Pacific Community	Regional ISAC Meeting	Nadi, Fiji	16 <sup>th</sup> -19 <sup>th</sup> May, 2016	Design and Endorsement of the Energy and Climate Change modules (through EU PactVET)
<b>Chris &amp; Leith</b>	R/E Deployment - Future Energy Systems - Micro Grid Development Principles	World Bank DoE (Internal) ESMAP	Deploying and Integrating RE into Local Grids	Honolulu, Hawaii	23 <sup>rd</sup> – 27 <sup>th</sup> May 2016	Sharing RE Deployment experiences especially on implementing Micro Grids in the Region
<b>Antony, Paul (GGGI), Chris, Joseph, Hellen and Gregoire Nimbtik (DSPPAC)</b>	Energy Planning and NDC implementation	GGGI – Global Green Growth Institute	Energy Planning	Suva, Fiji	29 <sup>th</sup> – 30 <sup>th</sup> November 2016	Identify how energy planning can assist governments in developing NDC implementation plans.



# NATIONAL DISASTER MANAGEMENT OFFICE

## Director's Message

---

2016 was a continuing recovery period after the severe destruction by TC Pam and the negative impact of an El Nino event on the overall livelihoods for an estimated 60% of people in Vanuatu - coupling with a significant negative impact on the National Economy. The recovery process from TC Pam was at its preliminary stages when the slow on-set drought event of the El Nino emerge across the country exacerbating the existing vulnerability of people in communities across the country. The event was more complex in its nature as it was slow-onset unlike Tropical Cyclones. Such slow-onset events can often cause high demand for resources from both Government, Private and Humanitarian Partners.

The NDMO coordinated responses for the drought event with other line government departments and humanitarian partners to respond to water and food security needs of affected communities. Coordinating responses to these two events diverted NDMO staff time from normal day to day operations. Despite those challenges, the NDMO continued to strive vigorously to implement the activities highlighted in the 2016 Business Plan - a significant achievement.

One of the biggest achievements was the completion of two Provincial Disaster Offices with the recruitment of the three NDMO officers under the reviewed structure. Additionally, equipment and logistic capacity has significantly improved at Provincial Level through the support from the Building Safety and Resilient in the Pacific (BSRP) Project in purchasing three boats for Malampa, Penama and Torba Province and two vehicles for Sanma and Tafea provinces.

For institutional and governance strengthening, the NDMO and stake holders had the opportunity to review the existing National Disaster legislation (CAP 267), the National Cyclone Support Plan, develop the NDMO Strategic Plan 2016 -2020 and other vital operational documents to reflect recommendations from the TC Pam Lessons Learned. The review of the legislation has set a milestone for the NDMO to continue with further review and development of other relevant documents in 2017 and onwards.

I am very pleased with the commitments and cooperation from the NDMO, other departments under the Ministry of Climate Change staff, line Government and partner agencies (donors, humanitarian NGOs, UN, Red Cross) to assist with the good outcomes in 2016. I also look forward for more improvement in 2017 and contining support from all staff and stake holders to move the implementation of activities in 2017.

I believe we all can make a difference through collaboration and partnership to ensure that Vanuatu is safer, secure and resilient.



Shadrack Welegtabit , Director  
National Disaster Management Office

## Achievements of the NDMO

---

The NDMO, under the Ministry of Climate Change and Disaster Management has made following achievements in 2016:

- National Disaster Management Office has successfully coordinated humanitarian responses to TC Pam and El Nino events;
- National Disaster Management Office organizational structure has been expanded to capture other main functions for improving the efficient service delivery;
- The Department has successfully recruited new Senior Information Management Officer, Senior Logistics Officer and a Provincial Disaster and Climate Change Officer for Penama Province under the new structure;
- The NDMO Strategic Plan 2016 – 2020 has been developed and published to guide all activities and programs;
- The Department has secured funding from EDF10 (BSRP) project and purchased two vehicle for Sanma and Tafea , three boats and out-board motors each for Malampa, Torba and Penama;
- The creation of new NDMO Website: [www.ndmo.gov.vu/](http://www.ndmo.gov.vu/);
- Significant improvement in documentation of guidelines and operational guides and procedures for cluster groupings to enhance better coordination among multiple agencies;
- Number of training sessions have been conducted in several provinces in collaboration with local humanitarian partners
- Torba provincial DRM plan has been developed as a model for other provinces to use as a tool to guide them develop their DRM plans;
- Development of the 2016-2017 Cyclone Support Plan;
- Conducted a wide ranging review into the National Disaster Act and made a series of recommendations for improvement

## Ongoing and 2017 Focus Activities

---

- I. Recruitment of four (4) officers namely, one (1) senior communications and ICT Officer, three (3) Provincial Disaster and Climate Change Officers for Malampa, Sanma and Torba;
- II. Recruitment of one (1) Procurement and Construction Supervisor –Engineer under the BSRP Project;
- III. Construction of three (3) Provincial Disaster and Climate Change Offices in Lakatoro for Malampa, Luganville for Sanma and Saratamata for Penama, funded under the BSRP project;
- IV. Construction of warehouses in Port Vila and Luganville , funded by the World Food Programme (WFP);
- V. Implementation of the backup Telecommunication Radio System (HF) project, with the OGCI0;
- VI. Implementation of PARTneR project ;
- VII. Finalize the review of the National Disaster Risk Management Act to go before the Parliament;
- VIII. Development of the NDMO Human Resource Development Plan;
- IX. Development of a Displacement Policy with funding support from IOM;
- X. Development of Provincial Disaster Risk Management Plans for Sanma and Shefa;
- XI. Review of the NEOC Standard Operation Procedures (SOP);
- XII. Increase NDMO Operation budget for 2018; and
- XIII. Review of the National Disaster Plan.

## National Disaster Management Office Overview

---

The National Disaster Management Office (NDMO) is a Department within the Ministry of Climate Change Adaptation, Meteorology, Geo-hazards, Energy, Environment and Disaster Management. Main function of this office is to coordinate humanitarian responses to emergency and disaster events and management of the Disaster Risk Management framework.

### Vision

'Ensuring safer, secure and resilient communities in Vanuatu through the government decentralized programs and services'

### Mission

"The national emergencies and disasters coordination agency, to improve its coordination mechanism and building strong capability mechanism through establishment of strong partnership with line government, donors, UN and Civil Society organizations in country and the region to save lives and reduce damages to properties of all people'

- a) Effective coordination of humanitarian responses to emergencies and disasters;
- b) Strengthening disaster and climate change networks at National, Provincial and community levels; Advocacy to mainstream DRR and CCA programs and activities into other sector plans, policies, legislations and budgets;
- c) Informing community and partners at all layers on hazards and risk for safer development planning programs;
- d) Ensuring effective and reliable communication networks and linkages amongst all partners at the national, provincial and at community levels;
- e) Facilitating capacity building on DRM and CCA at all levels.

### Principles

Department emphasis on cost containment together with modest short term growth forecasts

has been reflected in the conservative approach taken to planning and budgeting for 2017. The following principles were applied to the development of the 2017 business plans and budgets:

- i. **Coordination:** Organizing and assisting people to work together using shared resources and capacities for DRM and CCA to implement activities mention in the business plan;
- ii. **Accountability:** Maintaining the integrity of the department by ensuring culturally acceptable provision of services through proper uses of allocated budget;
- iii. **Transparency:** Operating openly for others to see and to enable effective good relationship among our partners and increased participation in all aspect of the planning and implementation of the activities;
- iv. **Partnership:** Working together with other responsible humanitarian actors including government, private, and donors funded projects and civil society organizations to implement priority activities highlighted in the business plan;
- v. **Inclusiveness:** Encouraging greater participation of all groupings in all aspect of interventions thus advocating for gender equity and equality;
- vi. **Sustainability:** Making sure that program and activities continues into the future and adequate budgets is allocated for continuation of the activities;
- vii. **Equity:** maintain the principle of neutrality and impartiality and upholding the dignity of all the people we serve;
- viii. **SMART:** Specific Measurable Achievable Realistic Timeframe (SMART).

### Objectives

The NDMO aims to coordinate responses to emergencies and disasters to ease the impact of both natural and man-made hazards throughout Vanuatu through 4 core objectives:

- 1) To improve and strengthen coordination of humanitarian responses to emergencies and disasters at national, provincial and community levels through improvement of preparedness planning mentioned in the business plan;

2) To improve communication network and linkages between line government agencies, donor partners and civil society members at national, provincial and community levels;

3) To continue advocacy of mainstreaming and integrating DRM and CCA programs across all government and private sectors plans, policies, legislations and budgeting, through ongoing

awareness and training programs at national, provincial and community levels;

4) To promote and improve DRR and CCA activities and strengthen the activities through improvement of monitoring, evaluation and learning process and improve knowledge management on DRM and CCA.

## Areas of Responsibility

---

The National Disaster Management Office is mandated by the Government of Vanuatu to;

- Coordinate humanitarian responses to emergencies and disasters;
- Work in partnership with humanitarian partners and emergency services;
- Implement strategies and policies of the National Disaster Committee (NDC);
- Advise the NDC in relation to disasters;

- Ensure disaster aid is used for the purpose for which it was provided;
- Establish clear communication networks between government and non-government agencies at all levels, in all directions;
- Develop DRR and CCA education programs and organize training exercises for communities; and
- Perform other duties under the National Disaster Act [CAP 267].

## Programs, Functions and Sectors Served

---

### Programs

Fundamental primary core of the National Disaster Management office is Disaster Risk Management framework. Under the disaster risk management framework there are two primary programs for NDMO to coordinate and implement in collaboration with other stakeholders. Disaster Risk Reduction program focus on reducing the impact of disasters through better Physical and land use planning, good policy, robust governance system and legislation.

Disaster management is another field that focuses on strengthening coordination for disaster, planning, preparedness, response and recovery after major disasters. Disaster management builds upon effective disaster risk reduction programs. Hence, poor disaster risk reduction program will lead to fragile disaster management system.

### Functions

Establishment and functions of National Disaster Management Office as follows;

The Office has the following functions:

- a) To implement the strategies and policies of the National Disaster Committee;
- b) To advise the Committee in relation to disasters;
- c) To ensure that aid for disasters is used for the purpose for which it was provided;
- d) To establish clear communication networks between government and nongovernment agencies at all levels;
- e) To develop disaster education programs for the community and to organize disaster training exercises;
- f) Coordinate and Direct the Multi-Agency intervention during emergencies and disaster during preparedness, response and recovery; and
- g) To perform such other functions as are conferred on it by or under the Act.

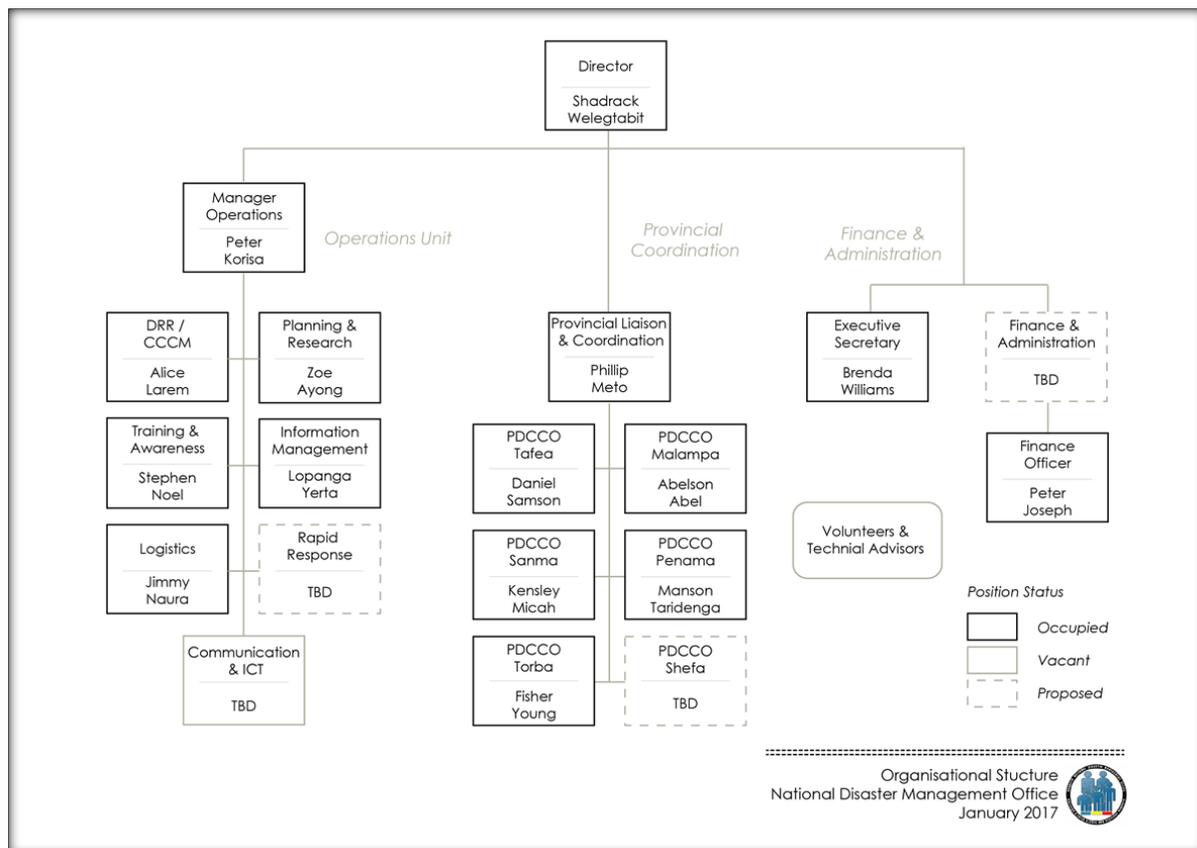
## Sectors Served

The NDMO is a cross-sectorial organization, and works closely with:

- Government line Ministries and departments
- Provincial and Municipal Governments;
- Both National and Foreign Military intervention ;
- Private sector;
- Humanitarian NGOs;
- Red Cross Society;
- Civil Society Organizations;
- Women’s and youth groups;
- Local and International Disaster response organizations;
- Vanuatu Humanitarian Team;
- Regional organizations;
- Volunteer agencies;
- Bilateral Donor Partners;
- Multilateral Donor Partners
- Chiefs;
- Communities;

## Structure and Staff

The newly revised NDMO structure is in the process of implementation



## Staff

Currently, National Disaster Management office is manned by a total of 11 Public Service Commission (PSC) permanent staff recruited by the PSC. The new structure was approved by the PSC in 2015 to supplement the existing structure. In 2016 the Department successfully recruited three staff under the reviewed structure. For the purpose of this report, our main focus is the existing PSC staff, NDMO project funded staff, Volunteers, and Technical Advisors.

The following Permanent PSC staff;

1. Director
2. Operation Manager
3. Administration and Finance Officer
4. Senior Disaster Risk Reduction and Camp Coordination Management Officer (DRR)
5. Senior Provincial Liaison and Coordination Officer
6. Senior Research and Planning officer
7. Senior Training and Awareness officer
8. Senior Logistic Officer
9. Senior Information Management Officers
10. Provincial Disaster Officer –Penama
11. Clerical Officer

There is a total of four project funded Provincial Disaster office staff;

1. Tafea Provincial Disaster and Climate Change Office
2. Torba Provincial Disaster and Climate Change Officer
3. Sanma Provincial Disaster and Climate Change Officer
4. Malampa Provincial Disaster and Climate Change Officer

Project funding for Malampa and Sanma Provincial Disaster and Climate Change Officers will lapse in 2016 and these positions will be integrated into the NDMO budget in 2017.

The NDMO has taken the opportunity to tap into the region for surge capacity program through bilateral arrangement with main donor countries. The following is the number of volunteers, project coordinators and technical advisor recruit under the program.

1. Logistic support volunteer recruited by AVID (Australian Volunteer International Development) Program in collaboration with Scope Global;
2. DRM Technical Advisor recruited by Australian Civilian Corps (ACC) MFAT program
3. Evacuation Centre and Internal Displacement Coordinator recruited by IOM (International Organization for Migration)
4. GIS specialist Volunteer – Oxfam support

## Funding Basis

Operating Expenses					
Description	Actual	Commitment	Total	Budget	Under/(Over)
Subsistence Allowances	15,000	35,000	50,000	500,000	450,000
Vehicles Fuel	115,556	35,556	151,112	600,000	448,888
Other Charges - Freight	-	37,156	37,156	-	(37,156)
Transport - Freight	-	-	-	150,000	150,000
Equipment Hire	-	-	-	50,000	50,000
Facilities Hire	-	-	-	100,000	100,000
Vehicles Hire	(133,333)	291,989	158,656	150,000	(8,656)
Office Cleaning	33,984	-	33,984	100,000	66,016

Description	Actual	Commitment	Total	Budget	Under/(Over)
Advertising - Communications	-	-	-	40,000	40,000
Postage - Communications	-	-	-	5,000	5,000
Printing - Communications	21,333	-	21,333	350,000	328,667
Stationery - Communications	(40,445)	122,890	82,445	520,000	437,555
Telephone / Fax - Communications	71,112	44,445	115,557	550,000	434,443
General - Materials	(8,822)	36,093	27,271	-	(27,271)
Incidentals	(16,195)	188,639	172,444	241,355	68,911
Official Entertainment	(204,443)	222,222	17,779	50,000	32,221
Uniforms	-	-	-	120,000	120,000
Buildings Repairs & Maintenance	404,445	25,924	430,369	80,000	(350,369)
Equipment Repairs & Maintenance	163,593	32,444	196,037	99,000	(97,037)
Vehicles Repairs & Maintenance	9,377	102,400	111,777	550,000	438,223
Distribution Supplies	(12,444)	12,444	-	-	-
Rations Suppliers	13,298	-	13,298	-	(13,298)
International Travel	(126,080)	126,080	-	-	-
Local Travel	(6,151)	58,089	51,938	500,000	448,062
Electricity Utilities	(1,135,192)	1,135,192	-	1,258,962	1,258,962
Water Utilities	-	-	-	100,000	100,000
Local Workshops	-	-	-	420,000	420,000
Value Added Tax	(112,726)	315,364	202,638	-	(202,638)
Equipment - Photocopiers	(177,422)	177,422	-	-	-
Equipment - Computer Software Purchases	(212,001)	212,001	-	-	-
Overhead expenses	-	-	-	-	-
<b>Operating Expenses</b>	<b>(1,337,556)</b>	<b>3,211,350</b>	<b>1,873,794</b>	<b>6,534,317</b>	<b>4,660,523</b>

## Projects BSRP Financial report

Expended at /12/2016			
Description	Contract number	Funding	Total
Building Safety and Resilient in the Pacific Project is funded by the EU EDF10 funding and manage by SPC in Suva, Fiji. This project is currently supporting 14 member countries with their specific activities. In Vanuatu the project is supporting the NDMO for the construction of three (3) provincial disaster offices in Lakatoro, Luganville and Saratamata, boats and outboard motors for Lakatoro, Saratamata and Sola, vehicles for Sanma and Tafea. A drilling rig for the Department of Water, freight for two fire trucks for the Vanuatu Fire Services, a TA for the drafting of Fire services policy papers, and Information Management Officer for the National Advisory Board (NAB).		EU	Vt150.0 Million

## Ministry and Policy Framework

---

### Policy Frameworks – International, Regional and National

At the global level, the United Nations Office for Disaster Risk Reduction (UNISDR) Sendai Framework for Disaster Risk Management 2015–2030 seeks to prevent new and reduce existing disaster risks, and aims to achieve a substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of people, businesses, communities and countries over the next 15 years. The Sendai Framework carries forward from the UNISDR Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters. The four priorities for action under this framework are:

- Understanding disaster risk reduction or Disaster Risk management;
- Strengthening disaster risk governance to manage disaster risk management;
- Investing in disaster reduction for resilience; and
- Enhancing disaster preparedness for effective response, and to build back better in recovery, rehabilitation and reconstruction.

### Regional

At the regional level, the Secretariat of the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme have jointly facilitated the development of the Framework for Resilient Development in the Pacific (FRDP) 2017 - 2030, with an overall goal to strengthen the resilience of Pacific Island communities to the impact of slow and sudden onset natural hazards by developing more effective and integrated ways to address climate and disaster risk management, within the context of sustainable development.

The new framework is proposed to replace the Pacific Regional Disaster Risk Management Framework for Action 2005–2016. The FRDP identifies three goals:

- 1) Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters;
- 2) Low carbon development; and
- 3) Strengthened disaster preparedness, response and recovery.

### National Level

In 2012, the Government of Vanuatu established institutional arrangements for joint governance of climate change and disaster risk reduction through the National Advisory Board (NAB) and a Climate Change and Disaster Risk Reduction Project Management Unit within the Vanuatu Meteorology and Geo-Hazards Department. This represents a proactive approach to integrating key governance structures at the national level.

As a further key step, the NAB commenced a risk governance assessment in 2013 to strengthen systems and provide a way forward in implementing climate change and disaster risk reduction measures. The risk governance assessment report was endorsed in February 2014 and its recommendations are being implemented. Dedicated NAB Secretariat positions are being established under a key recommendation to support NAB oversight of climate change and disaster risk reduction initiatives across Vanuatu. Representation of a broad range of agencies, together with CSOs on the NAB, provides a framework for mainstreaming across sectors and inclusive planning and decision-making.

The Government of Vanuatu has completed a 15-year National Sustainable Development Plan (NSDP) and launched this year 2017. The NSDP is proposed to come into operation in 2017, and will incorporate three pillars: Economic, Environment and Social, underpinned by a focus on culture. Like its predecessor — the Priorities and Action Agenda 2006–2015 and its Plan Long Act Short 2013–2016 document — the new NSDP identifies climate change and disaster risk reduction as key priorities for government. Departmental policies must be aligned with the directions of the NSDP.

## Departmental level

At Departmental level, all programs and activities to implement the overall Disaster Risk Management and Climate Change policy has been put into a 5 years Strategy Plan (2016 to 2020). The Strategic Plan is an instrument to strengthen Vanuatu's diverse local governance systems that include provincial authorities, island and area councils and traditional chiefs and leaders at the village level which is the primary focus for the department. Complementing the Sendai framework of Action Priority 1-2; strengthening disaster risk governance to manage Disaster Risk Reduction and Disaster Management as well as understanding Disaster Risk Reduction and Disaster Management.

Many programs and projects are being undertaken by government and partner agencies to build resilience at the national down to local level. Aligning programs and projects to reflect and complement the global frameworks, regional and national policies to build on existing capacities and linking with community aspirations and initiatives to achieve the grassroots objectives of sustainable development. Thus, reflecting the Sendai framework of action priority 3-4; investing in disaster reduction for resilience; and Enhancing disaster preparedness for effective response, and to build back better in recovery, rehabilitation and reconstruction. At departmental level the Priorities have further streamline into the national policies, NDMO strategy plan and annual Business plan for 2017.

## About this Annual Report

---

This report outlines major developments and initiatives carried out by the National Disaster Management office in 2016.

### Reporting Requirements

The National Disaster Management office is a government institution mandated to manage and coordinate humanitarian responses with line departments and other local, regional and international agencies in the management of disasters. The Department has this obligation to provide the Annual Report on all the disaster risk management programs and activities implemented over the course of the year.

### Reporting Processes

This document comprises of a collection of reports submitted by heads of different Divisions within the National Disaster Management Office and compiled by the Operation Manager and edited by the Director. These reports are against the 2016 Business Plans as required by PSC through the Director General's office of the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management.

## Department Performance 2016 Overview

---

As the official government agency tasked to coordinate humanitarian responses, eighty percent (80%) of the work done by the NDMO is dedicated to coordination of responses to emergencies and disasters. The additional twenty percent (20%) of the NDMOs efforts are directed toward implementing disaster risk

reduction and climate change adaption programs and activities. Early in 2016, National Disaster Management Office activities was focus into responding and normal department program.

Department Performance	
Key Area	Key Results and Highlights
<b>Coordinating Disaster Response;</b>	Humanitarian responses to both TC Pam victims in Shefa and Tafea and El Nino victims in affected communities.
<b>Supporting the coordination implementation of DRR and CCA programs ;</b>	Implementation of IRCCNH, MDRR, BSRP Projects and supported activities by partner agencies.
<b>Decentralizing NDMO function into provinces;</b>	Establishment of Provincial Disaster Committees in all Provinces, recruitment of Provincial Disaster and Climate Change Officers, construction of Provincial Disaster Offices in Isangel and Sola and equipping Provincial Offices with boats and vehicles.
<b>Assisting and promoting Disaster Risk Management through Mainstreaming approach ;</b>	Development of the NDMO Strategic Plan 2016 – 2020 and reviewing the National Disaster Act (CAP 267).
<b>Support the implementation of Disaster Risk Reduction and Climate Change projects;</b>	Support to partner agencies to run training workshops at national, provincial and community levels.
<b>Working with Stake holders and development partners to address DRM in the country;</b>	Support partner agencies to set up, capacity build, develop response plans and equip Provincial, Municipal and community disaster and climate change communities.

## Achievements Comment

National disaster management office have made a great improvement in the last few years. 2016 is the fifth year since the establishment of the Department under PSC in 2011 . The department has shown significant strength and capability through consistent development happening within the department. Below is the list of some major achievements made by the department;

- Humanitarian Responses to Earthquakes, Flooding, Volcanic activities'
- In 2016 continuing response to TC Pam with Lessons Learned;
- Lessons Learned Cyclone Pam Report Launch (July 2016);
- El Nino Responses in 2016;
- Coordination of responses with other responding agencies to emergency events such as search and rescue missions, fire incidents, etc...;
- Review of the National Disaster Act with drafting instructions with the State Law Office;
- Establishment and training of Provincial Disaster Committees in all six provinces;
- Establishment and training of Community Disaster and Climate Change Committees in all provinces;
- Establishment of the Vanuatu Humanitarian Team Network and eight (8) Cluster systems;
- NDMO Strategic Plan (2016 – 2020);
- Completion of Torba Provincial Government Respond Plan;

- Standardization of Initial Community Assessment form;
- Strong MBC presentation to secure additional funding;
- On-going harmonization of donor support, including TAs and volunteers support;
- Restructure approved;
- Review of the National Disaster Act (CAP 267);
- Completion of two permanent Tafea and Torba Provincial Disaster Offices;
- Two vehicles for Santo and Tanna and three boats for Lakatoro, Saratamata and Sola;
- Fully participating in the Mainstreaming Disaster Risk Reduction program ;
- Implementing the Increasing Resilient of Climate Change and Natural Hazard (IRCCNH) multilateral project manage by World Bank
- Implementing EDF ACP-EU funded BSRP;

## Challenges Comment

The NDMO has taken some proactive approaches to address gaps identified in TC Pam Lessons Learned by re-structuring. The major challenge is the actual recruitment for new positions to fill the new structure. The recruitment is not happening due to financial constraints the Department is going through at this stage. Another major issue is the annual operational budget for the Department is not sufficient for all programs to be carried out.

For the Department to effectively deliver services through-out the country, it needs some capital to accelerate the implementation of all programs. Most of the disaster risk reduction preparedness programs could not be implemented, because of

in-sufficient funding to implement the programs. The Department becomes very effective when doing Disaster Management which is responding to natural disasters through humanitarian assistance.

## Staffing

The following tables provide information about staffing of the National Disaster Management office Division in 2016.

Staffing	Details
Numbers	<p>We have total of eight PSC permanent staff under the old structure ;</p> <ul style="list-style-type: none"> <li>• Director</li> <li>• Operation Manager</li> <li>• Administration Officer</li> <li>• Executive Secretary</li> <li>• Senior Disaster Risk Reduction and CCCM Officer</li> <li>• Senior Planning and research Officer</li> <li>• Senior Training and Awareness Officer</li> <li>• Senior Provincial Liaison and Coordination Officer</li> <li>• Senior Logistic Officer</li> <li>• Senior Information and Management Officer</li> </ul> <p>We several officers under projects and other form of contract ;</p> <ul style="list-style-type: none"> <li>• 1 Logistic Volunteer (AVID)program</li> <li>• 1 MFAT funded technical Advisor</li> <li>• Information Management volunteer recruited by Oxfam</li> </ul>
Performance Appraisals Conducted	Bi-Annual for [8] staff
Study Leave:	[Nil]
Secondment:	[Nil]
Annual Administration Leave:	Total number of staff taking Administration Leave [3]
Other /Resignation/Retirement:	Nil

## Performance by Focal Areas

### Directorate

#### Focal Area Purpose and Key Outcomes

The Directorate contributes to the Department's purpose by managing staff and the Department Budget.

The key strategic outcomes for the Directorate are:

- Ensure that the NDMO implement activities under the National Disaster Act (CAP 267); and
- Manage Staff work performance and NDMO budget

#### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are

summarized in the table below and commentary provided in the following text.

Directorate (Business Plan)			
Activity	Performance Indicators	Result ✓✘	Result Summary
Ensure staff perform duties under the Act	No legal issues against staff with staff appraisal done	✓	No staff was implicated in 2016 and all staff appraisal done
<b>Assess and review programs and activities for DRM and CCA</b>	Documents and developed and review	✓	Continues process
<b>Develop and recommend to NDC, national policies to foster and promote DRM</b>	Assessment reports are prepared with recommendations	✓	Assessment reports for El Nino gone to COM and allocated funding for respond
<b>Ensure the establishment of clusters</b>	Clusters are set up and meet regularly	✓	Eight clusters had been set up and currently active in Vanuatu.
<b>Ensure the development and review NEOC SOP, Cyclone Support Plan</b>	NEOC SOP is reviewed	✓	Document had been review
	Cyclone Support Plan is reviewed	✓	Document has been review
<b>Coordinate and prepare Annual report and Business Plan</b>	Annual report is produce	✓	Annual reports done for every year
	Business plan produce	✓	Business plan for every year
<b>Prepare NDMO budget</b>	Budget passed by MBC	✓	Budget passed by Parliament
<b>Assist to develop donor protocol for response to emergencies and disasters</b>	Attend and participate in meetings with partner agencies	✓	Established clear understanding with partners
<b>Assist to develop MOU with emergency services and suppliers</b>	MOU are developed and signed	✓	Implementation of MOU

## Operations

### Focal Area Purpose and Key Outcomes

Operations contribute to the Department's purpose by assisting the Director NDMO with the administration matters and managing the operation during emergencies and other DRM related activities.

The key strategic outcomes for Operations are:

- Supervising and managing the staffs under the operation;
- Monitoring & Evaluating the staff performance ;
- Coordinating and managing the operation during Emergencies;
- Representing NDMO with high level meetings both at regional and national level.

### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Operation Manager Business Plan			
Activity	Performance Indicators	Result ✓✘	Result Summary
Coordinate the compilation of Business plan and Annual reports	Business plan and Annual report completed	✓	Both documents are produce each year
<b>Supervise senior staff</b>	All staff are doing their jobs	✓	Successfully done
<b>Be the NEOC Controller during operations</b>	NEOC SOP is review regularly	✓	NEOC performs its main functions
<b>Coordinate responses</b>	Clear directions are given to all stake holders	✓	Operations successfully carried out
<b>Prepare NDMO monthly operations</b>	Weekly and monthly meetings	✓	Documentation required
<b>Brief Director on progress</b>	Regular briefing	✓	Regularly done
<b>Regular checking of NEOC equipment</b>	All equipment are in good working conditions	✓	Regular checking is carried out
<b>Coordinate staff monthly meetings</b>	Staff meeting every months	✓	Documentation required
<b>Coordinate Logistics cluster</b>	Regular meeting updates	✓	Documentation required
<b>Drawing duty rooster during operations</b>	Rooster drawn up and ready for use	✓	Emergency preparedness and operations
<b>Assist to coordinate Partner project</b>	Project is implemented	✓	In progress
<b>Assist with World Bank funded projects</b>	Project is implemented	✓	In Progress

Additional Activities from 2016			
Activity	Performance Indicators	Result ✓✘	Result Summary
1. Attend regional workshops	Attended KOICA workshop on behalf of Vanuatu government -Korea	✓	Done
2. Attend short-term training	Attended the warehouses and evacuation management training and use of Risk mapping tools training –Port Vila	✓	Done
3. Attend policy, international framework ,Convention and legislative review for other sectors	<ul style="list-style-type: none"> <li>Attended the review of Global sustainable development goals consultations meeting</li> <li>Attended Paris –Cop petition consultation for Vanuatu</li> <li>Attended the livestock policy consultation</li> <li>Attended Environment policy review consultation</li> </ul>	✓  ✓	Done
4. Chair inter-cluster meetings	Assisting Director in Chairing the cluster meetings during TC Pam operation	✓	Done
5. Attend other cluster meeting s	Shelter , Logistics and Evacuation cluster meeting outside from inter-cluster meeting	✓	Done

## Research and Planning

### Focal Area Purpose and Key Outcomes

Research and Planning contributes to the Department's purpose by coordinating and providing support to all government stakeholders, private sectors and other humanitarian partners to develop Disaster Risk Management specific natural disasters and man-made disasters response plans. Also contribute significantly to coordination's during emergency and disaster response.

The key strategic outcomes for Research and Planning are:

- Reliable data available and updated to utilize during operation
- Optimum resource utilization
- Plan distributed and use by all stakeholders
- Plan used as guideline for development and responding to earthquake impact
- Review all plans made to all stakeholders

- Contingency developed and implement by stakeholders
- Make sure are resilient against volcanic impacts
- Updated and accurate logistics data from all provinces
- Increase effectiveness and timely response from public to Tsunami Warning
- Community has an adequate capacity to effectively cope with CC and Disaster impacts
- Provincial DRM plan is used by PDC to address both DRR and DM implementation
- PDC roles and responsibilities during emergencies clearly define
- Increased accountability and efficiency during disaster response
- Clarity on inter-operability and the relationship between each cluster

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Research and Planning (Business Plan)			
Activity	Performance Indicators	Result ✓✘	Result Summary
1) <b>Community profiling (8 to be done next year, 2/quarter)</b>	Number of Training provided to different communities  Community profiling produce	✘	Move to 2017 work plan
2) <b>Develop Earthquake National Support Plan</b>	Plan developed and approve by the minister responsible	✘	Move to 2017 work plan
3) <b>Review Tsunami National Support Plan</b>	Plan review and approve by Minister responsible	✘	Awaiting MDRR project funding
4) <b>Review the Cyclone support plan 2015 version</b>	Plan review	✓	Done
5) <b>Volcanic Evacuation Contingency Plan</b>	Plan developed and approve by the Provincial and Minister responsible	✘	tbc
6) <b>Set up logistics baseline data</b>	Data collected and analyst	✓	Done with the help of logistic officer
7) <b>Support the implementation of tsunami Early Warning System</b>	Quarterly report produce	✓	Ongoing until end of this year 2016
8) <b>Develop provincial Disaster Committee DRM plan for Torba and Tafea</b>	Numbers of community covered by the projects	✘	This year 2016 work plan

9) Involving in community resilient and coping strategies (UNDP Project) as NDMO Rep.	Number of DRM plan developed in each province and approved by the council	*	This year 2016 work plan
10) Support and assist the PDC develop their SOP's	Number of SOPs developed in all provinces and approve by SG	*	This year 2016 work plan
11) Other related activities mention in the revised Job Description.	Incorporated into the 2016 Annual Business Plan	*	this year 2016

## Awareness and Training

### Focal Area Purpose and Key Outcomes

Awareness and Training contributes to the Department's purpose by providing and coordinating different disaster risk management trainings and coordinated public awareness on DRM. The officer performs other multiple duties outside his major roles during major emergency response.

The key strategic outcomes for Awareness and Training are:

- Fully engaged with community awareness during TC Pam

- The Vanuatu broadcasting and television corporation operational 24/7 during TC PAM
- Community received proper and timely warning during TC Pam
- Relief items coordinated to affected communities

### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Awareness and Training (Business Plan)			
Activity	Performance Indicators	Result ✓*	Result Summary
1) Undertake awareness and training on DRM activities at the National and provincial level;	<ul style="list-style-type: none"> <li>Number of awareness conducted</li> </ul>	✓	<ul style="list-style-type: none"> <li>Ongoing activity</li> </ul>
2) Conducting simulation Exercise & training in partnership with PDO to PDCCC s and CDCCCs;	<ul style="list-style-type: none"> <li>Number of simulation exercise conducted and reported ;</li> <li>Report submitted to Operation Manager and Director ;</li> </ul>	*	<ul style="list-style-type: none"> <li>Defer to second quarter 2017</li> <li>This activity need both financial and commitment which did happen because of TC Pam operation</li> </ul>
3) Conduct simulation exercise in Tafea and Torba;	<ul style="list-style-type: none"> <li>Standardize simulation exercise package developed ;</li> <li>Reports on progress</li> <li>Tool endorse and approved by NDMO</li> <li>Tool uploaded into the NAB Portal for wider circulation and application</li> </ul>	*	<ul style="list-style-type: none"> <li>Defer to second quarter 2017</li> </ul>
4) Develop advocacy campaign through posters	<ul style="list-style-type: none"> <li>Number of IEC materials developed</li> </ul>	✓	<ul style="list-style-type: none"> <li>In progress</li> </ul>

,leaflets, T-Shirts, stickers and bill boards;			
5) Conduct Emergency simulation training to NDMO staff, PDCs, Area Council Secretaries;	<ul style="list-style-type: none"> <li>• Emergency simulation training package developed ;</li> <li>• The endorsed and validated by NDMO;</li> <li>•</li> <li>• Training and monitoring report</li> </ul>	*	<ul style="list-style-type: none"> <li>• Defer to first quarter 2017</li> </ul>
6) Train the provincial government agencies how to monitor and advice on DRM program & activities at the provincial level;	<ul style="list-style-type: none"> <li>• Training manual completed and accredited by VNTC;</li> </ul>	*	<ul style="list-style-type: none"> <li>• Defer to second quarter 2017</li> </ul>
7) Develop a National DRM training Manual;	<ul style="list-style-type: none"> <li>• Manual develop</li> </ul>	*	<ul style="list-style-type: none"> <li>• Defer to second quarter 2017</li> </ul>
8) Conduct TOT Simulation training to PDC ,area Council Secretaries ,PEO,ZCA;	<ul style="list-style-type: none"> <li>• Number of training provided ;</li> <li>• Report submitted to Operation and Director on the outcome of the training ;</li> </ul>	*	<ul style="list-style-type: none"> <li>• Defer to second Quarter 2017</li> </ul>
9) Conduct Sphere Training at the National and provincial level;	<ul style="list-style-type: none"> <li>• Number of training provided ;</li> <li>• Report submitted to Operation and Director on the outcome of the training ;</li> </ul>	*	<ul style="list-style-type: none"> <li>• Defer to second Quarter</li> </ul>
10) Monitor and evaluate the training program provided;	<ul style="list-style-type: none"> <li>• Number of communities assess, monitor and evaluate ;</li> </ul>	*	<ul style="list-style-type: none"> <li>• Last Quarter</li> </ul>
11) Other activities from the Job descriptions to be incorporated into future work plan.	<ul style="list-style-type: none"> <li>• Other activities incorporated into 2016 Annual business plan.</li> </ul>	*	<ul style="list-style-type: none"> <li>• This will be carried it out by mid of first quarter 2017</li> </ul>

## Provincial Liaison

### Focal Area Purpose and Key Outcomes

- The Senior Provincial Liaison Officer contributes to the Department's purpose by Strengthen Provincial and community Networks for DRM and CC including improving communication Network and linkages at the provincial level down to community level
- Awareness and Training on DRM and CC at Provincial and Area Council level are also provided together with Stake holders and development partners.
- Improving partnership arrangement with Stake holders and development partners

### Key strategic outcomes for Senior Provincial Liaison Officer

1. Two Training Sessions have been conducted on Ambae in and setting up 2 CDCCC from Vingalado area North East Ambae Area council with a total of 50 participants attending the training;
2. Training was also conducted on Pentecost in February 2015 with a total of 35 participants attending the training;
3. Training was conducted on Maewo for a total of 36 participants attending the training;
4. Consultation meeting was conducted with Communities from three different islands namely Tanna, Malekula and Ambrym. The

whole purpose of the consultation is to find ways how to improve communication and set up a communication mechanism where to facilitate the complaint and feedback from communities and provide response to their feedback through active channels they choose them self that it's more effective and a total of 300 participants from the three islands who attend the consultation Meeting.

5. Training at Epau with a total of 50 participants attends the training.
6. Simulation Training was also conducted on south East Malekula with 8 communities and at the end of the week the CDCCC are able to test out their Response plan in the simulation

exercise also involve the participation of the whole community. A total of over 800 people from the 8 community participate in the simulation exercise and training to test the community response plan during cyclone.

## Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Senior Provincial Liaison Business Plan			
Activity	Performance Indicators	Result ✓✗	Result Summary
1) Coordinate the setting up of Provincial Disaster Committees	<ul style="list-style-type: none"> <li>• Number of Provincial Disaster Committee set up</li> <li>• Number of Province Covered</li> </ul>	✓	6 provincial Disaster committees were already set up and functioning (Tafea, Torba, Penama, Sanma, Malampa & Shefa)
2) Facilitated the establishment of the Provincial Disaster Offices through projects	<ul style="list-style-type: none"> <li>• Number of offices established in each provinces</li> </ul>	✓	Two permanent offices established in Tafea and Torba province
3) Assist PDO's to develop Provincial Disaster Risk Management plan	<ul style="list-style-type: none"> <li>• Number of documented Disaster Risk Management Plan completed</li> <li>• Number of province covered</li> </ul>	✓	Currently on the draft phase need to be finalize
4) Establish good communication links at national, provincial and community levels	<ul style="list-style-type: none"> <li>• Number of Training programs and consultations held with relevant agencies at national ,provincial to community level</li> <li>• Number of provinces covered</li> </ul>	✓	Assistance for the Torba and Malampa province to set up working groups to collect feedbacks from the community and NDMO get response and channel that back to the community through same channel through the CWC working group. Functioning
5) Support provincial stakeholders to review their sectors	<ul style="list-style-type: none"> <li>• Number of review plans completed</li> </ul>	✓	Sending in Sitrep every two weeks to monitor the El Nino and assist the IM working group to produce national Sitrep
6) Assist the PDO's to Set up the Area Council Disaster Committees	<ul style="list-style-type: none"> <li>• Number of provinces and islands covered</li> </ul>	✓	Shefa 5 area council, Tafea 8 Area council Malampa 3 Area council Sanma 3 Area council Torba 4 area council
7) Assist the Setting up of Community Disaster Committees with Humanitarian partners	<ul style="list-style-type: none"> <li>• Number of CDCs established in each province and islands</li> </ul>	✓	Malampa 9 CDCCC establish since 2015 Shefa 7 CDCCC establish since 2015
8) Organize mapping exercise meeting for PGLAs	<ul style="list-style-type: none"> <li>• Report compile and distribute to logistic cluster</li> </ul>	✓	6 provincial LCA complete
9) Update CDCs contact list	<ul style="list-style-type: none"> <li>• List updated and share with stakeholders</li> </ul>	✓	Copy of registration forms

## Disaster Risk Reduction

### Focal Area Purpose and Key Outcomes

Disaster Risk Reduction contributes to the Department's purpose by coordinating and assisting government, private and Civil society to mainstream and streamline disaster risk reduction into their work plan, policies and legislations; Working in collaboration with all stakeholders and Disaster Risk Reduction implementing partners.

The key strategic outcomes for Disaster Risk Reduction are:

- The DTM training took place at the National Emergency Operation Centre. Displacement tracking Matrix was one of its first kinds to be introduced after TC Pam. The questions, raised were mostly on the location and when the event took place, including the disaggregated data. The Participants come from different

Ministries and Department. (See Annex 1 for participant list)

- Organization of DTM Assessment. June and July was spent planning, budget development, identification of enumerators, applying for impress and scheduling of training and flights.
- DTM Assessment completed (September) – Ensuring all enumerators had packs and made flights. I also spent one week carrying out assessment in Maewo with compiling reports from Port Vila and phone interviews for rural Efate, Mosso, and Lelepa.
- Excel Data completed (September) – Worked with casual data entry person to ensure all forms are completed in the excel spreadsheet.

### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

(Senior Disaster Risk Reduction ) (Business Plan)			
Activity	Performance Indicators	Result ✓✗	Result Summary
Coordinate the documentation of Traditional knowledge and practices on coping with Natural hazards	Number of Documentation on traditional knowledge & practices	X	NDMO do not have funding for this activity, Meteo has secured funding from the Bureau of Meteorology in Australia to support this activity
Document traditional food preservation method for every island	Numbers of islands covered and traditional preservation documented	X	No funding
Work with NGOs to harmonize the DRR terminology and messaging across all levels	Number of trainings and consultations conducted	✓	CBDRR working group meets monthly to create documents/Templates to standardize information and awareness, links to the NAB endorsement process
Standard DRM package developed, endorsed by NDMO and NAB	DRM & DRR training manual Endorse	✓	NDMO and Save the children together with CBDRR working group had their first workshop on November 17 2015 to collect all the Materials that has been developed by the working group, and create a DRM package. The process has been delayed because of cyclone, however we hope to complete by July 2016

Selected three islands to do DRR activities & monitor NGOs work on CEDs setting	Regular visits and establishment of committees to oversee DRR activities on the islands	X	No Funding
Coordinates DRR activities among partners	Numbers of partners implementing DRR programs across the country	✓	CBDRR working group Supporting work with Provincial officers Collaboration with NGOs
Develop Brochures for Hazard Key Messages	Number of brochures develop	✓	The Hazard key messages has been develop and been translate into three language but no funding for printing
Develop Excel database for traditional Knowledge information Storage.	Template develop and data collected	x	No funding
Develop Excel Data Base for Community Profile Information	Excel Data Base is develop for community profile	✓	In progress with the support from OCHA and the information volunteer
Create Google map and locate the CDCs	Data convert to information and upload to Google earth	✓	Three consultation has been done with partner to find ways to create Google map
Conduct DRM TOT training to partners at all Level	List of TOT training on DRM Manual at the National Level	X	The activity has not been carried out due to cyclone Pam recovery programs
Develop PDC Disaster Plan for Torba and Tafea Province	Number of NDMO partners involve in the process	X	
Contact Simulation TOT at all level (in the province Torba and Tafea)	Conduct training on the DRM & DRR Module	X	The activity has not been carried out due to cyclone Pam recovery programs
Provide ongoing support to Clusters	Number of NDMO Partners attend the training	X	The activity has not been carried out due to cyclone Pam recovery programs
Assessment form review and training	Assessment form is Finalized and Endorse	✓	The assessment has been review and ready for endorsement by Director
<b>Other Responsibilities</b>			
Collecting and Analyzing information for Reporting	Number of Reports Submit to NDC for approval	✓	Reports has been submitted to NDC to advice the Minister on stage of emergency or type of assistance
Liaise with National and International Partners arriving to Assist during Pam	National and International Partners understand the process and context of Vanuatu	✓	National and International organisation work close and under the leadership of Vanuatu government.
Coordinates the Evacuation Centre working group with the support from IOM	Number of Meeting has been held during the Period	✓	EC working group has been working really hard

# Logistics

## Focal Area Purpose and Key Outcomes

Logistic contributes to the Department by coordinating logistic in emergency during major operations.

The key strategic outcomes for Communication are:

- Logistic Capacity Assessment is undertaken in all provinces
- Enhance better coordination and interoperability between private, military and external logistic Partners during major emergencies.

## Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Logistic (Business Plan)			
Activity	Performance Indicators	Result ✓✘	Result Summary
<b>Coordinate logistic in emergency</b>	<ul style="list-style-type: none"> <li>• Logistic cluster operational during emergencies;</li> <li>• Interoperability between private, military and civilian.</li> </ul>	✓	All logistic coordination during TC Pam was under logistic officer control.
<b>Manage dispatch of relief items</b>	<ul style="list-style-type: none"> <li>• Tonnage of Relief items reaching the target Population;</li> <li>• Number of relief quantities in stock and dispatch</li> </ul>	✓	<p>All relief supplies dispatched to all affected population during TC pam was managed by logistic team in collaboration with WFP.</p> <p>Approximately 1000-3000 Metric tonnes of relief items reaching Vanuatu during TC pam and it's still ongoing</p>
<b>Manage the warehouse during emergencies</b>	<ul style="list-style-type: none"> <li>• Number of warehouse manages during emergency.</li> </ul>	✓	Four temporary warehouses during TC Pam were managed and control by Logistic Team.
<b>Managing the imported relief items and facilitating the custom clearance</b>	<ul style="list-style-type: none"> <li>• Number of imported relief items received and stored</li> </ul>	✘	<p>Over 100 containers and Air cargos handle during TC PAM</p> <p>All containers will be cleared and distributed early 2016</p>
<b>Conduct Logistics Capacity Assessment</b>	<ul style="list-style-type: none"> <li>• Logistics capacity Assessment completed</li> </ul>	✘	The LCA was commenced utilising the Logistics Cluster, and will be completed early 2016
<b>Conduct logistics lesson learnt for TC Pam</b>	<ul style="list-style-type: none"> <li>• Workshop conducted with relevant stakeholders</li> <li>• Report issued with findings and recommendations</li> </ul>	✓	Lessons learnt workshop led by WFP and report issued
<b>Begin implementing lessons learnt from TC Pam</b>	<ul style="list-style-type: none"> <li>• Projects identified</li> <li>• Concept plans initiated</li> </ul>	✓	<p>Recruitment of a dedicated Logistics Officer approved and terms of reference written.</p> <p>Identification of a warehouse site commenced.</p> <p>Logistics Cluster re-established as a general cluster to assist with lessons learnt projects.</p>

## Administration

---

### Focal Area Purpose and Key Outcomes

Vanuatu Humanitarian Team contributes to the Department's purpose by working as a coordinating arm between the Government NDMO and partner agencies that are members of the VHT.

The key strategic outcomes for Communication are:

- Coordination agency between the NDMO and humanitarian partners (Local and international NGOs, UN agencies and Red Cross); and
- Assist the NDMO with implementing activities at Provincial and Community levels.

### Priority Activities and Results

Vanuatu Humanitarian Team (Business Plan)

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text:

Activity	Performance Indicators	Result ✓✘	Result Summary
<b>Coordination agency between NDMO and VHT partners</b>	Regular meetings	✓	Documentation required
<b>Support NDMO activities in the provinces</b>	Activities implemented	✓	As outlined in the Business plan

#### Vanuatu Humanitarian Team (Additional Activities)

Activity	Performance Indicators	Result ✓✘	Result Summary
Regular meetings with partners	Inter-cluster meetings	✓	Documentation required

## Clerical and Cleaner

---

### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

#### Administration (Business Plan)

Activity	Performance Indicators	Result ✓✘	Result Summary
Update proper filing system	Filing system established and functioning	✓	Filing are done regularly
Establish proper mail recording system	Mail system established and functioning	✓	Mail are properly registered

Review and update contact list	Contact list updated yearly	✓	Record kept in NDMO
Create staff emergency box	Emergency box created for each staff	✘	Delayed because need to pay boxes
Established employee attendance tracker	Attendance tracker established	✘	Needs training in this field

Administration (Additional Activities)			
Activity	Performance Indicators	Result ✓✘	Result Summary
Assists with emergency operations	Register all visitors, mail, messages, etc	✓	NEOC is fully functional
Clean office premises	Office is clean at all times	✓	No complaint from staff and visitors

## International organization of Migration (IOM)

### Focal Area Purpose and Key Outcomes

The key strategic outcomes for IOM are: Supporting NDMO in the area of CCCM and Evacuation as well as coordination and operational support in case of emergency

### Priority Activities and Results

Activity and Performance Indicators required by the 2015 Business Plan and results are summarized in the table below and commentary provided in the following text.

IOM(International Organization of Migration )(IOM)			
Activity	Performance Indicators	Result ✓✘	Result Summary
Support NDMO in Emergency Response and Managing the Displacement Cycle	Displacement Tracking Matrix in Evacuation Center	✓	Achieved and report produced
	Displacement Tracking Matrix (DTM) in all Provinces	✓	Achieved and report produced
	Shelter Assistance and technical support to TC PAM affected population with Shelter / NFI and Building back Better campaign	✓	Emergency phase is over and activities continue with the purpose of strengthening resilience of NiVanuatu on safer traditional construction techniques. More than 16,000people assisted
Preparedness and DRR	Evacuation Center Guidelines ( Selection and Assessment of Evacuation Center)	✓	Validation workshop on February 2016 and final draft circulated to partners.
	Evacuation Center Guidelines (Management of EC)	ongoing	A dedicated IOM staff deployed to NDMO to support the preparation of the Guidelines
	Design and certification of Multipurpose community building	✓	Completed. Design and BoQ available to all partners.

	(MPCB) to be used as rainwater catchment shelter and evacuation center		Design certified by NDMO and MIPU
	Construction of a pilot MPCB in Sea Side Tonga	✓	Completed. Inauguration date TBD
	Joint Mass Evacuation in Natural Disaster (MEND) Mission being planned with IOM/NDMO and UNDAC focusing on Gaua, Ambryn and Tanna	✓	Mission outline approved by Geneva and mission scheduled for the first 2 weeks of June 2016
<b>Strengthen capacity of NDMO</b>	Training of NDMO officer and PDO in Displacement Tracking Matrix (DTM) and Camp Coordination & Camp Management / Evacuation	✓	Training in Vanuatu, Training in PNG with Provincial Disaster Officers
	Establishment of a dedicated CCCM Unit within the NDMO, including technical and operational support	✓	CCCM Unit is functional and staffed
	Secondment of a CCCM technical Advisor to strengthen NDMO capacity	✓	Advisor is working with NDMO since Dec 2015 until Aug 2016
	CCCM Training in Vanuatu for NDMO and other relevant departments	ongoing	Currently being planned
<b>Policy Development and Coordination Support</b>	Development of Displacement Policy for Vanuatu	ongoing	Request submitted to IOM for additional funds and technical support
	Interagency coordination support bridging gaps with shelter/housing sector	Ongoing	IOM hired a consultant to strengthen interagency dialogue and coordination between NDMO and PWD

## Projects (EDF 10 ACP – EU/SPC)

### Focal Area Purpose and Key Outcomes

The Building Safety and Resilience in the Pacific (BSRP) Project contributes to the Department's purpose by decentralizing the NDMO into the provinces and assisting the Department of Water with a new drilling rig.

The key strategic outcomes for MDRR are:

- Support the decentralization of the NDMO; and
- Assist the Department of Water Resources with a drilling rig.

## Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

MDRR (Business Plan)			
Activity	Performance Indicators	Result ✓✘	Result Summary
<b>Purchase 2 vehicles for Sanma and Tafea and 3 boats with engines for Malampa, Penama and Torba province</b>	2 Vehicles shipped to Santo and Tanna and 3 boats shipped to Malekula, Ambae and Vanualava	✓	Equipment to assist Provincial Disaster and Climate Change Officers move around
<b>Construction of 3 Provincial Disaster offices in Lakatoro, Luganville and Saratamata.</b>	Design completed, land secured.	✓	Awaiting the recruitment of a construction supervisor to continue with other related activities
<b>Purchase of drilling rig</b>	Drilling rig purchased and shipped to Vanuatu	✓	Start implementation of drilling bore holes
<b>Recruitment of construction supervisor</b>	Construction Supervisor recruited	✘	To be done in early 2017

## Technical Advisors

### Focal Area Purpose and Key Outcomes

Technical advisors had been provided to the NDMO by DFAT (Government of Australia) following request from the Vanuatu Government and contributes to the Department's purpose by providing extra support in terms of mentoring new staff and also assist during response phases to emergencies and disasters.

The key strategic outcomes for TA are:

- Mentoring of new staff members; and
- Surge support during response phases to emergency and disaster events

### Priority Activities and Results

Activity and Performance Indicators required by the 2016 Business Plan and results are summarized in the table below and commentary provided in the following text.

Technical Advisors (Business Plan)			
Activity	Performance Indicators	Result ✓✘	Result Summary
<b>Mentoring of new staff members</b>	DRM advisor	✓	DFAT funded
	Logistics advisor	✓	DFAT funded
	GIS advisor	✓	Oxfam funded
<b>Surge Support</b>	Available during response to emergencies	✓	Operations are carried out successfully

## Summary of Achievement

---

### Disaster Coordination and Response

Vanuatu is a country of more than 80 islands with a projected population of 272,000 people according to 2015 national statistics office calculations. Vanuatu is ranked as the most prone country in the world to both natural and man-made hazards.

In 2016, the NDMO was still responding to affected people from TC Pam and also the El Nino event that started in 2015. Responses was mainly to shortages of water and particularly to islands in the Shepherd Group of islands. Other islands were also affected but not so much for water shortages but people have to travel long distances to find and fetch water to their household water needs.

Despite the water shortages people continued to rebuild. Reconstruction is a long term process and in 2016 many affected people were still rebuilding their homes, schools, medical facilities, etc.. Some damages to schools, roads, etc, are still awaiting funding support for reconstruction.

(Temporary School shelter by Ministry of education & Unicef)



(Housing project after TC Pam lead by New Zealand support by Government)

### Decentralizing NDMO function to provinces

Under the IRCCNH (Increasing Resilient to Climate Change and Natural Hazards) the NDMO has established two permanent disaster Centre's or provincial disaster office for Tafea and Torba provinces. The two offices are currently manage by two Provincial Disaster Officers recruited under the project funding, they will be absorb into the NDMO structured and budget at the end of the project in November 2016. The NDMO is looking at three other provinces for EDF10 ACP-EU funding to construct the next Provincial Disaster Centre's. The process is in the pipeline for Penama, Sanma and Malampa to be funded under EDF10.



(Torba Disaster Office)



(Tafea Disaster Office)

## Assist and promote Disaster Risk Management Mainstreaming Approach

As well as implementing projects to strengthen DRM in the provinces, the NDMO is also working closely with other line Government and partner agencies to implement Disaster risk reduction (DRR) and climate change adaptation (CCA) programs and activities. This is mainly mainstreaming DRR and CCA into other sectors policies, legislations and budgets.

Mainstreaming is a core function of the national advisory board (NAB) under the Ministry of Climate Change to ensure that programs and activities meet the needs of people in Vanuatu.

## Support the implementation of Disaster Risk Reduction and Climate Change projects

National Disaster Management Office is part of the urban risk mapping executive committee to facilitate the implementation of the project. The MDRR projects has complete the first and the second phase of the project and continue to support the implementation of the final phases, which is the establishment of tsunami early warning system for Port Vila and Luganville .

## Challenges and constraints

---

National Disaster Management office have eleven (11) staff in the main office in Port Vila and five (5) Provincial Disaster and Climate Change Officers in Tafea, Malampa, Sanma, Penama and Torba Provinces. Even with this number of staffing, the NDMO is still under staffed when it comes to responding to a major disaster event as clearly demonstrated in 2015.

The NDMO new structure was approved by the PSC in 2015 and the challenge now is to recruit staff to fill in all the vacant positions. There are people who are willing to join the

NDMO but with limited financial support in the budget not all positions can be recruited in 2016.

Another major challenge was the small financial capacity for operational programs, most Officers undertaking different tasks clearly reflected in the 2016 Business Plan could not implemented their activities. Funds were allocated specifically toward activities for NDMO main office in Port Vila and very little to the Provincial NDMOs to implement activities in Provincial and community levels.

## Recommendation for improvement

---

There are several areas that need improvement;

- All positions under the revised structure needs to be recruited
- NEOC Standard operation procedures (SOP) needs to be reviewed to capture new changes;
- Legislative review needs to happen by the end of this year 2016;
- National Disaster Management Office operational budget need to increase to assist the implementation of activities at national, Provincial and Community levels;
- Need to review the National Disaster Plan; and
- Seek funding support for a Provincial Disaster Office for Shefa Province



# DEPARTMENT OF ENVIRONMENTAL PROTECTION AND CONSERVATION

## Director's Message

---

The vision of the Department of Environmental Protection and Conservation (DEPC) is 'Leading Vanuatu to a Clean, Resilient and Sustainable Environment'.

As we work towards seeing the reality of this vision statement, the past year was a very busy and exciting one for the DEPC team in which many of our plans for the year were successfully implemented and achieved.

This Annual Report narrates the principal activities and achievements reached by the DEPC team in 2016.

The highlights achieved by the DEPC in 2016 were: (i) the new organisational structure approved by Public Service Commission (PSC) in February 2016. The implementation of the new structure started in 2016 with recruitment of three new DEPC officers. Recruitment will continue in 2017; (ii) the endorsement of the National Environment Policy and Implementation Plan (NEPIP) by the Council of Ministers (COM) in September 2016 as a 14 year plan from 2016-2030. This is a milestone for the DEPC – to have a policy to guide the department into the future; (iii) the environment become one of the principal pillars in national plans, i.e. environment was incorporated as one of the main pillars of the National Sustainable Development Plan (NSDP). DEPC's staff worked really hard with other sectors to ensure environmental protection and management provisions were included in this national plan; and (iv) the first national clean-up day was held in September 2016.

These great achievements would not have been realized without the support of the Divisions. The DEPC has four main Divisions: (i) Biodiversity and Conservation, (ii) Environmental Planning and Impact Assessment, (iii) Provincial Outreach, (iv) Environmental Protection and (v) Finance, Administration and Support Services.

The Biodiversity and Conservation Division is responsible for implementing the provisions of Part 4 of the *Environmental Protection and Conservation Act* [CAP 283] (the EPC Act) which is on biodiversity and protected areas. Under the leadership of one officer, the Division has worked extremely hard with established conservation management committees to ensure their management plans for conservation areas are implemented, assisting them with reporting obligations. The Division has also conducted awareness with communities on the importance of protecting our natural resources. The officer working in

this Division is not only performing the duties as mandated under the EPC Act but is also supervising a number of biodiversity related projects that are hosted by the DEPC.

The Environmental Planning and Impact Assessment Division is responsible for Environmental Impact Assessment (EIA), mandated in Part 3 of the EPC Act. This is the Division that ensures developments that have the potential to significantly cause adverse impacts on the national environment are executed in a sustainable manner. Such developments are regulated through a permitting system where conditions of permits are imposed on developments to ensure a sustainable environment. In 2016, the DEPC has issued over 80 Environmental Permits for development projects, meaning there were over 80 applications received by this Division to review, conduct field assessments, and process. There were also several EIA reports submitted for review and decision. The Division also conducted reviews of applications for big infrastructure projects. The Division also worked with the ADB TA on the project of enhancing and strengthening domestic environmental safeguards, including working on the review of the EPC Act, mainly the EIA provisions. Most of the revenue collected by the DEPC came from the application fees, submission fees, consultant fees, fines and penalties associated with EIA.

Another important Division is the Provincial Outreach Division that is responsible for providing awareness and information to the wider population on the importance of protecting and conserving our natural environment. This is a newly established Division under the revised organizational structure. The Division will work closely with the 6 provinces communicating the work of the DEPC. The DEPC has an extension officer in Santo established to carry the functions and duties of the DEPC mainly in Sanma Province. Other extension offices will be set up in other provinces in the future

The Environmental Protection Division is another very hard working Division of the DEPC. It is responsible for administering the *Waste Management Act No. 24 of 2014* and the *Pollution (Control) Act No. 10 of 2013*. The Division conducted workshops with its stakeholders, including provincial planners, to finalize the National Waste Management Strategy (NWMS). It also assisted Penama and Malampa Province in developing their waste management plans. The Division also worked with the ADB TA on developing waste management and pollution control regulations. These tasks are expected to continue in 2017. One of the main achievements was the first National Clean-up event held in September 2016. This was successfully conducted with the assistance and support provided by its stakeholders. A lot of speeches, waste related activities and displays happened at that time. This will become an annual event to demonstrate that we are all responsible to keep our country clean. There were also initial efforts made with the Vanuatu JICA Office to commence the J-PRISM Phase II project. Actual work will begin in 2017.

The fifth Division of the DEPC is Finance, Administration and Support Services. This Division has worked extremely hard to provide support in ensuring the services needed from the DEPC through the Divisions are effectively and efficiently delivered to the public. The Division has worked closely with the CSU and the PSC on the restructuring of the organization. In 2016 the DEPC welcomed three newly appointed officers. This was successfully accomplished when the PSC approved DEPC's structure. Another is the approval of the NEPIP by the COM in September 2016. This would not be done without the help of this Division including incorporating environment into the NSDP. In 2016, the DEPC budget increased from 1.8m to 6.8m vatu. The increase of 5m vatu was kindly contributed by the Vanuatu Meteorological and Geo-Hazards Department (VMGD) and I would like to thank VMGD for this huge support. A brand new 4WD vehicle was purchased to assist the work of the Divisions mainly with field work.

Despite the above achievements, the DEPC has faced a number of challenges in 2016. The DEPC's Compliance Officer resigned in January 2016 and the DEPC has been working without one in 2016. The DEPC is administering a number of Acts and international obligations and the compliance and enforcement work needs to be resourced as soon as possible.

The DEPC office is located away from the Ministry of Climate Change and this is often difficult. The resignation of the Director in September 2016 after the appointment made in June 2016 also contributed to the capacity issues the DEPC is continuing to face.

In conclusion, regardless of the challenges, the DEPC continues to aim high and continue to lead Vanuatu to a clean, resilient and sustainable environment. All the credits and acknowledgements go to the DEPC

staff for their great contributions in this busy year. I would also like to thank and acknowledge the huge contributions of the AVID volunteers who have assisted the DEPC in 2016. I would also like to extend my acknowledgment to the Director General's office and the MoCC for the great support and efforts given in 2016. Without that continuous help, we would not have achieved our plans for the year.

I would also like to thank the other Government Ministries and Departments for the cooperation and collaboration efforts put in over the past year, not forgetting the donor agencies for providing funding and technical assistance towards the work of the DEPC.

The DEPC is looking forward for another challenging yet exciting year in 2017 and to continuing the working together of the DEPC staff, the MoCC, other Government Ministries and Departments. There are many more plans and activities yet to achieve and I am sure that the DEPC will expand and achieve more in 2017.



Reedly Tari, Acting Director  
Department of Environmental Protection and Conservation.

## Overview

---

In 2002, the Government of the Republic of Vanuatu passed the *Environmental Management and Conservation Act No. 12 of 2002*, now the *Environmental Protection and Conservation Act [CAP 283]* (the EPC Act). The EPC Act formally established DEPC in legislation and outlines its role in the development, coordination and implementation of the Government's environmental policies and programs.

While DEPC was originally established as the Environment Unit in 1986, it was upgraded to departmental status in 2010 and is now a part of the Ministry of Climate Change Adaptation,

Meteorology & Geo-hazards, Environment, Energy and Disaster Management (MCCA).

On 19 February 2016, a new structure for DEPC was approved by the Public Service Commission (PSC) and DEPC staff worked under five Divisions: Biodiversity and Conservation; Environmental Planning and Impact Assessment; Provincial Outreach; Environmental Protection; and Finance,

Administration and Support Services. Together, the work carried out by each of these Divisions reflected the vision, mission and responsibilities of DEPC.

## Vision

'Leading Vanuatu to a clean, resilient and sustainable environment'

## Mission

'Think Environment First: Show People!'

## Principles

The DEPC operates under two sets of guiding principles: One that relates to the type of work done by DEPC and one that governs the way staff work together.

In discharging its functions as a department, DEPC's guiding principles are to:

- Promote clean development in Vanuatu
- Build resilient communities who will be able to adapt to climate change
- Encourage and support sustainable resource management and conservation
- Promote a green economy
- Work towards sustainable development
- Explore the development of a carbon scheme for Vanuatu.<sup>2</sup>

---

<sup>2</sup> DEPC Strategic Plan 2014 to 2024.

In operating as a department, DEPC's guiding principles are to value:<sup>3</sup>



## Objectives

The DEPC aims to:

1. Develop an appropriate legislative framework to lead and guide clean, resilient and sustainable development
2. Strengthen compliance and enforcement of environmental legislation
3. Improve coordination between stakeholders (government sector, private sector, donor partners and non-government organisations (NGOs))
4. Develop and implement the National Environment Policy and Implementation Plan 2016 – 2030 (NEPIP)
5. Improve the resourcing, revenue collection and working environment for DEPC.<sup>4</sup>

## Areas of Responsibility

The DEPC is the government agency responsible for matters relating to the environment. This includes developing,

coordinating and implementing the government's environmental policies and programs.<sup>5</sup> It also includes representing Vanuatu on the international stage as the focal point for multilateral environmental agreements (MEAs).

## Programs, Functions and Sectors Served

The DEPC's programs and functions are reflected in the operational Divisions of DEPC: Biodiversity and Conservation; Environmental Planning and Impact Assessment; Provincial Outreach; Environmental Protection; and Finance, Administration and Support Services. As the protection, management and conservation of the environment is a cross cutting issue, DEPC's work ultimately serves all sectors of Vanuatu. To reflect this, DEPC works in partnership with other government agencies, donor partners and NGOs to implement a variety of programs and projects. The key programs and projects DEPC worked on in 2016 are shown in Table 1.

<sup>3</sup> DEPC Strategic Plan 2014 to 2024.

<sup>4</sup> DEPC Corporate Plan Matrix, DEPC Corporate Plan 2015 – 2018.

<sup>5</sup> *Environmental Protection and Conservation Act* [CAP 283] s 4.

**Table 1: Key DEPC programs and projects 2016**

### **Biodiversity and Conservation**

Global Environment Facility (GEF)/United Nations Environment Programme (UNEP) National Biodiversity Strategy and Action Plan (NBSAP) Review Project

GIZ/International Union for the Conservation of Nature (IUCN) Marine and Coastal Biodiversity Management in Pacific Island Countries (MACBIO) Project – including the development of an Oceans Policy for Vanuatu (in conjunction with the Department of Foreign Affairs)

Community Based Management of Threats to Wetland Biodiversity at Lake Letas, Gaua Island, Vanuatu (Lake Letas Project), including accession to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)

GEF/Food and Agriculture Organization of the United Nations (FAO) Pacific Alliance for Sustainability (GEF-PAS) Forestry and Protected Area Management (FPAM) Project – a joint project between DEPC and the Department of Forests

United Nations Development Programme (UNDP)/GEF-PAS Invasive Alien Species (IAS) Project

UNDP/GEF Programme of Work on Protected Areas (PoWPA)

Biodiversity and Protected Areas Management (BIOPAMA) Programme

Critical Ecosystem Partnership Fund (CEPF) Program

UNDP/The Pacific Community (SPC) International Waters Ridge to Reef (R2R) Project – focusing on Tagabe River management

GEF/UNDP Mainstreaming Global Environmental Priorities into National Policies and Programs Project

GEF 5/FAO Integrated Sustainable Land and Coastal Management (ISLCM) Project

### **Environmental Planning and Impact Assessment**

Asian Development Bank Technical Assistance 9073-VAN Project: Strengthening for Environmental Safeguards in Vanuatu (ABD-TA 9073)

Port Vila Urban Development Project (PVUDP)

Port Vila Lapetasi International Multi-Purpose Wharf Development Project

Vanuatu Inter-Island Shipping Support Project (VISSP)

Roads for Development Project

Vanuatu Infrastructure Reconstruction and Improvement Project (VIRIP)

Cyclone Pam Road Reconstruction Project (CPRRP)

Vanuatu Coastal Adaptation Project (VCAP)

Vanuatu Aviation Investment Program (VAIP)

Vanuatu Tourism Infrastructure Project (VTIP)

### **Environmental Protection**

Pacific Hazardous Waste Management (PacWaste) Project

GEF-PAS Persistent Organic Pollutants (POPs) Release Reduction Project

Agence Francaise de Developpement (AFD) Secretariat of the Pacific Regional Environment Programme (SPREP) Regional Solid Waste Management Initiative

The Project for Promotion of Regional Initiative Solid Waste Management in Pacific Island Countries (J-PRISM) – a Japan International Cooperation Agency (JICA) Japanese Technical Cooperation Project

Pacific Ocean Pollution Prevention (PACPOL) Programme

Reduce, Reuse, Recycle Initiative (the 3Rs)

Port Vila Urban Development Project (PVUDP)

ABD-TA 9073

VIRIP

In addition to these programs and projects DEPC has a number of core functions.

The main functions of DEPC are to:

- Develop, coordinate and implement the Government's environmental policies and programs
- Undertake environmental research, assessment and monitoring
- Issue permits for bioprospecting under the EPC Act and in accordance with Vanuatu's obligations under the Convention on Biological Diversity (CBD) and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation (the Nagoya Protocol)
- Support communities to formally protect areas of biodiversity significance through registration as Community Conservation Areas (CCAs)
- Issue permits under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) through the administration of the *International Trade (Flora and Fauna) Act* [CAP 210] and associated regulations (CITES Act and Regulations)
- Administer the *Waste Management Act No. 24 of 2014* (Waste Management Act) and the *Pollution (Control) Act No. 10 of 2013* (Pollution Control Act) and therefore encourage effective waste

services and operations and control the discharge and emission of pollution

- Control ozone depleting substances (ODS) in Vanuatu in accordance with the *Ozone Layer Protection Act No. 27 of 2010* (the OLP Act) and Vanuatu's obligations under the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer (the Montreal Protocol)
- Administer the Environmental Impact Assessment (EIA) process in accordance with the EPC Act and the *Environmental Impact Assessment Regulations* (EIA Regulations)
- Act as the national focal point for a number of MEAs and ensure that development and activities occurring in Vanuatu are in line with the Government's commitments under these international and regional instruments.

While focusing on DEPC's functions that are directly linked to environmental protection, management and conservation, DEPC is also responsible for complying with other government rules and policies such as the requirements of the *Public Service Act* [CAP 246] and the *Public Finance and Economic Management Act* [CAP 244]. The Finance, Administration and Support Services Division plays an important role in performing this function.

## Structure and Staff

---

Following the approval of a new structure by the Public Service Commission (PSC) on 19 February 2016 (see Appendix), DEPC undertook a number of recruitment processes. This resulted in the appointment of a new Director, EIA Officer and Senior Officer (Chemical and Ozone). Recruitment processes for a Senior Officer (Conservation), Pollution Control Officer, and a Compliance Officer also commenced in 2016. While a new Director was appointed in June 2016, the position was subsequently vacated and acting arrangements were put in place from 20 October 2016.

In addition to the recruitment of new staff five permanent officers received appointment letters from PSC on their acting positions for the six months from April 15 to October 15 2016:

- |                            |  |
|----------------------------|--|
| • Mr. Trinison Tari        | - Principal Officer: Provincial Outreach                   |
| • Mrs. Donna Kalfatak Moli | - Principal Officer: Biodiversity and Conservation Officer |
| • Mr. Reedly Tari          | - Principal Officer: Environmental Impact Assessment       |
| • Mr. Christophe Bulerop   | - Driver and Messenger                                     |
| • Ms. Primrose Malosu      | - Finance and Admin Officer                                |

The process of transferring the permanent staff to the positions in the new structure is being facilitated by the Corporate Services Division of MCCA.

**Table 2: DEPC Staff 2016 - \*Permanent DEPC staff**

Division	Staff	Position
<b>Director Finance, Administration and Support Services</b>	*Reedly Tari Jason Raubani Trinison Tari	Acting Director (commenced 20 October 2016) Director (5 July – 19 September 2016) Acting Director (1 January – 4 July 2016)
	Touasi Tiwok	Principal Environment Officer On study leave in 2016
	Wycliff Junior Bakeo	Compliance Officer (1 – 17 January 2016) VACANT from 18 January 2016
	*Primrose Malosu	Finance and Administration Officer
	*Christophe Bulerop	Driver and Messenger
	Elaine Moli	Volunteer (Student at the University of the South Pacific (USP)) (part time)
<b>Biodiversity and Conservation</b>	*Donna Kalfatak	Principal Officer (Biodiversity and Conservation)
	Mark Kalotap	NBSAP Review Project Coordinator
	Vatumaraga Molisa	IUCN Project Liaison Officer (MACBIO, BIOPAMA and CEPF projects)
	Molu Bulu	UNDP/GEF-PAS IAS Project Coordinator
	Alick Berry	R2R Project Manager
	Josephine Rambay	Volunteer (Student at USP) (part time)
	Mimosa Bethel	Volunteer (Student at USP) (part time)
<b>Environmental Planning and Impact Assessment</b>	*Reedly Tari	Principal Officer (Environmental Impact Assessment)
	*Norma Tor	EIA Officer (commenced 22 November 2016)
	Kate McPherson	Environment Legal Support Officer (Australian Volunteers for International Development (AVID) program) <sup>6</sup>
	Iain Haggarty	ABD-TA 9073 Team Leader Environmental Specialist (part-time)
	Norman Sheridan	ADB-TA 9073 Environment Legal Specialist (part-time)
<b>Provincial Outreach</b>	*Trinison Tari	Principal Officer (Provincial Outreach, Information and Communication)
	*Anaclet Philip	Sanma Environment Extension Officer
<b>Environmental Protection</b>	*Carol Rovo	Principal Officer (Waste Management and Pollution Control)
	*Roselyn Bue	Senior Officer (Chemical and Ozone) (commenced 12 December 2016)
	Amy Yang	Waste Management Support Officer (AVID program)

<sup>6</sup> In August 2016 the position of the AVID was changed to the Environmental Legislation Support Officer.

## Biodiversity and Conservation Division

In 2016 the Biodiversity and Conservation Division consisted of one permanent staff member, supported by volunteers and a number of project officers aligned with specific projects.

The Division is responsible for implementing activities relating to biodiversity conservation through terrestrial, marine and coastal conservation/protected areas; biodiversity assessments and research; wetlands management; invasive species management, control and eradication; and the implementation of international and regional natural resource, ecosystem management/protection and biodiversity related conventions.

In particular, the Biodiversity and Conservation Division administers part 4, Division 2 of the EPC Act which provides for the legal registration of CCAs. Registration is voluntary and the EPC Act provides for national legal support to manage CCAs where communities see that there is a need to. From the past years until today CCAs have been managed through traditional resource management systems and many are working effectively. To date five CCAs have been legally registered. The Division also processes research applications in accordance with part 4, Division 1 of the EPC Act .

In fulfilling its functions, the Biodiversity and Conservation Division deals directly with a number of MEAs. In addition to the MEAs listed below, the Division works closely with the Fisheries, Forestry and Biosecurity departments to support the implementation of other MEAs.

**Table 3: Current MEAs relating to biodiversity and conservation**  
 ✓= Vanuatu has ratified, accepted, approved or acceded to the MEA.

MEA	Type of MEA		Current status in Vanuatu
	International	Regional	
Convention on Biological Diversity	x		✓
Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity	x		✓
Cartagena Protocol on Biosafety	x		
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	x		✓
Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)	x		
Convention on the Conservation of Migratory Species of Wild Animals	x		Vanuatu has signed a number of memoranda of understanding under the CMS but is not a party to the Convention <sup>7</sup>
Pacific Islands Regional Conservation Strategy		x	✓

<sup>7</sup> Memorandum of Understanding on the Conservation of Migratory Sharks; Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) And Their Habitats Throughout Their Range; Memorandum of Understanding for the Conservation of Cetaceans And Their Habitats in the Pacific Islands Region.

## Environmental Planning and Assessment Division

For the majority of 2016 the Environmental Planning and Assessment Division consisted of one permanent staff member and two part-time technical advisors funded through ADB-TA 9073. A second permanent staff member commenced work with the Division in November 2016. The Division and the DEPC more generally were also supported by an Environment Legal Support Officer through the AVID program.<sup>8</sup>

The Environmental Planning and Assessment Division is one of the technical Divisions of DEPC and was established to implement the provisions of part 3 of the EPC Act. Part 3 of the EPC Act covers Environmental Impact Assessment (EIA). Under section 11 of the EPC Act it is a requirement that all projects, proposals or development activities that: (a) impact or are likely to impact on the environment of Vanuatu; and (b) require any license, permit or approval under any law are subject to EIA.

EIA refers to the process of assessing the potential environmental, social and custom impacts of a development project. The process involves submitting an Environmental Permit application to DEPC for assessment prior to work commencing on the development project.

The main responsibilities of the Environmental Planning and Assessment Division are to:

1. Facilitate the EIA process (from the application stage to the granting or refusal of Environmental Permits) Screen and review Environmental Permit applications, including undertaking Preliminary Environmental Assessments (PEA) and preparing PEA reports on Environmental Permit applications
2. Conduct site visits on development project sites
3. Develop Terms of Reference for EIA reports
4. Organise the review of EIA reports by an EIA Review Committee (the Committee)
5. Prepare Committee meeting minutes and reports of the Committee

<sup>8</sup> In August 2016 the position of the AVID was changed to the Environmental Legislation Support Officer.

6. Develop Environmental Permit conditions
7. Undertake monitoring and compliance on development projects during and after construction.

By administering the EIA process in accordance with the EPC Act and the EIA Regulations, the Division seeks to promote better management and protection of the natural environment – effective planning, implementation and enforcement of the DEPC's environmental frameworks will help to ensure clean, resilient and sustainable use of the natural resources for the citizens of Vanuatu.

## Provincial Outreach Division

The approval of DEPC's new structure in February 2016 resulted in the establishment of the Provincial Outreach Division. This new Division is the primary link between DEPC and the provinces and is responsible for coordinating information and Communicating/marketing the work of DEPC. In doing so, the work of this Division covers activities across all Divisions of DEPC. In 2016 the Provincial Outreach Division consisted of two permanent staff members.

The main functions of the Provincial Outreach Division are to:

- Raise awareness about DEPC, communicating and marketing the work of DEPC
- Raise awareness about the role communities and sector stakeholders play in meeting legislative, policy and MEA compliance as well as their role in environmental management more generally
- Act as a liaison or focal point for DEPC's provincial activities
- Provide support for provincial projects and promote extension services.

As the Division expands to include officers in more provinces it will also provide for the decentralisation of DEPC's activities.

## Environmental Protection Division

For the majority of 2016 the Environmental Protection Division consisted of one permanent staff member and a Waste Management Support Officer through the AVID program. As a result of

maternity leave, from late October till mid-December, the Division did not have any permanent staff. An additional permanent officer commenced work on 12 December 2016.

The Environmental Protection Division is responsible for coordinating the implementation of the OLP Act, the Pollution Control Act, the Waste Management Act and the National Waste Management Strategy and Action Plans for 2011-2016 (NWMS).

The vision of the Division is 'Safe Vanuatu. Protect our Environment'. In relation to waste

management and pollution control, the mission of the Division is for an environmentally sustainable Vanuatu in which all types of wastes are collected, reused, recycled and treated by environmental sound technologies suited to local conditions; waste going to landfill is minimised; and pollution to the receiving environment is within acceptable standards.

In fulfilling its functions, the Environmental Protection Division deals directly with a number of MEAs.

**Table 4: Current MEAs relating to environmental protection**  
 ✓ = Vanuatu has ratified, accepted, approved or acceded to the MEA.

MEA	Type of MEA		Current status in Vanuatu
	International	Regional	
Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention)	x		✓
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)	x		
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention)	x		
International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL Convention): Annex V (Waste Disposal)	x		✓
MARPOL Convention: Annex VI (Air Pollution)	x		✓
Waigani Convention		x	✓
Convention for the Protection of Natural Resources and Environment of the South Pacific (Noumea Convention)		x	✓
Vienna Convention for the Protection of the Ozone Layer	x		✓
Montreal Protocol on Substances that Deplete the Ozone Layer	x		✓
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (London 1990)	x		✓
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Copenhagen 1992)	x		✓
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal 1997)	x		✓
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Beijing 1999)	x		✓
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Kigali 2016)	x		
Minamata Convention on Mercury	x		

## Finance, Administration and Support Services Division

In 2016, the Finance, Administration and Support Services Division primarily consisted of two permanent staff members, a Finance and Administration Officer and a Driver and Messenger.

The Finance, Administration and Support Services Division plays an important role within DEPC by:

- Providing administrative support for all departmental activities
- Managing and controlling DEPC's recurrent budget
- Raising local purchase orders (LPOs) for departmental and project activities
- Providing financial and administrative assistance to projects housed within DEPC
- Managing the assets of DEPC

## Funding Basis

---

In late 2015, following several executive management meetings within MCCA, 5 million vatu from VMGD's operational budget was transferred into DEPC's operational budget and entered into the Vanuatu Budget Management System for use in 2016.

Including these funds, the DEPC budget for 2016 was 35,173,849vt of which 23,329,394vt was used on payroll/personnel expenses and 6,844,455vt on operations. 5,000,000vt consisted of money under a New Program Policy (NPP) approved for DEPC to meet the salary costs for new positions under the approved structure.

## Ministry and Policy Framework

---

The protection and conservation of the environment is a cross-cutting issue, supporting both economic and social development. This has meant that the work of DEPC is governed by broad policy and legislative frameworks that link across a number of subject areas, including across MCCA.

At the national level, the work of DEPC has been guided by:

- Collecting revenue under the EPC Act, OLP Act and the CITES Act and Regulations.

In addition to their normal administrative support activities, the staff of the Finance, Administration and Support Services Division are utilised by other officers to assist in their areas of work. These opportunities have been seen as a capacity building initiative.

## Compliance

The approval of DEPC's new structure in February 2016 resulted in the position of Compliance Officer reporting directly to the Director. The Compliance Officer is responsible for ensuring compliance with the legislation administered across DEPC. In 2016 the Compliance Officer position was vacant from 18 January 2016. The position was advertised three times but a suitable candidate was not found.

In addition to its recurrent budget, in 2016 the DEPC managed seven projects with external funding:

1. PoWPA (UNDP)
2. GEF-PAS IAS Project (UNDP and SPREP)
3. MACBIO, BIOPAMA and CEPF projects (IUCN)
4. NBSAP Review Project (UNEP)
5. Vanuatu Institutional Strengthening (ODS) (VAN IS) (UNEP)
6. Hydro chlorofluorocarbons Phase Out Management Plan project (UNEP)
7. ODS Alternatives Survey (UNEP).

- Acts and regulations of the Republic of Vanuatu
- The National Sustainable Development Plan (NSDP) and its predecessor, the Priorities and Action Agenda (PAA)
- The National Environment Policy and Implementation Plan 2016 – 2030 (NEPIP)

- The National Biodiversity Strategy and Action Plan (NBSAP)
- The National Invasive Species Strategy and Action Plan (NIISAP)
- Sectoral policies such as the National Energy Road Map, the Forest Policy and the Vanuatu Climate Change and Disaster Risk Reduction Policy.

Many environmental issues also cross state boundaries. As part of the international community, the work of DEPC is guided by international policies and laws including those relating to biodiversity, the trade in endangered species, the movement of hazardous wastes and ozone layer protection.

## About this Report

---

This report outlines major developments and initiatives carried out by DEPC between January and December 2016.

### Reporting Requirements

Business Planning and Reporting is a requirement of the PSC for all institutions to provide on an annual basis.

### Reporting Processes

This document comprises of a collection of reports put together by the Acting Director, heads of the Divisions within DEPC (the Principal Officers and the Administration and Finance Officer) and compiled by the Environment Legal Support Officer.<sup>9</sup>

## Department Performance 2016 Overview

---

### 1. Achievements

The DEPC's key achievements in 2016 were:

- **New structure approved by PSC**

The re-structuring work started some years back and was approved by PSC in February 2016. The recruitment of new DEPC officers followed after the structure was approved. Three officers were recruited, that is the Senior Officer Chemical and Ozone, EIA officer and Pollution Control Officer. The Pollution Control Officer did not come on-board until the beginning of 2017.

Most of the Divisions of DEPC have been operated by one officer with each officer having to deal with a huge amount of responsibility. The full implementation of the new structure will

greatly assist with the workload and the responsibilities mandated in the Acts that DEPC is administering, helping to ensure they will be effectively executed.

- **Environment incorporated as one of the pillars of the NSDP**

Environment has not been, or has been included to a lesser extent, in the national plans and priorities before. In 2016, environment was incorporated as one of the main pillars of the NSDP. This shows that the Government is putting its emphasis now on environmental protection and safeguards. It is a commitment of the Government, through DEPC and the respective Departments whose responsibility is environment-related, to implement these plans.

---

<sup>9</sup> AVID.

- **NEPIP approved by the COM**

This is a milestone for the DEPC as for the first time ever this significant document was developed and approved by the COM in September 2016. The development of this National Environment Policy and Implementation Plan (NEPIP) started in 2012. It has been a long journey to approval by COM in 2016. The launching of the NEPIP will happen in the 1<sup>st</sup> quarter of 2017.

- **Approval of amendments to the EPC Act and EIA Regulations by the COM**

The DEPC worked on a COM paper in 2016 seeking approval of the amendment of the EPC Act and the EIA Regulations. COM endorsed this and work was undertaken with support from ADB TA on drafting instructions sent to the SLO. This work had been progressing well however it was put on hold when instructions were provided for drafting of the legislation. This will continue into 2017.

- **First National Clean Up Day**

In Vanuatu, clean up days have occurred intermittently across various locations and communities. Usually led by communities or NGOs, these clean up events have demonstrated the increasing awareness of the importance of waste management and strong desire for government led action.

Annually, World Clean-up Day and International Coastal Clean-up Day fall on the third weekend of September. In alignment with World Clean-up Day and International Coastal Clean-up Day, 2016 saw the first national, coordinated clean up event where clean ups occurred across all six provinces and three municipalities. The first Vanuatu National Clean-up Day, World Ozone Day and National POPs Day was an ambitious undertaking that required dedication and commitment from all coordinating committee members, government staff, schools and community members. With participation from sectors across private businesses, NGOs, government, associations and communities, the success of the first national clean up demonstrates the achievements that can be accomplished when all sectors of society work together.

**Table 5: Department Performance: Department of Environmental Protection and Conservation 2016**

Program	Objective (Target)	Result ✓✘	Key Results and Highlights
Develop an appropriate legislative framework to lead and guide clean, resilient and sustainable development	Develop waste regulations	Ongoing	An outline of draft regulations for the licensing of private waste operators was prepared with the assistance of ADB-TA 9073. The DEPC consulted with private waste operators regarding the introduction of regulations. Stakeholders were generally supportive of the proposal. Further consultation with private waste operators and the State Law Office (SLO) is anticipated in 2017.
	Develop pollution control regulations	Ongoing	With the assistance of ADB-TA 9073, DEPC clarified the relationship between an Environmental Permit under the EPC Act and a Discharge Permit under the Pollution Control Act. This enabled DEPC to identify what types of activities should be included in pollution control regulations. An outline of draft regulations for Discharge Permits was prepared.
	Finalise specified species regulations	Ongoing	A preliminary list of species was prepared for discussion with other agencies. Further research regarding the species to be listed in the regulations, including cross referencing existing scientific studies, is required. Work on these regulations is scheduled to continue in the second half of 2017.
	Review and amend the EPC Act	Ongoing	Amendments to the EPC Act were approved by the COM on 15 September 2016. Drafting instructions were subsequently submitted to the SLO. The DEPC continues to work with the SLO to draft the necessary amendments. It is anticipated that the amendments to the EPC Act will be introduced into Parliament in 2017.
	Review and amend the EIA Regulations	Ongoing	Amendments to the EIA Regulations were approved by the COM on 15 September 2016. Drafting instructions were subsequently submitted to the SLO. The DEPC continues to work with the SLO to draft the necessary amendments.
	Review and amend the CITES Act and regulations	✘	This review is scheduled to commence in the second half of 2017.
	Amend the OLP Act and regulations	✘	The National Ozone Unit was not staffed in 2016.
	Review the NBSAP	Ongoing	Three national workshops were held in 2016.
	Revise the NWMS	Ongoing	The NWMS has been amended to include pollution management and broader waste issues such as disaster waste and wastewater. This revised strategy has been renamed

Program	Objective (Target)	Result ✓✘	Key Results and Highlights
			the National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020. Stakeholder consultations have taken place and the strategy will be submitted to the COM in 2017.
	Develop the State of Environment Report through 'Cross Cutting Capacity Development Project'	Ongoing	Processes to recruit staff for the Cross Cutting Capacity Development Project started in 2016. The project itself will commence in 2017.
	Accede to the Ramsar Convention	Ongoing	Awareness activities on preventing invasive Tilapia Fish coming into Lake Letas were held with schools and communities. Signboards were erected at Gaua airport and the entrances to the Lake. Lake Letas is the national candidate site for accession to the Ramsar Convention.
	Accede to chemical conventions (Basel, Rotterdam, Minamata)	✘	
Strengthen compliance and enforcement of environmental legislation	Strengthen DEPC compliance through training workshops with DEPC Divisions	✘	The DEPC was without a Compliance Officer in 2016 and faced difficulties finding a suitable candidate for this post.
	Review and process Environmental Permit applications	✓	85 Environmental Permit applications were received in 2016. This is ongoing work for the Environmental Planning and Impact Assessment Division. More details about the processing of applications are in the Divisional summary below.
	Review and process CCA applications	Ongoing	DEPC worked with three conservation areas who have shown interest to register their CCAs. Their draft managements have been developed and will go under community review and awareness before processing of their application for legal registration. This is ongoing work for the Biodiversity and Conservation Division. More details about the processing of applications are in the Divisional summary below.
	Review and process flora and fauna research applications	Ongoing	One research application was received in 2016.
	Process waste operators permits	✘	Regulations are required before permits may be issued (refer above).
	Process pollution emission and discharge permits	✘	Regulations are required before permits may be issued (refer above).

Program	Objective (Target)	Result ✓✘	Key Results and Highlights
	Process ODS import permits	✘	The National Ozone Unit was not staffed in 2016.
	Undertake compliance work on development activities/operations and impose appropriate enforcement actions	Ongoing	One penalty notice was issued in 2016.
	Create complaints database	✓	A joint complaints/compliance database has been established for use in 2017.
	Create CCA database	Ongoing	A project proposal was developed in partnership with Endemia organisation for Global Biodiversity Information Facility (GBIP) to extend the existing initiative on the CCA database. Project will commence in 2017.
	Undertake compliance training with DEPC staff on national legislation and MEAs	✘	The DEPC was without a Compliance Officer in 2016 and faced difficulties finding a suitable candidate for this post.
	Identify enforcement gaps in legislation and inform Divisional heads	✘	The DEPC was without a Compliance Officer in 2016 and faced difficulties finding a suitable candidate for this post.
	Improve enforcement and compliance with other agencies through awareness raising	✘	The DEPC was without a Compliance Officer in 2016 and faced difficulties finding a suitable candidate for this post.
	Carry out environmental audits	✓	The DEPC, Department of Water and the Geology and Mines Unit conducted joint inspections of the South Paray Bay Channel Dredging Project under the VISSP.
	Create database for compliance	✓	A joint complaints/compliance database has been established for use in 2017.
Improve coordination between all stakeholders (government sector, private sector, donor partners and NGOs)	Develop communication and marketing strategies	✘	Work on this strategy is scheduled to commence in the 2017.
	Improve coordination with stakeholders to commemorate World Environment Day /convention days / National Environment week	✓	Partnerships with stakeholders were strengthened with the formation of new private-public relationships. These new relationships included businesses such as Bank of the South Pacific, Vanuatu Water, South Sea Shipping and Vanuatu Gas. Existing relationships with other government departments and NGOs improved through the inclusion of stakeholders in committees, meetings and strategic planning, resulting in improved communication and coordination.

Program	Objective (Target)	Result ✓✘	Key Results and Highlights
	Develop DEPC Website	Ongoing	The website creation progressed well early in the year but did not progress due to busy schedule of the consultant. Toward end of 2016 a new consultant was asked to finalise the website. He will commence work on this in 2017.
	Develop standard information and awareness guideline on the impacts of natural disasters on the natural environment and wildlife	✘	
	Finalise memorandum of understanding (MOU) with Sanma Province	✘	
	Finalise MOU with the Vanuatu Customs and Inland Revenue Department and Biosecurity Vanuatu	✘	The finalisation of this MOU is dependent on the review and amendment of the CITES Act and Regulations. This review is scheduled to commence in the second half of 2017.
Develop and implement the NEPIP	Review and combine the National Environment Policy /National Environment Management Strategy	✓	The draft National Environment Policy and National Environment Management Strategy were combined to form the NEPIP. The NEPIP was approved by the COM on 29 September 2016.
Improve the resourcing, revenue collection, and working environment for DEPC	Restructure DEPC	✓	A new structure for DEPC was approved by PSC on 19 February 2016.
	Implement the new DEPC structure	Ongoing	Following the approval of the new DEPC structure, two new permanent staff commenced work with the DEPC in 2016. Two additional permanent staff members have been recruited and will start work in 2017. A fourth recruitment process is currently awaiting consideration by PSC.
	Increase the DEPC operational budget to reflect the 70/30 government target	Ongoing	DEPC's operational budget increased from 1,864,107vt in 2015 to 6,844,455vt
	Provide modern equipment and furniture to staff to improve service delivery	Ongoing	A new double cabin truck and five new computers were purchased in 2016.
	Undertake assets audit annually	Complete	Undertaken for DEPC by a contracted CSU based Assets Officer with Financial Manager CSU support

Program	Objective (Target)	Result ✓*	Key Results and Highlights
	New office space for DEPC	Ongoing	Work commenced on a new office space within the MCCA compound.
	Improve revenue collection through permitting systems and compliance	Ongoing	Environmental Permit applications increased from 58 in 2015 to 85 in 2016. Applications incur a 20,000vt fee.
	Progress the Environment Trust Fund for establishment with preparation of a Developmental Committee of Officials (DCO) paper	*	Preliminary steps for establishing an operational Environment Trust Fund are scheduled to occur in 2017.

## 2. Biodiversity and Conservation Division

The table below describes the activities of the Biodiversity and Conservation Division in 2016 in more detail. Further descriptions of the objectives, activities and results follow this table.

**Table 6: Activities of the Biodiversity and Conservation Division**

Objective (Target)	Result Summary	
Management of CCAs	Number of registered CCA management plan conditions adhered to	Three registered CCAs have faced breaches of their management plan rules: Vatthe and Penoru on Santo and Amal Krab Bay Tabu Eria (AKTE) on Malekula island.
	Number of registered CCAs submitting their annual report	At end of every year CCAs inform DEPC, through an annual monitoring report, of how the respective management committees are managing the areas.  This year two communities completed their reports. The other three CCAs will submit their reports in early 2017.
Review and process research applications	National Biodiversity Advisory Council established	The National Biodiversity Advisory Council members were formally appointed by the Minister.
	Number of research applications received and approved	Only one research application was received in 2016.
Management and control of invasive species	Number of areas infested by Little Red Fire Ant (LFA) treated	Nine LFA infested sites were treated twice each in 2016. Treatment will continue in 2017.
	Number of <i>Meremia peltata</i> tools purchased for management of vine	Six sets of <i>Meremia peltata</i> tools were ordered, produced and purchased by the GEF-PAS IAS project.
	Number of training sessions on invasive species management	One training session was provided to Civil Society Organisations (CSOs) in Port Vila on protocols for LFA chemical preparation and application in the field.
	National invasive species database established	The national invasive species database known as Van-Invasives was developed and established online. This was a collaborative project with Live and Learn Vanuatu.
	Number of inventories on priority invasive species	60 invasive species inventories were conducted on the islands of Gaua, Santo, Malekula, Erromango, Tanna and Aneityum. The information collected was used in the Van-Invasives database.
Biodiversity and ecosystem management, conservation and restoration	Number of strategies and plans developed and approved	The review of the NBSAP continued through three national consultations and a final draft was produced. A final validation workshop will be held in 2017.
	Number of policies on management and protection of biodiversity and ecosystems developed and approved	The national ocean policy is one of the major activities for the MACBIO project currently being hosted by DEPC. The final draft National Ocean Policy was developed and finalised and is planned for launching in March 2017.
	Number of national wetland sites agreed by respective	Vanuatu's preparation for accession to the Ramsar Convention includes a national candidate site. This is Lake Letas and it will become the first national wetland

Objective (Target)	Result Summary	
	communities and designated for protection	designated site in the country. This same site is also a proposed CCA and a draft management plan has been developed.
Biodiversity assessment	Number of biodiversity assessments carried out and report produced	Lake Letas rapid biodiversity assessment report produced and submitted for printing. Wairua Nature Reserve rapid terrestrial fauna assessment carried out for inclusion in its management plan.
Project proposal development for sustainable management, conservation and restoration of biodiversity, ecosystems and natural resources	Number of projects developed and approved	R2R project approved and implementation commenced. The project focuses on management of Tagabe River catchment in Port Vila.
		GEF/UNDP Mainstreaming Global Environmental Priorities into National Policies and Programs Project and the ISLCM project will commence in quarter 1 2017.
		A GEF 6/IUCN Project Identification Form (PIF) national workshop was held this year. A final draft PIF is available awaiting confirmation of co-financing letters from Vanuatu prior submission to GEF secretariat.
Awareness raising and information management	Number of awareness materials produced	Two posters were developed, one on national wetlands management and the other on endemic bird species of Vanuatu. Posters were used during the Lapita festival held at Teouma and the Birds of Vanuatu book author memorial exhibition at the Vanuatu Cultural Centre. Posters were also distributed to schools, interested local communities and DEPC clients.
	National Clearing House Mechanism for Biodiversity Issues	The NSBAP project Coordinator progressed this work but it is yet to be completed.

## Review and process CCA applications

In 2015/2016, eight communities expressed interest to DEPC for assistance to legally protect their conservation areas. Out of the eight, four have developed their draft management plans and they are going through reviews and awareness before they are finalised (a management plan is a requirement when applying for legal registration as a CCA): Lake Letas CCA on Gaua; Kauri Reserve on Erromango; Homo Bay at South Pentecost; and Lelepa Island Tours marine conservation area.

Wairua Nature Reserve as the fifth CCA is at the stage of gathering information and has completed a terrestrial fauna assessment for drafting its management plan. The other three, Keasi Forest Reserve, Ifira marine conservation area and

Tipinime are at the very initial stages of their preparation for registration.

## Management of CCAs

Three CCAs have raised and submitted reports on incidents where their CCA management rules have not been followed. Amal Krab Bay Tabu Eria (AKTE) is one of the CCAs that have successfully dealt with its poachers (except one that is awaiting further action). The Penoru CCA management committee has also dealt with its trespassers/poachers through all village court systems. One case where four offenders have bypassed the village court system has been referred to DEPC to further look into it. Vathe CCA management committee have taken initial steps to deal with their issues. These cases could

have been more efficiently dealt with if a Compliance Officer was recruited.

### Review and process research application

Part 4, Division 1 of the EPC Act describes the process in which research applications are approved. First of all it provides for the establishment of a National Biodiversity Advisory Council. This year the Minister responsible formally appointed members of the council which comprised of the Director of DEPC as the chair of the council, and five other members coming from Department of Forests, Vanuatu Fisheries Department, Department of Agriculture and Rural Development, Department of Foreign Affairs and the Vanuatu Cultural Centre.

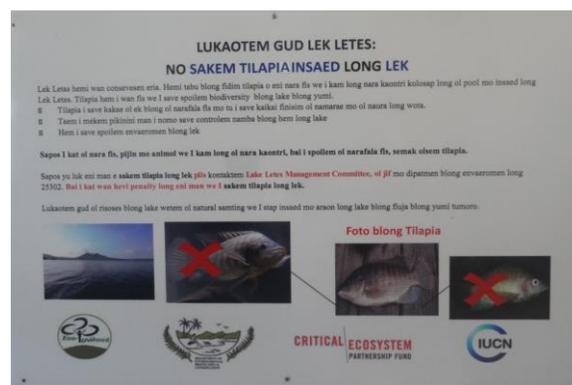
### Management and control of invasive species

In 2013, when the GEF-PAS IAS project was commencing, DEPC and Biosecurity Vanuatu identified nine sites of LFA. A number of chemical applications have been carried out at these sites over the last three years and two applications were carried out on the Santo and Port Vila sites in 2016. The same project also purchased sets of *Merremia peltata* vine tools. The tools will be used on six conservation sites on Gaua, Santo, Pentecost, Efate and Tanna. This project also funded the priority invasive species survey. Biosecurity Vanuatu and DEPC collaborated on this survey. DEPC also worked with the Live and Learn Invasive Species project to establish the Van Invasive database. The local company Computer Network Services (CNS) was contracted to do this work. CNS also provided training to Biosecurity Vanuatu and DEPC staff on how to update and administer the database.

### Biodiversity and ecosystems management, conservation and restoration

The NBSAP of 1999 is currently under review. Three national workshops were held to provide information that was not captured in last year's consultations. A final draft will be submitted to DEPC for further review and to use in final consultations prior finalising the document.

Vanuatu, through DEPC is preparing itself to accede to the Ramsar Convention in 2017. Ecolifelihood Development Association (EDA) has accessed funds through the CEPF and assisted DEPC to work on the accession documents. CEPF funds are only for NGOs and not the government. Therefore EDA received the funds and assisting with the preparation of the documents. As part of acceding to the Ramsar Convention, Vanuatu must nominate a wetland for listing under the convention. Lake Letas on Gaua Island is the first candidate site.



### Biodiversity assessment and reporting

The Gaua Lake Letas Fauna Biodiversity Assessment Report was completed and submitted to FAO for publication along with assessments for South Pentecost Homo Bay Conservation Area and Erromango Kauri Reserve.

The Division also assisted Wairua Nature Reserve with its fauna assessment. The information is needed for inclusion in its CCA management plan. Flora biodiversity assessments will be undertaken by the Department of Forests in February 2017.

### Participation in meetings and workshops

The Division participated in a lot of national and regional meetings this year and worked with other relevant organisations regarding the implementation of activities that cut across sectors. This includes activities for the FPAM project hosted by the Department of Forests and the Vanuatu Fisheries Department's Community

Based Resource Management project. The Division, along with the other Divisions of DEPC,

was also part of a series of meetings working on the NSDP and NEPIP.

### 3. Environmental Planning and Impact Assessment Division

The table below describes the activities of the Environmental Planning and Impact Assessment Division in 2016 in more detail. Further descriptions of the objectives, activities and results follow this table.

**Table 7: Activities of the Environmental Planning and Impact Assessment Division**

Objective (Target)		Result Summary
Review and process Environmental Permit applications and improve revenue collection through permitting systems and compliance	Number of projects approved and granted an Environmental Permit	Out of 85 project applications registered, 56 were granted an Environmental Permit with conditions, 3 were granted an Environmental Permit following the submission of an EIA report.
	Number of projects refused an Environmental Permit	0
	Number of Environmental Permit applications discontinued and cancelled	One project application was discontinued and cancelled because the proponent did not provide information required by DEPC within a reasonable time.
	Number of Environmental Permit applications requiring EIA reports	Three applications required EIA reports to be prepared.
	Number of EIA reports reviewed by the Committee	One EIA report was reviewed by the Committee.
	Number of Environmental Permit applications requiring EIA reports approved	One Environmental Permit application that required an EIA report was approved.
Registration of EIA consultants	Number of new EIA consultants registered	Two new EIA consultants were registered, with certificates, in 2016.
	Number of EIA consultants registrations renewed	Four registrations were renewed in 2016.
Enhanced coordination between all stakeholders (government sector, private sector, donor partners and NGOs)	Number of land negotiator certificates signed by DEPC	Land negotiator certificates form part of the land reform process administered by the Department of Lands and require input from DEPC. Over 200 applications were signed by the Environmental Planning and Impact Assessment Division in 2016.
	Number of Land Management Planning Committee (LMPC) meetings attended	The Division attended over 10 LMPC meetings in 2016.
Information management	Updating of EIA Database	The EIA Database is up-to-date. The EIA Database is continually updated by the Environmental Planning and Impact Assessment Division, in partnership with the Finance, Administration and Support Services Division.

Objective (Target)	Result Summary
	The EIA Database was created to keep track of the progress of Environmental Permit applications.

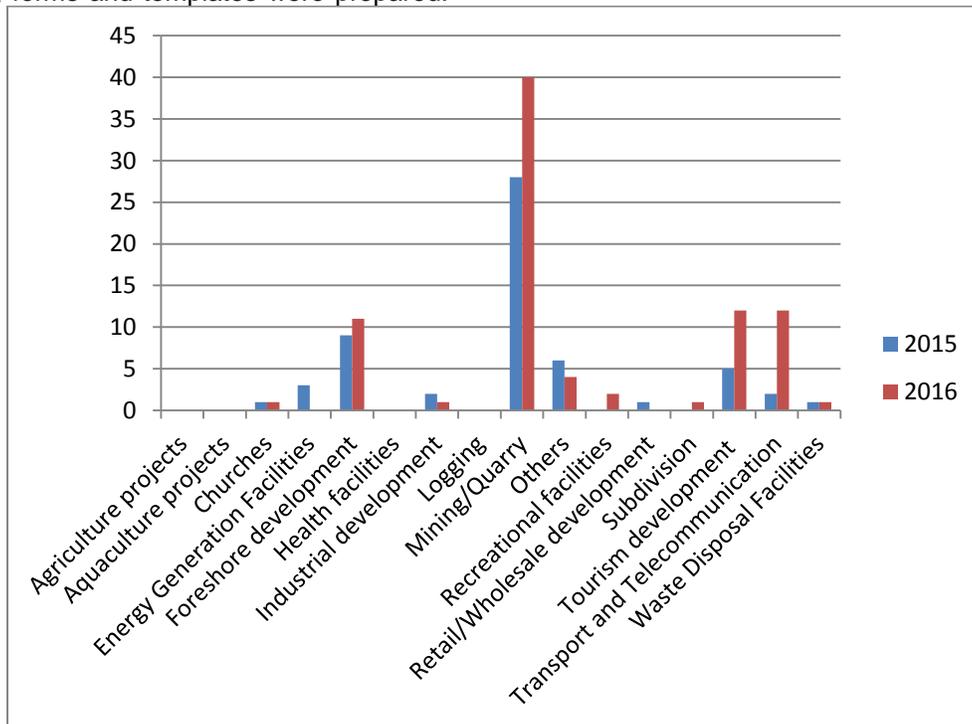
### Review and amend the EPC Act and EIA Regulations

The review of part 3 of the EPC Act and EIA Regulations continued in 2016. It is an ongoing project for the Environmental Planning and Assessment Division and is supported by ADB-TA 9073. Following policy development in 2015 and 2016, in September 2016 DEPC received approval from the COM to prepare the amendments. Drafting instructions developed through a series of workshops internally, through ADB-TA 7566 and with other relevant government agencies, were submitted to the SLO in October/November 2016. A number of draft supporting materials such as environmental guidelines, forms and templates were prepared.

However, these may only be finalised once the legislation has been drafted and approved.

### Review and process Environmental Permit applications

Every year, the Environmental Planning and Impact Assessment Division receives over 50 Environmental Permit applications. In 2016, the Division received a total of 85 Environment Permit applications for screening and reviewing. Out of the 85 applications, 59 were approved, one was cancelled, seven required more information and 18 are still ongoing. The figure below shows the number of applications received for each category of project.



**Figure 1: Number of applications versus different types of development projects, 2015-2016**

Figure 1 show that mining/quarrying activities had the most applications registered in 2016, followed by tourism development activities, other development activities (including excavations, seawalls above the mean high water mark and

commercial buildings) and foreshore developments. All other types of development were below two applications.

## Monitoring and compliance of development projects

There are currently a number of large infrastructure projects being constructed in Vanuatu. In 2016 the Environmental Planning and Impact Assessment Division worked with officers from the Vanuatu Project Management Unit, VISSP, Department of Water and the Geology and Mines unit to undertake a number of monitoring inspections and site visits and

strengthen working relationships across government.

Working relationships, particularly with the Geology and Mines Unit, continued to strengthen in 2016. This has helped improve coordination and client relationships by enabling DEPC officers to explain how the EIA process links with other development processes such as obtaining foreshore development consent, quarry and mining approvals and planning permission. All officers involved in EIA were involved in customer service activities throughout the year.



Figure 2: Monitoring dredging and reclamation at the South Paray Wharf project site

## 4. Provincial Outreach Division

### Information and communication

In 2016 the Division assisted a number of students in preparing school and university assignments on environmental issues. For example, by providing posters and information and answering questions.

### Provincial Outreach

As DEPC's representative in Sanma Province, the Sanma Environment Extension Officer coordinates DEPC's activities in the province. This involves working across all Divisions of DEPC.

In relation to biodiversity and conservation, the Sanma Environment Extension Officer: attended a forestry workshop on the REDD+ project; participated in meetings to address issues arising in the Vatthe CCA; worked with the Vatthe and North West Santo CCA management committees to prepare their annual reports; encouraged communities in West Malo and South Santo to designate areas as CCAs, introducing the CCA process; attended a presentation on the development of the Kerepua CCA management plan; attended training run by Biosecurity Vanuatu on the treatment of fruit fly; assisted with

the LFA assessment and eradication program in the Mango area; worked with the Biodiversity and Conservation Division and Live and Learn on the development of the invasive species database.

In relation to EIA, the Sanma Extension Officer undertook site inspections and prepared PEAs for projects including retaining sea walls, resorts, jetties and the new correctional centre; visited the trial of the fish processing plant; and examined land applications.

In relation to environmental protection, the Sanma Environment Extension Officer works with the designated waste management operators in the province. In 2016 this included participating in joint Sanma Provincial Council and Luganville Municipal Council waste management team meetings; reviewing the NWMS and the Sanma Luganville Waste Management Plan; arranging logistics for the regional PacWaste meeting; coordinating aspects of clean up day; and attending a demonstration on composting.

The Division also worked with the Finance, Administration and Support Services Division to undertake a field survey on the use of ozone depleting substances.

## Provincial matters

As a provincial officer, the Sanma Environment Officer was also called upon to assist in a number of provincial matters including:

- Assisting Sanma Provincial Council staff in preparing for the provincial election, snap general election and Sanma Day celebrations
- Participating in community consultation workshops on disaster risk reduction. For

example, to develop tsunami evacuation maps, routes and signs and learn about mainstreaming disaster risk reduction.

- Participating in consultation and awareness activities, including the Sanma Provincial Forum, on the five year strategic plan for the province
- Attending meetings with other government agencies to resolve land issues. For example, issues in Port Olry between land owners and tour operators.

## 5. Environmental Protection Division

### Solid Waste Management Plans

In accordance to the Waste Management Act, all designated waste management operators must develop and implement respective Solid Waste Management Plans (SWMPs). As the Division responsible for waste management, the Environmental Protection Division plays an important role in assisting designated waste operators to develop their plans. In 2016, Shefa Province was the only operator to have their

SWMP endorsed by the Council. With the exception of Port Vila Municipality, all other provinces and municipalities are currently finalising their respective SWMP drafts. It is expected that most SWMPs will be endorsed in 2017.

In 2016 the Environmental Protection Division was involved in a number regional waste and pollution projects.

**Table 8: Activities of the Environmental Protection Division**

Environmental Protection Division: Performance 2016		
Regional Waste and Pollution Projects		
Key Area	Project Information	Key Results and Highlights
Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (J-PRISM) Phase I	Phase one of this project (February 2011 – February 2016) was focused on strengthening the human and institutional capacity base for sustainable solid waste management in the Pacific Region through the implementation of the Pacific Regional Solid Waste Management Strategy (2010-2015).	2016 saw the end to J-PRISM Phase I and the commencement of the J-PRISM Phase II scoping mission. The outcomes of the scoping missions will be used to direct J-PRISM II objectives and expected outcomes.
Pacific POPs Release Reduction Project (GEFPAS POPs)	This five year project (2013-2018) mainly targets the unintentional production of Persistent Organic Pollutants (uPOPs). The main sources of uPOPs are open burning, waste incinerators, waste oil spillage, industrial processes and burning of plastics, PVC, and electrical cables.  In doing so, the project looks at improving the management of solid and hazardous waste in the region.	The Vanuatu uPOPs Awareness Project Profile was submitted to the Prime Minister's office, however due to a lack of staff (no permanent staff due to extended leave and delays in recruitment of new ozone and pollution officer), no updates on the progress of registration were obtained in 2016.

**Environmental Protection Division: Performance 2016**

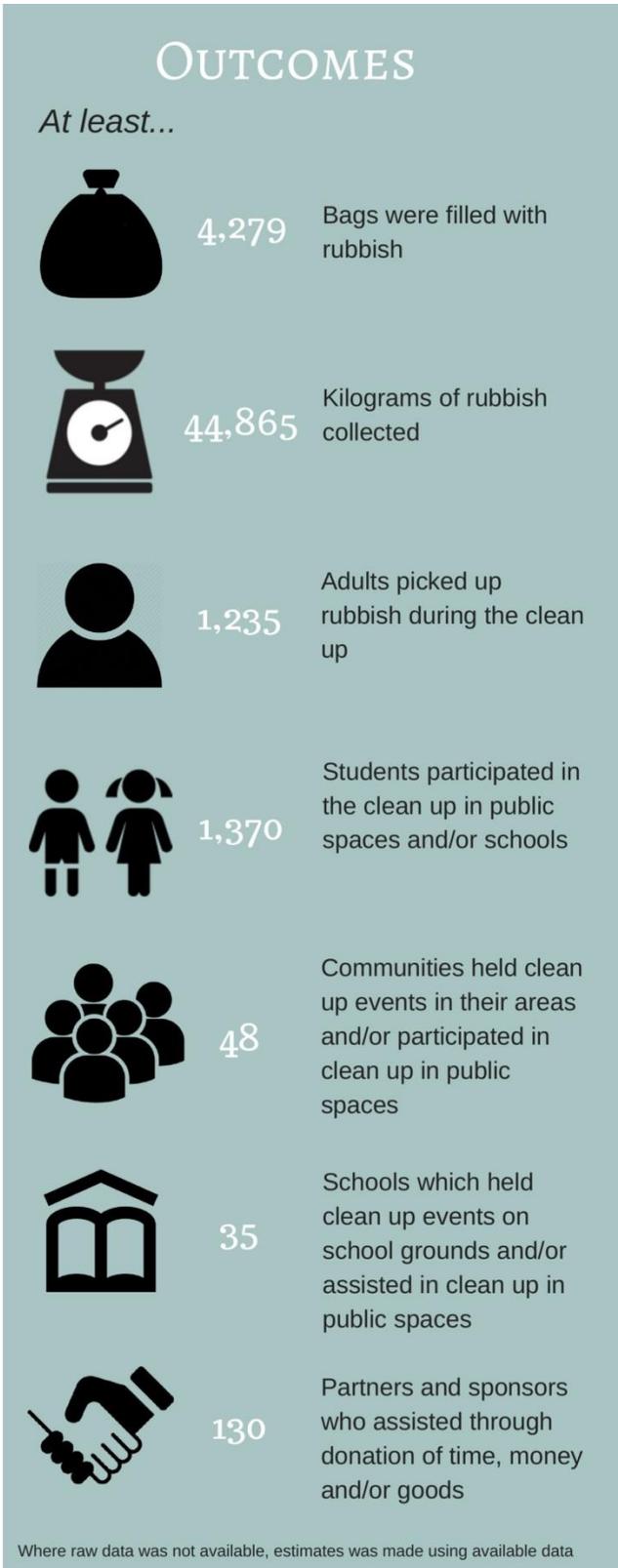
**Regional Waste and Pollution Projects**

Key Area	Project Information	Key Results and Highlights
PacWaste	<p>The main activities of the PacWaste project include:</p> <ul style="list-style-type: none"> <li>• Health care waste management</li> <li>• Asbestos management</li> <li>• E-waste management</li> <li>• Atoll waste management</li> </ul> <p>The project runs from May 2013 to March 2017.</p>	<p>Asbestos removed December 2016:                      Paonangisu healthcenter 2000 m<sup>2</sup>                      Presbyterian college 2000m<sup>2</sup>                      Port villa hospital 2400m<sup>2</sup>                      Malapoa college 1000m<sup>2</sup> cladding and 600 m roofing.</p> <p>104 pieces of E-waste collected from the Ministry of Health.</p> <p>Health care waste management:</p> <ul style="list-style-type: none"> <li>• Espiritu Santo, Sanma Province Northern District Hospital: Installation of incinerator complete</li> <li>• Malakula, Malampa Province Norsup Hospital: Slab complete and incinerator positioned, fuel tank missing and difficulties faced in getting materials for the shelter (all materials ordered)</li> <li>• Tanna, Tafea Province Lenakel Hospital: Slab and shelter complete. Incinerator to be positioned in January 2017. Positioning will be followed by curing, commissioning and training.</li> <li>• Ambae, Penama Province, Lolowai Hospital: Work to commence in January 2017.</li> </ul>
Continuing Regional Support for the Persistent Organic Pollutants (POPs) Global Monitoring Plan (GMP)	<p>The GMP for POPs aims to strengthen Vanuatu's capacity to adhere to the Stockholm Convention by generating data on the concentration of POPs in human milk, air and water. Monitoring will take place from 2016 until 2018.</p>	<p>Awaiting hire of Senior Officer (Chemical and Ozone). Officer appointed December 2016.</p>

**National Clean-up Day**

As mentioned above, a highlight for DEPC, particularly the Environmental Protection Division, was the success of the combined first Vanuatu National Clean-up Day, World Ozone Day and National POPs Day. The success of this

ambitious undertaking demonstrated the achievements that can be accomplished when all coordinating committee members, government staff, private businesses, NGOs, schools, associations and community members work together. Figure 3 illustrates some of the key achievements of the first national clean up.



### What we collected in Torba and Penama\*



\* Data was extrapolated from ICC 2016 data forms. Data was not collected in all locations and hence these outcomes greatly underestimates the volume of waste collected during the clean up

**Figure 3:** Outcomes of the first Vanuatu National Clean-up Day, World Ozone Day and National POPs Day 2016

## 6. Finance, Administration and Support Services Division

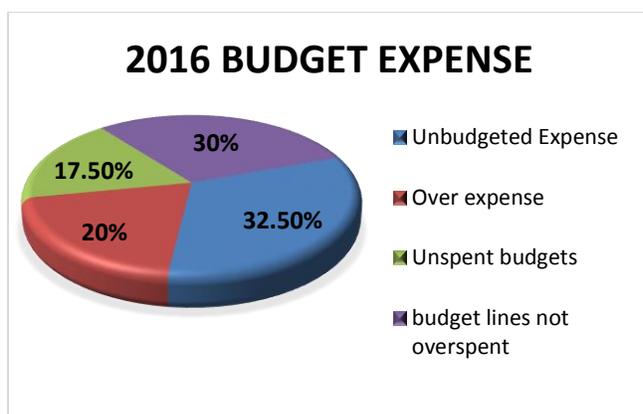
The table below describes the activities of the Finance, Administration and Support Services Division in 2016 in more detail. Further descriptions of the objectives, activities and results follow this table.

**Table 9: Activities of the Finance, Administration and Support Services Division**

Support Services Division: Performance 2016	
Key Area	Key Results and Highlights
Customer service	Responded to incoming calls and answered queries. Provided information to walk-in clients on environmental processes. For example, registering CCAs and applying for Environmental Permits and CITES permits. The Sanma Extension Officer played a similar role in Santo. Assisted students seeking information on environmental issues by referring them to the right Division of DEPC.
Meetings	There were a number of meetings held in 2016 and the Finance, Administration and Support Services Division was responsible for organising logistics (i.e. venue and catering), raising LPOs and distributing invitation letters.
Staff travel	Organised travel for DEPC staff.
Staff annual leave	Maintained details of staff leave. The Principal Environment Officer was on study leave in 2016.
Office assets purchased	Purchased a new double cabin truck and five new computers.
Support to other Divisions within the DEPC	The Driver and Messenger ran a number of training sessions on the eradication of LFA and treated a number of areas under the GEF-PAS IAS project. In general, the Division provided a lot of support to other Divisions.

### Finance

An important function of the Finance, Administration and Support Services Division is to manage DEPC's budget. The table and graph below summarise the different expenses made throughout the year.



**Figure 4: 2016 budget expenses**



**Figure 5: DEPC's new double cabin truck will promote increased revenue collection through fines and levies, EIA inspections and community awareness and training delivery**

**Table 10: Summary DEPC expenses in 2016**

For transactions between 1 January 2016 and 31 December 2016

<b>Filters Applied to this Report</b>	
<b>Fund</b>	2-Recurrent Fund
<b>Ministry</b>	M20-Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy
<b>Dept</b>	
<b>Cost Centre</b>	6401-Environment Unit
<b>Activity</b>	MGEA-Environmental management, research and extension Services
<b>Job Code</b>	
<b>Currency</b>	Vatu
<b>Book</b>	Primary Book (vatu)

Account	Description	Actual	Commitment	Total	Budget	Under/(Over)
	<b>Personnel Expenses</b>					
8AAA	Acting Allowances	795,421	-	795,421	-	(795,421)
8AAF	Family Allowance	215,924	-	215,924	360,000	144,076
8AAH	Housing Allowances	1,285,922	-	1,285,922	2,100,000	814,078
8AAO	Other Allowances	85,000	-	85,000	-	(85,000)
8AAP	Home Island Passage Allowances	73,920	-	73,920	200,000	126,080
8AAS	Special Allowances	-	-	-	200,000	200,000
8ASP	Provident Fund	469,193	-	469,193	616,514	147,321
8AWL	Leave expense	265,804	-	265,804	-	(265,804)
8AWO	Overtime Wages	158,484	-	158,484	-	(158,484)
8AWP	Permanent Wages	12,404,618	-	12,404,618	19,852,880	7,448,262
PAYR	Payroll expenses	-	-	-	(7,360,150)	(7,360,150)
	<b>Personnel Expenses</b>	<b>15,754,286</b>	<b>-</b>	<b>15,754,286</b>	<b>15,969,244</b>	<b>214,958</b>
	<b>Operating Expenses</b>					
8CAB	Subsistence Allowances	570,000	-	570,000	300,000	(270,000)
8CBI	International Accommodation	(27,000)	-	(27,000)	-	27,000
8CBL	Local Accommodation	12,000	-	12,000	150,000	138,000
8CET	Other Fees	28,125	-	28,125	60,000	31,875
8CFV	Vehicles Fuel	102,223	-	102,223	260,000	157,777
8CIF	Facilities Hire	15,000	-	15,000	-	(15,000)
8CIV	Vehicles Hire	-	-	-	390,000	390,000
8CJO	Office Cleaning	51,817	-	51,817	100,000	48,183
8CKD	Advertising - Communications	251,744	-	251,744	80,000	(171,744)
8CKP	Postage - Communications	2,311	-	2,311	60,000	57,689
8CKR	Printing - Communications	(68,907)	-	(68,907)	200,000	268,907

8CKS	Stationery - Communications	481,249	-	481,249	228,000	(253,249)
8CKT	Telephone / Fax - Communications	98,753	-	98,753	120,000	21,247
8CMG	General - Materials	34,121	-	34,121	-	(34,121)
8CMO	Office - Materials	177,387	-	177,387	355,000	177,613
8CNT	Other Rental	-	-	-	100,000	100,000
8COI	Incidentals	322,505	-	322,505	47,776	(274,729)
8COP	Official Entertainment	651,694	-	651,694	400,000	(251,694)
8COT	Termination Payment	713,655	-	713,655	-	(713,655)
8COU	Uniforms	-	-	-	200,000	200,000
8CRB	Buildings Repairs & Maintenance	263,992	-	263,992	-	(263,992)
8CRE	Equipment Repairs & Maintenance	332,976	-	332,976	250,000	(82,976)
8CRM	Maintenance Contract	533,334	-	533,334	-	(533,334)
8CRV	Vehicles Repairs & Maintenance	(1,156)	-	(1,156)	286,000	287,156
8CRW	Vehicle Servicing	40,605	-	40,605	-	(40,605)
8CTI	International Travel	130,316	-	130,316	-	(130,316)
8CTL	Local Travel	279,284	-	279,284	300,000	20,716
8CUE	Electricity Utilities	88,889	-	88,889	1,080,000	991,111
8CUW	Water Utilities	-	-	-	180,000	180,000
8CWL	Local Workshops	25,000	-	25,000	200,000	175,000
8CZV	Value Added Tax	677,178	-	677,178	762,679	85,501
8EEA	Equipment - Additional General	532,805	-	532,805	200,000	(332,805)
8EEC	Equipment - Computer	1,188,426	-	1,188,426	300,000	(888,426)
8EER	Equipment - Replacement General	-	-	-	235,000	235,000
8EFO	Furniture - Office Furniture	151,129	-	151,129	-	(151,129)
OVER	Overhead expenses	-	-	-	860,000	860,000
	<b>Operating Expenses</b>	<b>7,659,455</b>	<b>-</b>	<b>7,659,455</b>	<b>7,704,455</b>	<b>45,000</b>
	<b>Total Expenditure</b>	<b>23,413,741</b>	<b>-</b>	<b>23,413,741</b>	<b>23,673,699</b>	<b>259,958</b>

Most of the expenses incurred in 2016 were unbudgeted. The DEPC had obligations that had to be met including:

- A termination payment made to the outgoing Compliance Officer including a payment for outstanding leave
- Payments for international travelling/subsistence allowance for the outgoing Director to attend SPREP and CITES meetings
- Acting allowances to Mr Trinison Tari before a new Director was recruited.
- Advertising new positions under the approved DEPC structure
- Purchasing computers for new staff
- Servicing the DEPC office vehicle
- Purchasing a new office vehicle suitable for making site assessments
- Building repairs for the new DEPC office space, including payments for contractors
- Payments for panel members selected to sit on interview panels for the new positions under the DEPC structure
- Payments towards overtime for the Department of Lands IT staff whom had committed extra hours to upgrade the network connection for DEPC at George Pompidou Building
- Facilities hire of for the validation of the NWMS.

DEPC had overspent some budget lines in 2016:

- Equipment and repairs and maintenance were purchased over the budgeted amount
- Catering costs for meetings were more than the amount budgeted for
- More stationery was purchased for workshops and office use
- More was spent on advertising positions due to the need to readvertise the positions of Director Compliance Officer
- Expenses on subsistence allowance as part of international travels.

In relation to other budget lines:

- The water budget line was not spent as bills were met by Ministry of Lands whilst DEPC was still located at George Pompidou
- Electricity payments were committed only to outstanding bills of the new office location and installation of a new

electrical meter so DEPC will be meeting its future costs

- Fuel was well spent
- Little was spent on cleaning utilities for the office
- Postage payments were made only once a year so a lot of funds remained in this budget line
- Budget lines for communications were well spent
- Budget lines for local travel was well spent.
- ¼ of the VAT budget line was spent.
- No funds were committed towards special allowances, vehicle hire, other rentals, DEPC staff uniforms, overhead expenses and equipment replacements.

All the over expensed budget lines and unbudgeted items had to be absorbed from funds within the unspent budget and other budget lines. Overall, the budget met priority obligations for DEPC. A big saving that contributed to being able to meet this obligation was the money allocated to meet salary costs for new positions under the new DEPC Structure. The positions were not filled in until November and December 2016. Therefore, a lot of savings established from the payroll and were able to be transferred to the operations budget to commit payments for new office vehicle and payment to outstanding contributions to international Conventions such as SPREP, Convention on Biological Diversity and CITES.

As mentioned above, the Administration and Finance officer and Driver and Messenger were involved in other activities outside their job descriptions. This was due to both a shortage of staff and the opportunity for capacity building of the two officers.

The Driver and Messenger was involved in LFA activities as part of the GEF-PAS IAS project under the Biodiversity and Conservation Division and conducted the following activities in collaboration with project stakeholders and representatives from Biosecurity Vanuatu and the Department of Forests:

- Invasive species survey (collection and inventory of invasive species on Tanna, Aneityum, Malekula, Efata, Santo and Gaua). The data collected was incorporated into a National Invasive Species Database designed by CNS and Live and Learn.

- Delivered training in LFA eradication using specific chemicals supplied by Ezy Kill to the local communities on piloted sites on Santo, Efate and Gaua.
- Helped in facilitating orders of chemicals to eradicate *Meremia peltata* and Indian Mynah Bird on Santo, Tanna and Gaua through Ezy Kill.

The Driver and Messenger also provided assistance to the Environmental Planning and Impact Assessment Division in carrying out assessments on proposed development sites.

The Finance and Administration Officer was involved in activities under the National Ozone

Unit within DEPC. In particular, providing financial reports to UNEP for the VAN IP project in order to receive the final funding for VAN IS phase V; and working with the former Ozone Officer, Mrs Anna Bule, and refrigerant technician, Ben Hambi, to organize the National ODS Alternative Survey. The Finance and Administration Officer was responsible for organising logistics for the surveys and for looking after volunteers during the survey. Surveys were conducted in Port Vila, Santo and Malekula. The Administration and Finance Officer was also responsible for data entry, collecting and compiling information for reporting.

## 7. Challenges

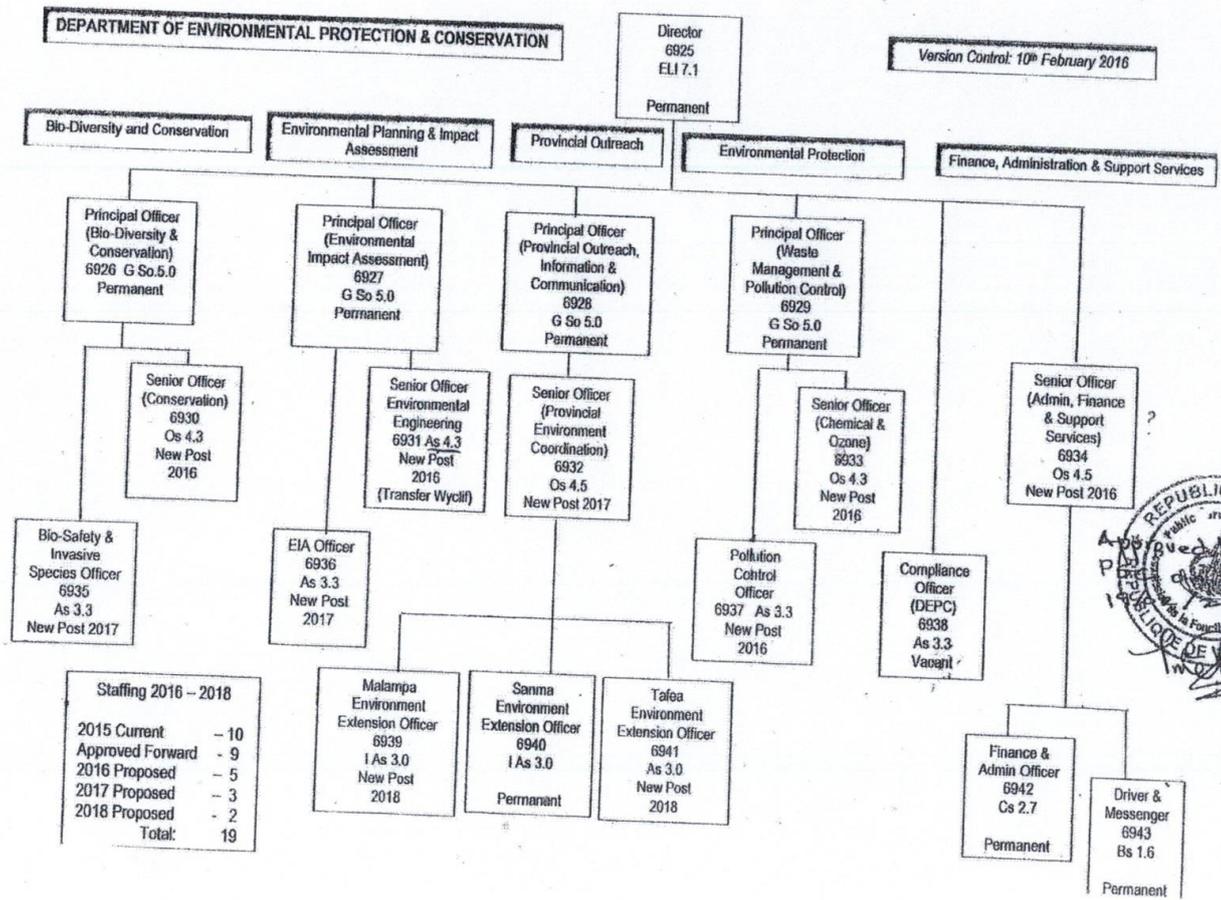
The DEPC continues to be housed in the George Pompidou Building, away from the rest of the MCCA (located in Nambatu). This pre-Independence hospital converted into office space and largely used by the Ministry of Lands was condemned for use after the earthquake in 2004. Moving the DEPC to the MCCA ground is not only an issue of more effective administration and professional collaboration but also one of organisational justice. In 2016 work commenced on relocating the DEPC office however the process has been time consuming.

The DEPC operational budget for 2016 increased from 2015. However, a number of budget lines were overspent. Improved budgeting processes need to be implemented. This should improve in 2017 with the recruitment of a Senior Officer (Administration, Finance and Support Services) and improved business planning. However, DEPC continues to operate on a small budget – it is impossible for DEPC to implement all of the activities listed in the Business Plan and associated staff work plans with such a limited budget.

Staffing within DEPC was also a challenge in 2016. In particular, acting arrangements were in place for the Director's position for the majority of 2016. Backfilling of positions was not progressed. These human capacity issues placed increasing responsibility and an increased workload on the remaining DEPC staff and raised leadership challenges. As a result, a number of activities in the 2016 Business Plan were delayed or postponed. A particular challenge was the absence of a Compliance Officer and the difficulty in recruiting a suitably qualified person.

Staffing issues also made 2016 a really challenging year for the Environmental Protection Division. A key issue was staffing at both the DEPC and the local government authorities (Municipal and Provincial Councils). Waste management and pollution control is a very new topic for local government authorities. To ensure coordination is effective down to provincial and municipal levels, the DEPC has to prepare resource materials to disseminate information and raise awareness about waste management. Staffing levels within all of these organisations needs to be sufficient to ensure effective coordination from the DEPC. A lot of technical activities still need to be implemented to ensure the country meets its commitments and obligations under different MEAs, is able to effectively implement the Waste Management Act, the Pollution Control Act and the NWMS and is able to progress the ratification of the Basel Convention (control of transboundary movement of hazardous waste) and the Rotterdam Convention (prior informed consent for hazardous chemical and pesticides in international trade). Ratification of these conventions will allow the Government of the Republic of Vanuatu to access additional funding opportunities to implement waste management activities at the national level

# Appendix





# **ANNUAL FINANCIAL REPORT**

## **2016**

## Statement of Representation

---

### FINANCIAL STATEMENTS FOR THE YEAR ENDED 2016

#### STATEMENT OF REPRESENTATION FOR *Ministry of Climate Change & Adaptation*

We have reviewed the Statement of Financial Performance and the Statement of Appropriations for my Ministry for the year ended 31<sup>st</sup> December 2016 and provided the required schedules as outlined in Financial Circular 7 of 2009. We verify that:

1. The Statement of Financial Performance and Statement of Appropriations fairly reflect the ***Ministry of Climate Change & Adaptation*** Affairs financial activities for the period 1<sup>st</sup> January – 31<sup>st</sup> December 2016;
2. All LPOs were verified as being valid as at 31<sup>st</sup> December 2016 and any duplicate, invalid or erroneous LPOs have been cancelled;
3. All Standing and Accountable imprests due before 31<sup>st</sup> December 2016 have been retired and fully accounted for;
4. The asset register has been updated to the best of our ability and includes all known assets with a value of more than Vt100, 000 as at 31<sup>st</sup> December 2016;
5. Employee leave transactions have been updated and the list of outstanding annual leave balances provided is valid and complete;
6. All known commitments, contingent liabilities and contingent assets have been identified and information submitted;
7. All adjustment journals have been made and passed onto the Department of Finance for approval.

Signed



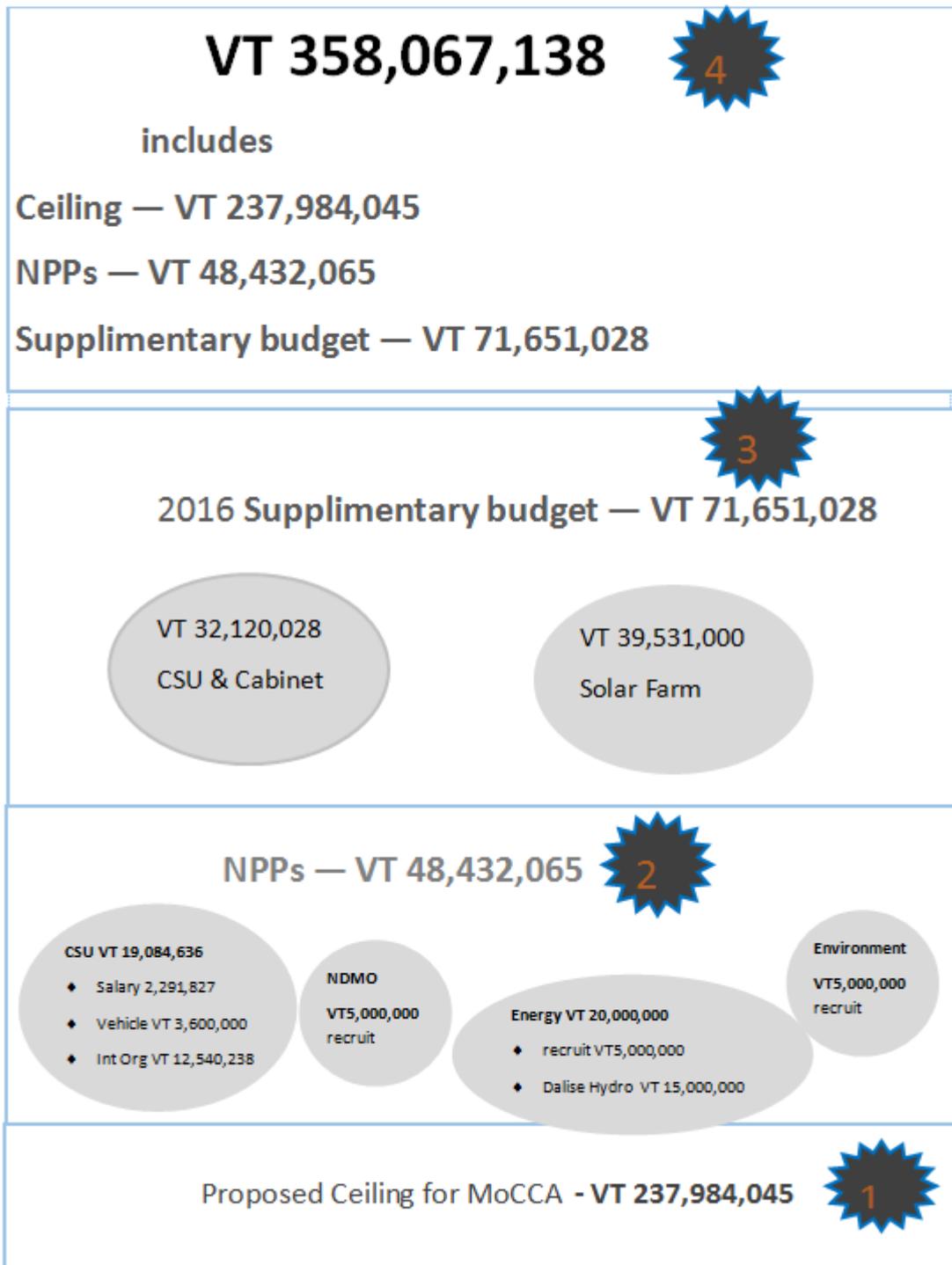
***Jesse Benjmin, Director General  
Ministry of Climate Change Adaptation  
30<sup>th</sup> March 2017***



***Chester Takau, Finance Manager  
Ministry of Climate Change Adaptation  
30<sup>th</sup> March 2017***

## Budget Overview

1. In 2015 appropriated by parliament MoCCA budget ceiling for the year 2016 was VT 237,984,045
2. Within that ceiling MoCCA it consists of the approved NPPs by MBC in 2015 totaling to VT 48,432,065
3. Plus a supplementary budget approved in June 2016 of VT 71,651,028
4. Total budget after supplementary was **VT 358,067,138**



# Statement of Appropriation

Statement of Appropriations										Government of Vanuatu
For transactions between 1 January 2016 and 31 December 2016										
Filters Applied to this Report										
Ministry	M20-Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy									
Dept										
Program										
Activity										
Code	Description	Original Appropriation	Supplementary Appropriations	Virements	Final Budget	Actual Expenditure	mitments	Total Expenditure	Under/ (Over)	
<b>M20</b>	<b>Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy</b>									
<b>MGA</b>	<b>Cabinet Support</b>									
86AA	Cabinet Operations	30,421,064	32,120,028	(21,957,562)	40,583,530	43,288,187	-	43,288,187	(2,704,657)	
MGAA	Portfolio Coordination	30,421,064	32,120,028	(21,957,562)	40,583,530	43,288,187	-	43,288,187	(2,704,657)	
MGA	Cabinet Support	30,421,064	32,120,028	(21,957,562)	40,583,530	43,288,187	-	43,288,187	(2,704,657)	
<b>MGB</b>	<b>Executive Management &amp; Corporate Services</b>									
75DA	Meteo Department Corporate Service Section	-	-	-	-	215,401	-	215,401	(215,401)	
86AB	Corporate Service Unit	32,291,446	-	28,541,238	60,832,684	58,502,830	-	58,502,830	2,329,854	
MGBA	Corporate Services	32,291,446	-	28,541,238	60,832,684	58,718,231	-	58,718,231	2,114,453	
MGB	Executive Management & Corporate Services	32,291,446	-	28,541,238	60,832,684	58,718,231	-	58,718,231	2,114,453	
<b>MGC</b>	<b>Vanuatu Meteorological Services</b>									
75DA	Meteo Department Corporate Service Section	117,601,406	-	14,201,766	131,803,172	132,777,679	-	132,777,679	(974,507)	
75DC	Weather Forecasting & Monitoring	1,000,000	-	-	1,000,000	983,333	-	983,333	16,667	
75DE	ICT-Engineering	1,000,000	-	-	1,000,000	1,000,000	-	1,000,000	-	
75DF	Climate Section	1,000,000	-	-	1,000,000	1,000,000	-	1,000,000	-	
75DG	Observation Section	1,500,000	-	-	1,500,000	1,500,000	-	1,500,000	-	
MGCA	Weather Forecasting, Monitoring and Research	122,101,406	-	14,201,766	136,303,172	137,261,012	-	137,261,012	(957,840)	
75DD	Geo-hazard	1,000,000	-	-	1,000,000	1,000,000	-	1,000,000	-	
MGCD	Geo-hazard	1,000,000	-	-	1,000,000	1,000,000	-	1,000,000	-	
MGC	Vanuatu Meteorological Services	123,101,406	-	14,201,766	137,303,172	138,261,012	-	138,261,012	(957,840)	
<b>MGD</b>	<b>Energy</b>									
6301	Energy Unit - Petroleum	42,656,692	39,531,000	(7,664,526)	74,523,166	75,088,888	-	75,088,888	(565,722)	
MGDA	Energy Management and assessment	42,656,692	39,531,000	(7,664,526)	74,523,166	75,088,888	-	75,088,888	(565,722)	
MGD	Energy	42,656,692	39,531,000	(7,664,526)	74,523,166	75,088,888	-	75,088,888	(565,722)	
<b>MGE</b>	<b>Environment</b>									
6401	Environment Unit	30,173,849	-	(6,500,150)	23,673,699	23,413,741	-	23,413,741	259,958	
MGEA	Environmental management, research and extension Services	30,173,849	-	(6,500,150)	23,673,699	23,413,741	-	23,413,741	259,958	
MGE	Environment	30,173,849	-	(6,500,150)	23,673,699	23,413,741	-	23,413,741	259,958	
<b>MGF</b>	<b>National Disaster Management</b>									
1701	National Disaster Management Office	28,424,224	-	(7,273,337)	21,150,887	21,302,440	-	21,302,440	(151,553)	
MGFA	National Disaster Management	28,424,224	-	(7,273,337)	21,150,887	21,302,440	-	21,302,440	(151,553)	
MGF	National Disaster Management	28,424,224	-	(7,273,337)	21,150,887	21,302,440	-	21,302,440	(151,553)	
<b>MLC</b>	<b>Energy</b>									
6302	Energy Unit - Electricity	-	-	-	-	-	-	-	-	
MLCA	Energy Management and assessment	-	-	-	-	-	-	-	-	
MLC	Energy	-	-	-	-	-	-	-	-	
<b>MUD</b>	<b>Vanuatu Meteorological Services</b>									
75DA	Meteo Department Corporate Service Section	-	-	-	-	-	-	-	-	
MUDA	Weather Forecasting, Monitoring and Research	-	-	-	-	-	-	-	-	
MUD	Vanuatu Meteorological Services	-	-	-	-	-	-	-	-	
<b>M20</b>	<b>Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy</b>	<b>287,068,681</b>	<b>71,651,028</b>	<b>(652,571)</b>	<b>358,067,138</b>	<b>360,072,499</b>	<b>-</b>	<b>360,072,499</b>	<b>(2,005,361)</b>	
	<b>Grand Total</b>	<b>287,068,681</b>	<b>71,651,028</b>	<b>(652,571)</b>	<b>358,067,138</b>	<b>360,072,499</b>	<b>-</b>	<b>360,072,499</b>	<b>(2,005,361)</b>	

- January 2016 the original budget was VT 358,067,138
- The actual expenses at 31<sup>st</sup> of December 2016 was VT 360,072,499
- A variance of VT (2,005,361) at 31<sup>st</sup> Dec 2016 was because of Payroll overspendings (refer to figure 1 & figure 2 would indicate)

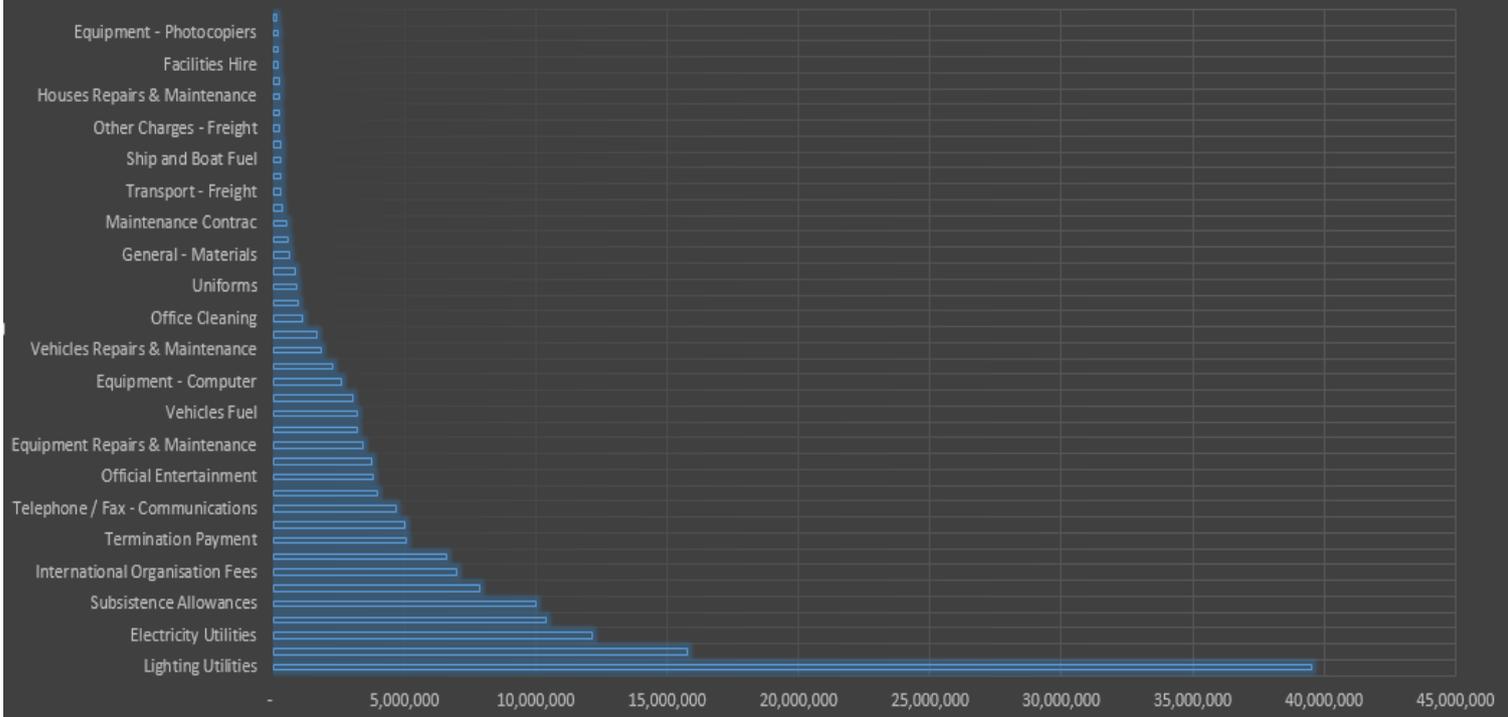
figure 1			
	actual	budget	(over/under)
payroll	194,348,093	190,001,575	-4,346,518
operations	165,724,406	168,065,563	2,341,157
<b>Total</b>	<b>360,072,499</b>	<b>358,067,138</b>	<b>-2,005,361</b>

figure 2			
	actual	budget	
Cabinet unit	43,288,187	40,583,530	-2,704,657
VMGD dept	138,476,413	137,303,172	-1,173,241
Energy dept	75,088,888	74,523,166	-565,722
NDMO dept	21,302,440	21,150,887	-151,553
Environment dept	23,413,741	23,673,699	259,958
Corporate service unit	58,502,830	60,832,684	2,329,854
<b>Total</b>	<b>360,072,499</b>	<b>358,067,138</b>	<b>-2,005,361</b>

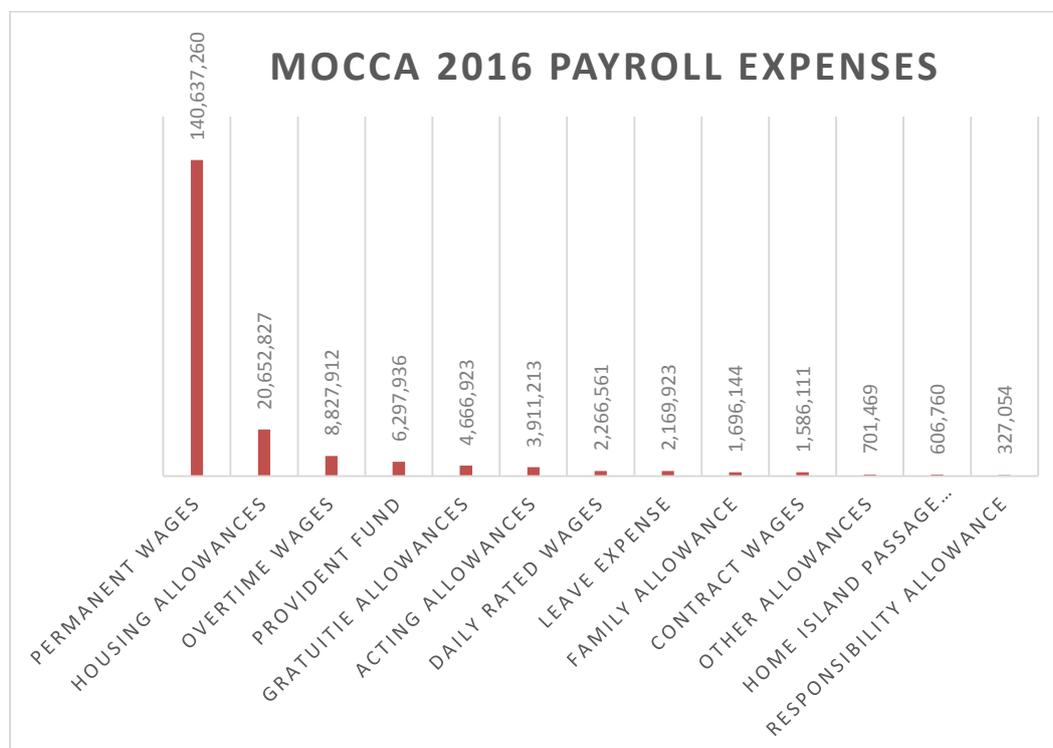
- Cabinet unit payroll overspend occurred because a virement at the end of year 2016 from all units/Depts within MoCCA to transfer their payroll savings to CSU operations to meet the combined Ministry financial obligations/commitments was done but there was an oversight because there were 27 paydays in 2016 not 26 paydays as usual (*because of the leap year*) – the virement occurred but overseeing the 27<sup>th</sup> pay-period in 2016 therefore causing the overspending
- VMGD payroll overspending occurred because the Dept had some staff entitlements which exceeded the actual budget, entitlements such as overtime and rainfall collectors contract wages
- The two other depts Energy and NDMO both their overspendings occurred with the same reasons as for the Cabinet payroll overspendings

## Expense summary report – Personal and Operating expenses

MoCCA 2016 operational expenses



MOCCA 2016 PAYROLL EXPENSES



## 2016 expenses for the whole MoCCA combined and sorted Forecast

<b>payroll</b>	<b>194,348,093</b>	Water Utilities	246,820
Permanent Wages	140,637,260	Houses Repairs & Maintenance	233,400
Housing Allowances	20,652,827	Office Rental	213,334
Overtime Wages	8,827,912	Facilities Hire	192,425
Provident Fund	6,297,936	Office – Materials	177,387
Gratuities Allowances	4,666,923	Equipment – Photocopiers	174,908
Acting Allowances	3,911,213	Vehicles Hire	113,322
Daily Rated Wages	2,266,561	Equipment Hire	78,668
Leave expense	2,169,923	Other Rental	65,778
Family Allowance	1,696,144	Food – Suppliers	60,453
Contract Wages	1,586,111	Vehicle Servicing	56,943
Other Allowances	701,469	Furniture - Housing Furniture	53,333
Home Island Passage Allowances	606,760	Gas - Cooking Utilities	51,556
Responsibility Allowance	327,054	Postage – Communications	41,146
<b>operations</b>	<b>165,724,406</b>	Bank Charges	38,000
Lighting Utilities	39,531,000	Equipment Hire Medical Treatment	30,213
Equipment - Additional General	15,750,946	Government Contributions	30,000
Electricity Utilities	12,152,141	Local Workshops	25,000
Other Fees	10,379,459	Rations Suppliers	13,298
Subsistence Allowances	10,021,500	Sitting Allowances	10,000
Value Added Tax	7,855,542	Equipment - Replacement General	8,890
International Organization Fees	7,000,000	Local Medical Treatment	6,450
Buildings Repairs & Maintenance	6,619,591	International Courses	5,603
Termination Payment	5,046,125	Mail Carriage Freight	2,160
Local Travel	5,006,108	Storage - Freight	(17,894)
Telephone / Fax - Communications	4,680,820	Equipment - Computer Software	
Vehicle - Replacement	3,955,555	Purchases	(212,001)
Official Entertainment	3,828,684		
Vehicle - Additional Vehicle	3,745,757	<b>Total</b>	<b>360,072,499</b>
Equipment Repairs & Maintenance	3,431,460		
International Travel	3,216,756		
Vehicles Fuel	3,206,685		
Incidentals	3,010,999		
Equipment - Computer	2,600,164		
Stationery - Communications	2,255,830		
Vehicles Repairs & Maintenance	1,831,417		
Printing - Communications	1,672,584		
Office Cleaning	1,125,210		
Advertising - Communications	959,880		
Uniforms	868,011		
Buildings - Renovation	856,167		
General - Materials	615,181		
Furniture - Office Furniture	557,630		
Maintenance Contract	533,334		
Local Accommodation	324,831		
Transport - Freight	293,297		
Equipment – Specialized	284,267		
Ship and Boat Fuel	276,000		
International Accommodation	273,000		
Other Charges – Freight	259,283		

## MoCCA 2016 expenses sorted by Departments

<b>Energy dept</b>	<b>75,088,888</b>	<b>Cabinet unit</b>	<b>43,288,187</b>	<b>Corporate service unit</b>	<b>58,502,830</b>
<b>operations</b>	<b>59,867,259</b>	<b>payroll</b>	<b>39,076,999</b>	<b>operations</b>	<b>47,566,848</b>
Lighting Utilities	39,531,000	Permanent Wages	23,554,209	Electricity Utilities	10,609,129
Equipment - Additional General	14,999,364	Housing Allowances	8,279,827	International Organization Fees	7,000,000
Vehicle - Additional Vehicle	639,090	Gratuities Allowances	3,456,144	Subsistence Allowances	4,550,000
Electricity Utilities	553,028	Leave expense	1,794,797	Termination Payment	4,332,470
Official Entertainment	542,718	Provident Fund	1,146,908	Vehicle - Replacement	3,955,555
Subsistence Allowances	472,500	Contract Wages	619,614	Value Added Tax	3,294,082
Value Added Tax	447,042	Overtime Wages	225,500	Vehicle - Additional Vehicle	3,106,667
Equipment Repairs & Maintenance	335,331	<b>operations</b>	<b>4,211,188</b>	International Travel	1,767,858
Uniforms	318,934	Subsistence Allowances	945,000	Local Travel	1,629,210
Local Travel	309,931	Local Travel	841,156	Vehicles Fuel	1,082,708
Vehicles Fuel	309,079	Official Entertainment	430,622	Buildings - Renovation	852,825
Telephone / Fax - Communications	238,831	Vehicles Fuel	337,340	Telephone / Fax - Communications	803,772
Incidentals	238,531	Vehicles Repairs & Maintenance	297,580	Vehicles Repairs & Maintenance	765,808
Advertising - Communications	198,770	Value Added Tax	284,051	Stationery - Communications	671,454
Office Cleaning	180,504	Incidentals	278,451	Official Entertainment	538,512
International Travel	165,722	Equipment - Additional General	177,888	Equipment - Computer	360,885
Equipment - Computer	102,000	International Travel	134,033	Equipment - Photocopiers	352,330
Vehicles Repairs & Maintenance	72,179	Local Accommodation	112,273	Ship and Boat Fuel	276,000
Stationery - Communications	64,188	Electricity Utilities	88,889	Equipment - Specialized	246,045
Other Fees	50,879	Other Rental	49,778	Uniforms	215,029
International Accommodation	30,000	Telephone / Fax - Communications	40,000	Advertising - Communications	207,369
General - Materials	29,646	Equipment - Specialized	38,222	International Accommodation	200,000
Buildings Repairs & Maintenance	19,296	Stationery - Communications	34,600	Transport - Freight	125,000
Vehicle Servicing	16,338	Equipment Hire Medical Treatment	30,213	Furniture - Office Furniture	115,036
Sitting Allowances	10,000	Government Contributions	30,000	Printing - Communications	114,689
Equipment - Replacement General	8,890	Printing - Communications	16,200	Local Accommodation	109,225
Printing - Communications	7,695	Transport - Freight	15,000	Incidentals	103,889
Postage - Communications	6,000	Equipment Repairs & Maintenance	14,550	Food - Suppliers	60,453
Bank Charges	5,000	Office Cleaning	12,000	Equipment Hire	44,445
Facilities Hire	-17,333	Buildings - Renovation	3,342	Office Cleaning	23,987
Storage - Freight	-17,894			General - Materials	23,227
<b>payroll</b>	<b>15,221,629</b>			Equipment - Additional General	21,689
Permanent Wages	12,471,042			Bank Charges	7,500
Housing Allowances	1,197,110			<b>payroll</b>	<b>10,935,982</b>
Acting Allowances	746,866			Permanent Wages	8,690,518
Provident Fund	539,206			Housing Allowances	1,295,935
Family Allowance	132,020			Provident Fund	350,614
Home Island Passage Allowances	115,385			Gratuities Allowances	249,782
Other Allowances	20,000			Other Allowances	140,000
				Leave expense	94,447
				Family Allowance	63,940
				Daily Rated Wages	39,928
				Acting Allowances	10,818

<b>Environment dept</b>	<b>23,413,741</b>	<b>NDMO dept</b>	<b>21,302,440</b>
<b>payroll</b>	<b>15,754,286</b>	<b>payroll</b>	<b>14,768,123</b>
Permanent Wages	12,404,618	Permanent Wages	12,491,467
Housing Allowances	1,285,922	Housing Allowances	1,495,868
Acting Allowances	795,421	Provident Fund	477,627
Provident Fund	469,193	Family Allowance	192,096
Leave expense	265,804	Home Island Passage Allowances	60,525
Family Allowance	215,924	Responsibility Allowance	45,540
Overtime Wages	158,484	Other Allowances	5,000
Other Allowances	85,000	<b>operations</b>	<b>6,534,317</b>
Home Island Passage Allowances	73,920	Subsistence Allowances	1,355,000
<b>operations</b>	<b>7,659,455</b>	Buildings Repairs & Maintenance	1,219,980
Equipment - Computer	1,188,426	Vehicles Fuel	655,337
Termination Payment	713,655	Telephone / Fax - Communications	607,934
Value Added Tax	677,178	Value Added Tax	581,317
Official Entertainment	651,694	Incidentals	491,085
Subsistence Allowances	570,000	Vehicles Repairs & Maintenance	396,389
Maintenance Contract	533,334	Uniforms	334,048
Equipment - Additional General	532,805	Printing - Communications	289,037
Stationery - Communications	481,249	Stationery - Communications	280,433
Equipment Repairs & Maintenance	332,976	Official Entertainment	262,910
Incidentals	322,505	Equipment Repairs & Maintenance	221,371
Local Travel	279,284	Office Rental	213,334
Buildings Repairs & Maintenance	263,992	Office Cleaning	175,317
Advertising - Communications	251,744	Facilities Hire	172,002
Office - Materials	177,387	Local Travel	153,432
Furniture - Office Furniture	151,129	Transport - Freight	153,297
International Travel	130,316	Other Charges - Freight	122,975
Vehicles Fuel	102,223	Vehicles Hire	111,545
Telephone / Fax - Communications	98,753	Advertising - Communications	80,991
Electricity Utilities	88,889	Equipment - Additional General	19,200
Office Cleaning	51,817	Rations Suppliers	13,298
Vehicle Servicing	40,605	General - Materials	12,151
General - Materials	34,121	Postage - Communications	6,000
Other Fees	28,125	International Travel	-91,671
Local Workshops	25,000	Equipment - Photocopiers	-177,422
Facilities Hire	15,000	Equipment - Computer Software Purchases	-212,001
Local Accommodation	12,000	Electricity Utilities	-912,972
Postage - Communications	2,311		
Vehicles Repairs & Maintenance	-1,156		
International Accommodation	-27,000		
Printing - Communications	-68,907		

<b>VMGD dept</b>	<b>138,476,413</b>	<b>operations</b>	<b>39,885,339</b>
<b>payroll</b>	<b>98,591,074</b>	Other Fees	10,300,455
Permanent Wages	71,025,406	Buildings Repairs & Maintenance	5,116,323
Overtime Wages	8,443,928	Telephone / Fax - Communications	2,891,530
Housing Allowances	7,098,165	Value Added Tax	2,571,872
Provident Fund	3,314,388	Equipment Repairs & Maintenance	2,527,232
Acting Allowances	2,358,108	Subsistence Allowances	2,129,000
Daily Rated Wages	2,226,633	Local Travel	1,793,095
Family Allowance	1,092,164	Electricity Utilities	1,725,178
Contract Wages	966,497	Incidentals	1,576,538
Gratuitie Allowances	960,997	Official Entertainment	1,402,228
Other Allowances	451,469	Printing - Communications	1,313,870
Home Island Passage Allowances	356,930	International Travel	1,110,498
Responsibility Allowance	281,514	Equipment - Computer	948,853
Leave expense	14,875	Stationery - Communications	723,906
		Vehicles Fuel	719,998
		Office Cleaning	681,585
		General - Materials	516,036
		Vehicles Repairs & Maintenance	300,617
		Furniture - Office Furniture	291,465
		Water Utilities	246,820
		Houses Repairs & Maintenance	233,400
		Advertising - Communications	221,006
		Other Charges - Freight	136,308
		Local Accommodation	91,333
		International Accommodation	70,000
		Furniture - Housing Furniture	53,333
		Gas - Cooking Utilities	51,556
		Equipment Hire	34,223
		Postage - Communications	26,835
		Bank Charges	25,500
		Facilities Hire	22,756
		Other Rental	16,000
		Local Medical Treatment	6,450
		International Courses	5,603
		Mail Carriage Freight	2,160
		Vehicles Hire	1,777
		<b>MoCCA TOTAL Expenses</b>	<b>360,072,499</b>

## Statement of Commitments & Contingencies 2016 Review

<b>2016 estimated date for payment of severance and retirement entitlements</b>	<b>(VT)</b>	<b>(VT)</b>
Current (within next 12 months)	100,259,875	
Between 1 - 2 years	1,564,079	
Between 2 - 5 years	6,844,319	
More than 5 years	426,090,215	
<b><i>total retirement/severance</i></b>		<b>534,758,488</b>
<b>2016 Accumulated leaves</b>		
Accrued leaves	19,650,284	
<b><i>total leaves</i></b>		<b>19,650,284</b>
<b>2016 Obligations</b>		
outstanding Unelco utilities bills	3,406,301	
International organization fees	13,000,000	
outstanding claims former DG	2,500,000	
<b><i>total obligations</i></b>		<b>18,906,301</b>

- (Retirement/severance) the current outstanding is significantly higher than forecasted severance for the next 2 – 5 years because there heaps of old long-term working staff which are yet to be settled
- Accrued leaves for more than 85 staff for MoCCA combined – it was determined by accrued and unpaid days each staff incurred over the years till date multiplied by their salary daily rates
- Unelco outstanding bills was VT17 million in mid July 2016 – MoCCA managed to settle over 81 % during 6 months
- International organization fees for regional , international organizations in-which Departments within MoCCA and the Government as a whole are affiliated with – it will be an ongoing/recurring obligation throughout the years
- Claims for vehicle entitlement – by the former Director General



**MINISTRY OF CLIMATE CHANGE ADAPTATION  
THE GOVERNMENT OF VANUATU**

## **ANNUAL REPORT 2016**

---

Published in March 2017

Ministry of Climate Change Adaptation  
Lini Highway, Namba 2, Port Vila, Vanuatu  
PMB 9074  
Tel. +678 22068

---

© 2017 Ministry of Climate Change Adaptation | Government of Vanuatu  
Printed in Vanuatu



The Republic of Vanuatu



**Ministry of Climate Change Adaptation  
Government of Vanuatu**